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FOREIGN DIRECT INVESTMENT AND UNCERTAINTY: EVIDENCE FROM SUB-SAHARAN AFRICA

By:

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This is to certify that the thesis prepared by Getasew Tarekegn Wondm entitled: foreign direct investment and uncertainty: evidence from sub-Saharan Africa in partial fulfillment of the requirements for the Degree of Master of Science in Economics (development economics) complies with regulations of the University and meets the accepted standards with respect to originality and quality.

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Abstract

This paper examines how macroeconomic, political, and property rights uncertainties in affecting FDI inflows into sub-Saharan Africa (SSA). The study applies both fixed effect and Arellano-Bond GMM dynamic panel data models for a sample of 26 sub-Saharan Africa countries over the period from 2000 to 2018. The study conducts model diagnostic and stationarity tests to ensure that estimation results are reliable. The findings of the study show that macroeconomic uncertainty as proxied by inflation and exchange rates are negatively related to the inflows of FDI to SSA. Our results also show that property rights uncertainty as proxied by rule of law has a positive effect on FDI inflows while, investment profile has negative effect on FDI inflows to SSA. Similarly, the overall measure of political uncertainty is negatively associated with FDI inflows to SSA. However, internal and external conflict, corruption, and bureaucratic quality have no significant effect on FDI inflows to SSA. Other variables included in the model, such as trade openness, rate of return on capital, and infrastructure, have a positive impact on FDI inflows. The policy implications of the study are that governments in SSA could attract more FDI by minimizing political risks, improving property rights enforcement, and managing key macroeconomic variables like inflation and exchange rate.

Key words: FDI, Macroeconomic, political and property right Uncertainties, SSA

Declaration

I, the undersigned, declare that this project paper (foreign direct investment and uncertainty: evidence from sub-Saharan Africa) is my original work and has not been presented for a degree in any other university, and that all sources of material used for the project have been duly acknowledged.

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Confirmed by advisor:

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Acronyms

3SLS ……Three stage list square estimation

BERI ……Business environment risk intelligence

FDI ……. Foreign direct investment

GARCH ……Generalized autoregressive conditional hetroscedasticity

GDP ……...Gross domestic product

GMM ……. Generalized method of moment

ICRG ……International country risk guide

OLS …… Ordinary list square estimation

MNCs ……...Multinational corporations

MNEs ……multinational enterprise

SSA ……. Sub-Saharan Africa

UNCTAD ……. United nations conference on trade and development

VIF ……Variance inflation factor

WAMZ……...West African monetary zone

WGI ……. World governance indicator

WDI ……World development indicator

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CHAPTER ONE

Introduction

1.1 Background of the study

Foreign direct investment (FDI) has become one of the most significant contributors to the development of global economic processes (Akyüz, 2015). It has the potential to generate employment, switch of competencies and technological advancement, increase productivity and knowledge spillovers. Ultimately, it brings transfer of new managerial competencies and organizational provision of multinational corporations (MNCs) and provides the long-term economic growth of developing countries (De Mello, 1997). In addition to these, foreign direct investment typically flow as a set of resources, and hence it plays a dual role, contributing to capital accumulation and increasing overall factor productivity (Nath, 2009). However, most of the traditional economic literature had revealed that the majority of investments are irreversible once made and involve sunk costs (costs that have already been incurred and cannot be recovered); the level of irreversibility could differ depending upon the nature of investment trajectory. As a result, investors adopt a wait and see policy called delaybility (The property of being delay able) making investments sensitive to uncertainties (Dixit & Pindyck, 1994). FDI has become an essential factor in global economic development, and it's a major instrument for the integration of countries into the global economy (UNCTAD, 2007). Consequently, attracting inflows of FDI has become one of the major schemes for developing countries, notably in sub-Saharan Africa, to boost their economies (Adams, 2009).

In the lower- and middle-income countries, FDI has the potential to be advantageous for both host countries, and also the multi-national enterprises (MNEs) or other different entities seeking to invest in the host countries as well. Foreign investors are favorable from utilizing their assets and resources efficiently. Whereas, host countries are advantageous from obtaining technological spillovers, managerial skills, etc., and connect with international production and trade networks. Generally, foreign direct investment plays an important role to generate economic advantages to

the host countries by providing capital, foreign exchange, technology transfer, transfer of labor skills, and by enhancing access to foreign market trajectories (Blomström & Kokko, 1996).

As a result, most developing countries, including SSA, working tirelessly to attract foreign direct investments by pursuing different promotion strategies, such as establishing special economic zones, liberalizing trade regimes, incentivizing foreign investors, withdrawing trade restrictions, and implementing better economic policies and structural reforms (Ruffin, 1993; Solomon & Ruiz, 2012).

In recent decades, developed countries around the world were the main recipients of FDI inflows. Over time, the trend has changed, and developing countries, including SSA, have attracted a large share of FDI inflows (Das, 2018). According to UNCTAD, (2018), more than half of global FDI inflows have been shared by developing countries, including SSA. The global FDI flows is declined by 35 percent to the US $432 billion during the first half of 2018 compared to the second half of 2017. However, Africa, which is SSA, escaped the global decrease in FDI inflows, that is FDI flows to the continent rise to the US $46 billion in 2018 and there is an increase of 11% compared to the previous year 2017, which is after subsequent falls of $57 billion, $53 billion, and $42 billion in 2015, 2016 and 2017 respectively (UNCTAD, 2019).

1.2 Statement of the problem

The inflow of foreign direct investment has raised as strongly in almost every place in the world as in Africa in the last few decades. However, Africa's share of global foreign direct investment could be very low and, stagnant. For example, the share of sub - Saharan Africa's global foreign direct investment became beneath 2% between 2010 and 2016 that is, as compared to 13.25% of Latin America and the Caribbean countries, and 17.334%, North African countries is extremely low. East Asia and the Pacific countries account for about 26.45% and Europe for about 30.34% of global FDI (Odusola, 2018). This suggesting that sub-Saharan Africa no longer receives a proportional share of unprecedented FDI in all emerging economies when compared to other developing countries. This has the message across that sub-Saharan Africa is still lagging to get from FDI inflows. The problem today in Sub-Saharan Africa is still facing the same encounters as they did recently, as a result, it continues to generate the lowest FDI (Ezeoha & Cattaneo, 2012).

In line with the above, different scholars have focused their attention on how to alleviate the factors that intimidate the flow of FDI. These intimidating factors are macroeconomic, political and property rights uncertainty (Asefa & Lemi, 2003;Udoh & Egwaikhide, 2008; Nieman & Thies, 2012). A few studies have recently turned their attention to analyze the effect of macroeconomic, political and property right uncertainties on FDI inflows (Lemi, 2003; Asiedu, 2006; Nieman & Thies, 2012;Lin et al., 2019; Gakpa, 2020). In the study we referred to as conditions that need to be identified and addressed for the improvement of FDI inflows to sub-Saharan Africa. Firstly, it's better to understand that sub-Saharan Africa countries attract a small percentage of total FDI flows in comparison to different developing nations. Secondly, issues need to be taken whether FDI leads to monetary and social improvement in SSA. This concept suggests that other than inefficient market access and resource endowments, the prevailed uncertainty, and corruption level in sub-Saharan Africa contributed to the slow increase of FDI inside the region (Te Velde, 2001).

Following the above studies, uncertainty can be classified as macroeconomic and political uncertainty. Macroeconomic uncertainty can vary from fluctuations in macroeconomic variables such as exchange rates, commodity prices, inflation rates, interest rates, etc. whereas political uncertainty can deviate internal and external conflicts, and less improvements of property rights, etc. As a result, uncertainties can be a major obstacle to FDI in a country (Solomon & Ruiz, 2012). In general, uncertainty can affect economic activities as it hampers efficiency on the flight of economic growth through the increasing costs of doing business. At a micro level, Considerable work has been doing deals with the problem of uncertainty (Gilchrist et al., 2014). At a macro level, uncertainty may enter through increased business costs and can affect the economic growth trajectory in any country and it may positively or negatively affect firms that are linked to the concavity or convexity of the profit function (Klemperer & Meyer, 2009) or of the marginal product of capital as in (Abel, 1983) and (Hartman, 1972), configuration. Another uncertainty measure that is property rights which defined as the rights that individuals appropriate over their labor, and the goods and services they possess. Property rights are expected to increase FDI inflows by effectively allowing firms security of ownership and use of their physical and intangible assets, by ensuring effective registration, and enforcement mechanisms, and finally, by protecting a firm's assets from the government expropriation (Levi & North, 1982).

Macroeconomic uncertainty (captured by exchange rate and inflation rate), Political and property rights uncertainty, and macroeconomic variables are considered as the low attractiveness of FDI inflows in the continent of Africa, including sub-Saharan Africa (Svensson, 1998; Asiedu, 2002 and 2006; Asefa & Lemi, 2003; Das, 2018). Consequently, several studies are conducted by different scholars that supported FDI and uncertainty in developing countries, particularly in Africa. Among those (Asiedu, 2006), analyzed the effect of institutions, natural resources, market size, government policy, and political instability on FDI using a panel data for 22 African countries over the time span of 1984-2000. The result suggests that macroeconomic and political instability, investment restrictions and corruption have a significant negative effect on FDI inflows to Africa. Whereas domestic market size, natural resource endowments, infrastructure quality, low inflation, and an efficient legal system have a significant positive effect on FDI inflows. However, the study did not cover the effect of exchange rate uncertainty, and property rights uncertainty. (Lemi & Asefa, 2001), analyzed the effect of economic and political uncertainty on FDI flows using a panel data for selected African countries including SSA over the period from 1975 to 1997. The result of this study shows that the rate of inflation, and political risks have a significant negative effect on FDI inflows only when both are combined with, and when they pass through some threshold level. In addition, real exchange rate variability hinders FDI inflows only when it's low in magnitude. Market potential and domestic market size have not significant effect on FDI inflows. However, the study did not cover the effect of property rights uncertainty and the study period doesn't show that the current scenarios even if it is important for current departures.

Solomon, (2006), examined macroeconomic, uncertainty and political risks, and host country institutions that affect FDI inflows using a panel of 10 African countries from the period of 1985 to 2004. The empirical result show that macroeconomic uncertainties that measured by inflation and conditional variance of exchange rate are a significant negative effect on FDI inflows. whereas political instability and the host country institutions measured by corruption level are not a crucial determinant of FDI inflow. Other variables, such as openness to trade, infrastructure development and literacy rate are significant and have positive effects on FDI inflows. However, the study did not deal with property rights uncertainty and it doesn't show the current scenarios.

Another scholar (Effah et al., 2016), investigated macroeconomic uncertainty, institutional quality and FDI inflows using the panel of 40 SSA countries over the time span of 1996 to 2011. The study applied dynamic panel data model (Arellano - Bond, 1991) and (Blundell & Bond, 1998) estimation techniques. The empirical finding show that macroeconomic uncertainties have a significant negative effect on FDI inflows, while quality of institution promote FDI inflows in the presence of other control variables. In this study the effect of political and property right uncertainties are not farther analyzed. Moreover, (Das, 2018) conducted the effect of macroeconomic uncertainty on FDI inflows using a panel of 28 developing countries including some SSA over the period for each cross section ranges from 1997 to 2014. The result show that GDP growth and trade openness are a significant positive effect on FDI inflow while exchange rate variability has no effect on the inflows of FDI. Consequently, depending on the change in the level of income of the host countries, the significant effect of macroeconomic uncertainties on FDI inflows is different. However, the study did not deal with political and property rights uncertainty.

The study by (Eregha, 2019) analyzed the impact of exchange rate volatility and uncertainty on FDI inflows to West African monetary zone (WAMZ) namely Gambia, Ghana, Guinea, Nigeria and Sierra Leone. The study covers the period from 1980–2014, and to analyze the country specific effects fixed effect model and dynamic panel data model estimation (Arellano panel correction for autocorrelation and heteroscedaticity within estimator for the fixed effect model) is employed. The study considers both uncertainty (unpredictable) and exchange rate volatility (predictable) measures. The results of the study showed that exchange rate volatility (only predictable) measures had insignificant effect on the inflows of FDI. Whereas the uncertainty measure for unpredictable exchange rate hinders the inflows of FDI to West African monetary zone (WAMZ). However, the study did not cover the effect of inflation, political instability and property rights uncertainties.

In addition to the above studies (Gakpa, 2020) investigates the interaction between political risks and FDI on economic growth using a panel of 31 countries in SSA over the period from 1984 to 2015. The study employs a dynamic panel data model procedure and the three Stage Least Squares (3SLS) method to estimate simultaneous equations models. The results show that political instability directly affects economic growth negatively and indirectly through its negative impact on foreign direct investment. But the study did not cover the effect of macroeconomic, and

property rights uncertainties. However, even if there are several studies on the subject under consideration, some of them are old and did not cover effects of property rights uncertainty (e.g. Asefa & Lemi, 2001 and 2003; Asiedu, 2006; Solomon, 2006) and others did not deal with both political and property rights uncertainty (e.g. Effah et al., 2016; Das, 2018) and some others are did not cover the effect of macroeconomic and property rights uncertainty (e.g. Gakpa, 2020). These indicate that there are some gaps on determinants of FDI in terms of macro-economic, political and property right uncertainty definition and enforcement.

Therefore, this study tries to fill these gaps by examining the joint effect of different types of uncertainties (economic, political and property rights) on the inflows of FDI to sub-Saharan Africa using a set of cross-country time-series data. The study examines the above uncertainties by using proxy variables with time factors to describe current scenarios. The study conducts both the particular political risk components and the overall political risk indexes given by International Country Risk Guide (ICRG) in order to capture the political and property rights uncertainty associated with the selected SSA economies. Finally, the researcher employed an econometric model and applying a range of estimation techniques that control for issues such as parameter heterogeneity, simultaneity bias, inverse causality, omitted variables, and country-specific effects.

1.3 General Objective of the study

The overall objective of this study is to examine how macroeconomic; political and property rights uncertainty simultaneously affect FDI inflows to SSA using the panel data regression model

1.4 Specific objectives

Specifically, the study aims at analyzing how FDI inflow to SSA is affected by:

- Macroeconomic uncertainty
- Political uncertainty
- Property rights uncertainty

1.5 Research questions

The main research questions of the study are given below:

- What are effects of macroeconomic uncertainty on the inflows of FDI?
- What are roles of political uncertainty in influencing inflows of FDI?
- Do property rights uncertainty have a significant effect on FDI inflows?

1.6 Scope and delimitation of the study

There is no particular single econometric model that can carried out all the complex nature of FDI inflows. There should be derived from various theoretical models rather than from any specific theory to capture the complex nature of FDI inflows (Faeth, 2009). In this study the researcher plan to conduct the effect of uncertainties on FDI inflows to sub-Saharan Africa countries level data. Therefore, theoretically the study has no limitation in scope. However, the study mainly tries to find out the impact of macroeconomic, political, and property rights uncertainty on FDI inflows towards sub-Saharan Africa countries. In order to capture country specific effects, the empirical examination is carried out with the help of panel data techniques. Fixed effect panel data models take the cross country-specific heterogeneities of these countries into account. In addition to this, Arellano-bond GMM dynamic panel model (Panel Generalized Method of Moments at first difference) used in the study. However, the relation between uncertainty and investment is affected by the exclusion of certain important variables. Finally, in this study 26 sub-Saharan Africa countries are included in the empirical analysis based on data availability with a time span of 2000 to 2018 (Study period of T = 19).

1.7 Significance of the study

A few attempts have been made to find out how uncertainty affects FDI inflows to Sub-Saharan Africa, and remarkable answers have been made in the past few years. However, still it needs further study. Therefore, it's very crucial that identifying how macroeconomic, political and property rights uncertainties affect FDI inflows to SSA. The study will seek to combine both political instabilities, property rights, and macroeconomic uncertainty as an explanatory variable for FDI inflows. Moreover, the study will add an insight to the existing few empirical works and can serve as an input for different stakeholders like governmental organizations, policy formulators, academicians and decision-makers. Besides, the study may also serve as a point of reference for researchers who intended to study in the area under investigation.

CHAPTER TWO

Literature review

2.1 Theoretical literature review

2.1.1 Definition and concepts

Foreign direct investment is defined as "an investment involving a long-term relationship and reflecting a lasting interest and control by a resident entity in one economy (foreign direct investor or parent enterprise) in an enterprise resident in an economy other than that of the foreign direct investor (FDI enterprise, affiliate enterprise or foreign affiliate). It is a category of cross-border investment associated with a resident entity (the resident entity is the direct investor and the enterprise is in the direct investment enterprise) in another economic system. FDI implies that the investor exerts a significant degree of influence on the management of the enterprise resident in the other economy. Such investment involves both the initial transaction between the two entities and all subsequent transactions between them and among foreign affiliates, both incorporated and unincorporated. FDI may be undertaken by individuals as well as business entities''(IMF, 1993,p.86).

2.1.2 Theories of foreign direct investment (FDI)

Theoretically, there are two main approaches used to assess FDI inflows in the world. The first one is location theory that deals with the explanation's underlying the selection of host country for foreign direct investment. Second industrial organization theory, deals with successful contest between foreign firms and domestic producers (Ajuwon & Ogwumike, 2013). There are various studies that mentioned overviews of foreign direct investment theories, and hypothesis (Denisia, 2010; Amal, 2016; Morgan & Katsikeas, 1997; Bajrami & Zeqiri, 2019). Thus, theories and hypothesis are possibly differed substantially, if analyzing the similar mode of FDI from extraordinary perspectives. To realize the effect of macroeconomic and political uncertainties on the inflows of FDI we have to account for a few theories related to FDI and uncertainty. Among different theories we will review Eclectic FDI theory that MNCs take into account when deciding to invest abroad.

2.1.3 Eclectic theory

The eclectic FDI theory is substantially focused on: the integration of location theory, industrial organization theory and the internalization theory into a general framework. The concept of this theory was introduced and also developed by (Dunning, 1977). According to (Dunning & Lundan, 2008) the eclectic paradigm theory seeks to offer a popular framework by figuring out the extent and patterns of both foreign owned productions undertaken by country's own companies, and that of domestic production owned and controlled by foreign investors.

The idea of this theory is primarily based on the concept of the three main hypotheses, that are the major factors influencing the firm's decision to expand its overseas operations which referred to as the OLI paradigm of dunning, that tries to explain the international flows of FDI in terms of what is the motive rather than what should be the level and the structure of foreign investment (Bajrami & Zeqiri, 2019). The OLI paradigm of dunning is a combination of in advance theories that tried to explain the reasons behind the intuition of FDI phenomenon such as: the industrial organization theory, location theory, and internalization theory (Dunning & Lundan, 2008).

In general, in the framework of OLI paradigm, MNCs invest globally with a set of determining factors (such as ownership advantages, locational advantages, and internalization factors) exist concurrently. The framework of OLI asserts some kind of advantages that overcomes the costs of operating in a foreign market in order for the MNC to have better achievements in foreign direct investment.

Ownership advantage theory (O): according to (Dunning & Lundan, 2008) hypothesis, ownership advantages are defined as the degree to which a company possess sustainable ownership-specific advantages over other different firms inside the marketplace. These ownership advantages are: the financial resources access, organizational and the marketing systems, and the innovative capability. This consists of property rights of a particular technology, firm size, monopoly power, and access to raw material or cheap finance compared to local competitors that do not possess. In developing country, property rights uncertainty which is bureaucratic bottle-necks, poor investment profile and the absence of rule of law are the main factors that investors see as hindrance to FDI (Levi & North, 1982).

Location theory (L): The theory of location advantages is basically demonstrating that, where, or location of the firms, and that are specific to the country. It determines the host country based on

several qualitative and quantitative factors, such as political advantages, social advantages ,resource availability, lower costs of transportation, infrastructure quality, market size, government facilities, labor force availabilities (Denisia, 2010). In addition to this a large number of different specific location factors that affect investment decisions. These factors are economic and political uncertainties. In the developing countries including SSA, it is very crucial to have stable and reliable macroeconomic, political, and property rights uncertainty in order for investors to feel secure about their investments (Solomon & Ruiz, 2012).

Internalization theory (I): The internalization advantage hypothesis demonstrated that how, or the way, of multinational enterprise (MNEs) activities. It implies that the multinational enterprises must consider the relative advantages and costs of various alternatives like arrangements of contracts to ascertain how it undertake the oversea markets and enlarge its operations over time. In addition, internalization is the degree of ownership and proprietary control and it is determined that how market transactions can be done efficiently without incurring other additional costs. Some of these advantages that helps firms to: minimize the expense of broken contracts viability, minimize the effect of government intervention (price controls, tax differences, tariffs etc.), and control supplies and conditions of sale for inputs (including technology) (Dunning & Lundan, 2008). FDI, like another investment is a forward-looking activity primarily based on investors expectancies about future returns and confidence that they can place on these returns. Uncertainties that will be identified by means of the MNEs, make investors skeptical on their investment decisions and erode self-confidence on future returns; as a result, this could affect the inflows of FDI in certain countries (Solomon & Ruiz, 2012).

2.2 Conceptual frameworks of the study

2.2.1 Macroeconomic uncertainty and FDI

Measuring of macroeconomic uncertainty, and perceive its distinct influences on the economy are critical for an efficient and adequate feedbacks by policy-makers in times of economic confrontation. Uncertainty can affect FDI through different channels like irreversibility of capital expenditures due to sunk costs(costs incurred at ones but cannot recovered) (Dixit & Pindyck, 1994), the presence of financing constraints that may arise from asymmetry between lenders and borrowers (Greenwald & Stiglitz, 1990), firms' outlook or attitude towards risk (Elie Appelbaum and Eliakim Katz, 1986), (Hartman, 1972) and convexity of the marginal product of capital (MPK)

(Abel, 1983). The first three channels investment-uncertainty relationship, anticipate a negative sign, whereas the last channel predicts positive sign. Future options are also taken into account when investing an investment. The impact of uncertainty depends on the type of FDI, which is delayable or irreversible (Dixit & Pindyck, 1994; Byrne & Davis, 2014). The investment determination (Dixit & Pindyck, 1994b) states that increased uncertainty reduces investments given the reversibility of investment projects and the resulting option value of delaying expenditure. In comparison with the previous work (Hartman, 1972). In the theoretical point of view, uncertainty increases an investment when the marginal product of capital (MPK) is an increasing function of prices, and increases the expected rate of return on capital and variance of prices. Given this theoretical argument, requires further investigations (Abel, 1983).

Different scholars that describe different uncertainty variables such as macroeconomic, political, and property rights uncertainty and degree of corruption in a country are competing factors that influence increased attention in the international business process (Asiedu, 2006; Asefa & Lemi, 2003; Chuck & Solomon, 2006; Knack & Keefer, 1995). Hence, investors are expected to study uncertainty variables that will affect their profitability conditions regarding future prices, returns, and confidentialities in non-economic conditions (Dixit & Pindyck, 1994). One of the sources of uncertainty which makes foreign direct investment differ from local investments is the occurrence of country specific risks. Foreign exchange rate variability , inflation rate, political instability, level of corruption, and other economic and political factors that are considered to be risks on FDI inflows in one country (Hauser, 2005). At the country level, different evidences indicate that there is a negative relationship between FDI and macroeconomic uncertainty variables, meaning that higher degree of uncertainty is associated with lower investment (Aghion et al., 2010; Boguth et al., 2011). In general macroeconomics uncertainty and other variables need a revision (needs further empirical investigation) when describing the inflows of FDI to developing countries (Das, 2018).

2.2.2 Political instability and FDI

Political instability has an evasive concept that is both difficult to define and quantify. Some scholars define political instability as government change or a regime or the prevalence of political disruption and violence in a country. For example (Alesina et al., 1996), defines that, political risk is the tendency of a government to collapse due to a lack of good governance or conflict (internal

or external conflicts) situations, and this has a negative influence on the investment climate and deters the inflow of FDI**.** It is commonly associated with uncertainty about economic policy, so it is likely to have a negative impact on investment (Aisen & Veiga, 2013)**.** Political instability affects presupposition's about both the level and variability of rate of returns to investing in the host country through different mechanisms. While standard economic theory anticipates that lower expected returns on capital reduce investment. However the influence of uncertainty on investment climate is theoretically ambiguous (Carruth et al., 2000).

Carmignani, (2003) points out that social unrest, volatile governments, poor government quality and electoral uncertainty influence the behavior of economic actors**.** In general, these factors have a negative impact on the investment climate**,** which can in turn reduce FDI inflows and economic growth. (Brada et al., 2006) also advocate that political instability can be an obstacle to foreign direct investment: investors expect future returns on the investment, and so domestic instability and conflict situations are risky and that deter them. Political instability has two major negative consequences for both the inflow and the progress of FDI. This is the domestic instability or the civil war or the conflict with neighboring countries, and this reduces the profitability of operations in the host country through the channels of disruption to production, the weakening of the national and international markets and the limitation of the availability of resources. Conversely, this the tendency to influence value the currency of the host countries, thus reducing the value of the assets invested in the host country and affecting future returns on the investment.

2.2.3 Property rights and FDI

Classical economists such as, Adam Smith and Karl Marx commonly understood that, the importance of property rights protection in the process of economic growth, and modern mainstream economics is in keeping with such reputation.

Property rights related to two main outcomes: such as, reduce investor risk and increased incentives to invest, and improvements in household welfare. Investigators determined the paths through which property rights that affect household development and welfare in developing countries and found that improvements of property rights protection can affect various development outcomes (Hart & Moore, 1990). They argue that a few mechanisms along with agreement drafting and cross-listing can partially alleviate the issues of susceptible contracting institutions even as it is difficult to mitigate the chance of government expropriation.

In particular, the dead weight costs of weak shareholder protection can be reduced or eliminated by drafting contracts that deter company (MNCs) insiders from expropriating minority shareholders or by being linked to countries with strong governance (Acemoglu & Johnson, 2005).

FDI usually involves large amounts of sunk costs (costs incurred at one but not recovered). Thus, MNCs considering an investment in oversea countries are often bothered about the security of their property rights in the host country. Property rights threat may come from local individuals or groups, elites, or the governments of the host country, gravely lessen incentives to invest in countries where the threat is high. Property rights uncertainty could warrant MNCs to invest in a host country (Levi & North, 1982; Tag, 2020). According to (Besley, 2009) there are different channels (Efficiency channels and security channels) through which property rights uncertainty affect investment and resource allocation. The security channels whereby investment is expected to lead to income inflows, which needs to be protected against expropriation through secure, well-defined property rights, such protection provides incentive to invest. And efficiency channels, enhancing the mobility of assets through transactions such that assets are transferred to those who can use them most productively.

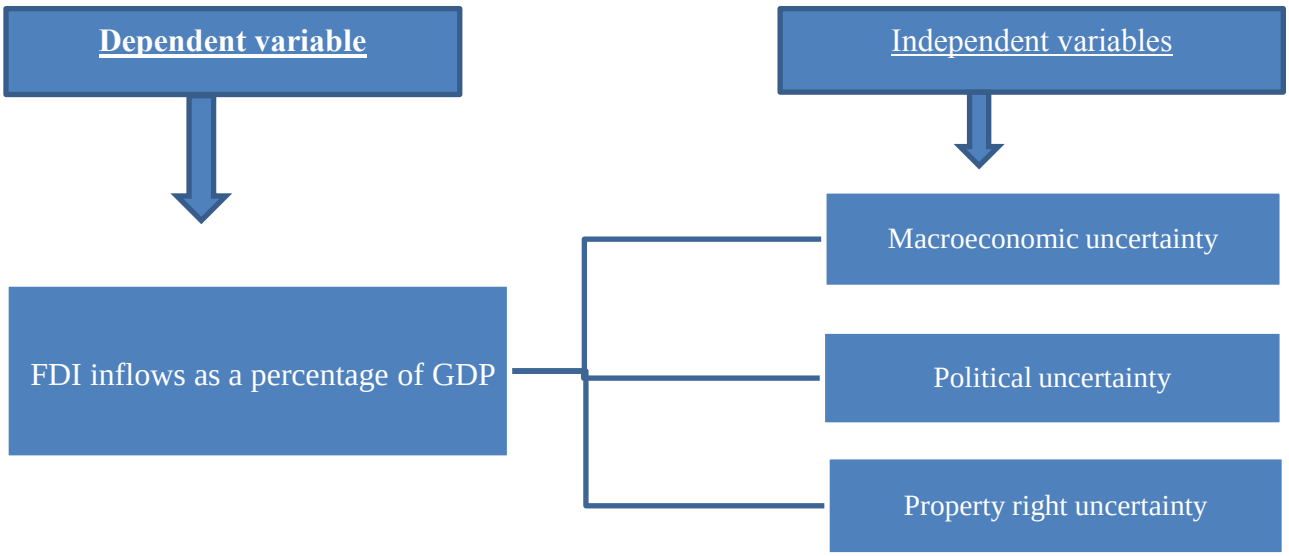

Figure 1: conceptual frame work

In general, uncertainty is not directly observable, therefor this paper constructs an aggregate measure of uncertainties faced by MNCs, based on a number of proxy indicators. It also provides some quantitative analysis of the effect of uncertainty on SSA FDI inflows and attempt to assess the specific channels through which this effect might operate.

2.3 Review of empirical literature

Several empirical studies have analyzed the effect of macroeconomic, political, and property rights on FDI inflows, paying particular attention to the measurement of uncertainty. Because, the study of the link between investment and uncertainty that shows the response of investors to uncertainty are not conclusive. (Abel, 1983) noted that investment and uncertainty have a positive relationship due to this the existence of the higher uncertainty will increase the marginal profitability of capital and therefore increases investment. The existing empirical and theoretical studies on uncertainty and international capital mobility are mainly focused on, macroeconomic and political uncertainty particularly exchange rate and political uncertainty (e.g. Sung & Lapan, 2000; Goldberg & Kolstad, 1995). While, other studies that incorporate international capital mobility in trade models to investigate the effect of uncertainty (Grossman & Razin, 1984). Grossman & Razin, (1984) investigated the determinants of the direction of international capital movements in a model of real equities and trade in commodities. The results of the study show that, the flow of physical capital in an uncertain world are subject to the joint effect of, relative size of labor force availability, country riskiness and relative factor abundance. In this section, we review the literature that examines the relationship between macro-economic, political and property right uncertainty and foreign direct investment.

The study conducted by (Asefa & Lemi, 2003) investigates the impact of economic and political uncertainty on FDI flow from all source countries and special attention was given to total U.S. FDI flow to sample host African countries. In their study, total U.S. FDI outflow is classified into two categories, these are: U.S. manufacturing FDI and U.S. non-manufacturing FDI flows to the panel of 29 African counties. The study covers overs the period of 1987 to 1999 for the flow of FDI from all source countries and from 1989 to 1998 for U.S. FDI flow. The study found that the effect of uncertainty on the inflow of FDI from all source countries to Africa is insignificant. However, only government policy commitment and political risks are crucial determinants for U.S. manufacturing FDI, whereas economic and political uncertainties and debt burden of the host

countries are the main factors for U.S. non-manufacturing FDI only when in combined with. Other macroeconomic factors such as labor force availability, openness to trade, export sectors size, external debt burden, and the size of the market are analyzed and these variables are significant in affecting the flow of FDI to African economies.

The study of (Asiedu, 2002) uses a panel of 71 developing countries, many of them in SSA over the period from 1988-97, to investigate whether the determinants of FDI are equally relevant in developing countries and in SSA. The result of the study indicates that a higher return on investment and good quality of infrastructure development have a positive effect on FDI inflows to non-SSA countries, but not in SSA. Whereas trade openness promotes FDI to both SSA and non- SSA countries but not the same marginal advantages, is less for SSA. In addition to this, Africa as a low connotation concerning investment; these countries are associated with high risk having a negative impact on FDI inflows. Finally, the author analyzed that, in the investment-uncertainty dynamics, there is the return on investment along with other factors that explain the flow of capital into different economies. The investment return is measured as the inverse of real GDP per capita. This indicates that countries with lower per capita income will bring a higher return on capital and vice versa while other things are being constant.

The study of (Udoh & Egwaikhide, 2008), have analyzed the effect of exchange rate and inflation rate uncertainty on FDI in Nigeria over the period from 1970-2005. The finding of the study shows that both exchange rate and inflation rate exhibited high volatility. The results of the regression entail that volatility in the inflation and exchange rates increased uncertainty and risk element facing foreign investors and thus, adversely affect foreign direct investments in the country. In addition to the macroeconomic uncertainty, the political unrests in the sample period hindered FDI inflows into the country and the infrastructure variable is positive and significant. Another study conducted by (Takagi & Shi, 2011), examined the impact of exchange rate movements on FDI By using the panel data of Japanese FDI flows to nine dynamic Asian economies over the time span of 1987-2008. The results of the study provides that the devaluation of the exchange rate has a positive influence on the inflows of FDI; whereas, the variability of the exchange rate has a negative influence.

Asmah & Andoh, (2018) has conducted the relationship between exchange rate uncertainty and FDI inflow in selected SSA countries over the time span of 1970 to 2005 and taking evidence from South Africa and Nigeria using two-stages least square (2SLS) techniques. The results of the study shows that exchange rate variability has a negative influence on the inflow of FDI to South Africa and Nigeria.

Using the panel data technique (Serven & Solimano, 1993) determine the link between the different measures of variability and investment. These variability measures were found to negatively affect investment. The openness is positive and significant for explaining foreign direct investment. The study of (Solomon & Ruiz, 2012) investigates the impact of macroeconomic and political uncertainties, and the patterns of FDI. The data are taken from African, Asian and Latin American economies. The empirical result show that political risk and exchange rate uncertainty negatively associated with FDI inflows. however political risk is more sever for the inflow of FDI to African economies as compared to other countries.

In the investment-uncertainty relationship, corruption significantly hinders FDI inflows (Wei, 2000), and FDI flows are affected by ethnic tensions, internal and external conflicts, and democracy, but not by government stability. Government stability, corruption, democratic accountability, law and order, internal and external conflicts, ethnic tension, and the quality of the bureaucracy are vital determinants of FDI inflows according to the study of (Hefeker, 2007). According to the observation of (Hayakawa et al., 2013), political risk has related with FDI inflows. They also believe that in developing countries, late payments, expropriation of contracts and corruption are negatively associated with the inflow of FDI in 93 countries, of which 60 are developing countries. The nature of foreign direct investment has not yet been answered for various reasons, such as the nature of the data, the differences between countries or due to a fewer observation of time series data. There are several factors that tend to attract FDI inflows to an economy. Even though factors that tend to the disadvantage in the host country also have an impact on the degree and size of the international FDI inflows(Dunning, 2009).

Yasin, (2005) analyzed the effects of official development assistance, exchange rates, trade openness, GDP per capita, labor force, and two alternative measures of risk factors on FDI

activities by MNEs using panel of 11 SSA countries over the period from 1990 to 2003. The results of the study reveal that openness to trade, labour force availability, and exchange rates has a significant and positive influence on the flow of FDI. However, the country's composite risk level, the GDP per capita, and the index for political freedom have not a statistically significant influence on FDI inflows.

Dupasquier & Osakwe, (2006) analyzed the promotion, prospects and performance for FDI in Africa. The findings of the study indicated that, macroeconomic and political instability, weak quality of infrastructure, lack of good governance, and low institutional quality are identified as the problem that hinders the flow of FDI to the region of Africa. In addition to this, the goal of the study is to identify strategies and actions that countries may apply to promote the inflow of FDI to the region Africa by improving countries image by promoting economic stability, a good legal system (e.g., property rights and profit repatriations laws), promoting infrastructure and regional cooperation and integration, enhancing good governance with regional surveillance mechanisms, fostering access to international markets, minimizing trade barriers and subsidies.

Mijiyawa, (2015) examined factors that affect FDI in Africa over the time span of 1970-2009 and it uses the system-GMM estimation technique. The empirical result show that lagged FDI inflows, trade openness (measured by sum of exports and imports), market size, political stability, and the return to investments (measured by inverse of GDP per capita) are significantly and positive effect on FDI inflows. In addition to this, the main conclusions of the study are: more open and politically stable countries can also attract FDI, and countries providing higher rate of return to investment also promote FDI. This study put forward that, countries that have a better FDI today are likely to promote a better FDI inflows in the future.

Anyanwu & Yaméogo, (2015) analyzed the factors that drive FDI by looking at regional heterogeneity of five African regions such as Central, East, North, Southern, and West Africa over the time period from 1970 to 2010. The study focusses on the relevance of FDI for the economic development of these regions while, the study investigated the capacity to attract FDI simultaneously. Their examination is done by a cross-country time series data regression, using pooled ordinary least squares (OLS) and system-GMM estimation techniques. The study shows that the second lag of FDI has negative effect in West Africa. whereas, GDP per capita has a

negative influence in all the five regions, investigated with a U-shaped relationship in West, North, and Central Africa. In Central Africa, GDP growth has positive relationship with the inflows of FDI but negatively significant effect in West Africa. Infrastructure quality development has a significant positive impact on FDI inflows in East and North Africa while higher life expectancy deters FDI to Central Africa but promotes the same to East and North Africa. except in East Africa, openness to trade has a significant and positive influence on the inflows of FDI in all the five regions. In the region of East Africa, Inflation rate deters the inflows of FDI. Natural resources also attract FDI but only in the regions where they are abundant. Political instability has a negative impact on FDI inflows to West Africa. Generally, the authors suggest that, economic and political reforms, promotion of sustainable development and relationship with foreign partners are important to improve FDI attractiveness to the region.

The investigation of (Ivus, 2015) stated that, strengthening of patent rights in developing countries can increase FDI inflows. (Li et al., 2003), examined the effect of both democracy (measured with Polity IV data) and property rights (measured with a property rights index developed by (Knack & Keefer, 1995), based on ICRG data) on the total inflows of FDI in the countries. The study found that, democracy has a negative influence on FDI inflows, while property rights protection positively influences FDI.

Recent empirical literature has developed a variety of techniques to measure property rights. Moreover, several studies have analyzed the influence of property right uncertainty variables on FDI and have found that property rights generally increase FDI. Property rights uncertainties are three World Governance Indicators (WGI) proposed by (Kaufmann et al., 2009), and published by the World Bank group. These indicators capture some governance features: voice and accountability, rule of law, and corruption in the government. However, the influence of property rights uncertainty on economic growth is measured by using two new measurement of property rights. One of the measures property rights uncertainties is depending on data from Business Environmental Risk Intelligence (BERI) which is a business risk consulting firm. This property rights index is constructed by adding four components: contract enforceability, quality of infrastructure, potential for nationalization, and bureaucratic delays. A second measure of property rights is depending up on data from a similar company, the International Country Risk Guide

(ICRG). The index is constructed by adding five components: corruption in government, risk of expropriation, rule of law, repudiation of contracts by the government, and quality of bureaucracy in the host country. They found evidence that using both measures, Property rights strongly influence rates of economic growth and convergence in per capita income between low and high income countries (Knack & Keefer, 1995).

A general study on property rights finds that property rights uncertainty can reduce a company's access to external financing, as well as the insufficient allocation of resources, making it difficult for companies to grow (Claessens, Stijn; Laeven, 2003). If there's a week protection of property rights, there may be an inadequate incentive to invest one over another (Johnson et al., 2002).

CHAPTER THREE

Methodology

This section of the paper is going to deliberate the overall methodology of the study: model variables, data sources, methods of data analysis and empirical model specification briefly explained beneath.

3.1 Data source and variables

The study covers twenty-six (26) sub-Saharan Africa countries, the period of analysis for the inflow of net FDI from all source countries over the period of 2000 to 2018. Sample countries are selected based on data availability. However, the selections of countries encompass all regions of sub-Saharan Africa. This indicating that the sample is representative of the whole sub-Saharan Africa countries. Therefore, this helps to make an inference for all sub-Saharan Africa countries.

The study conducts using secondary data obtained from the Financial Statistics of International Monetary Fund (IMF), World Development Indicators, and International Country Risk Guide (ICRG). The variables conducted in this paper are annual in frequency and average of the twelve-month exchange rate and monthly inflation rate are represents annual data. Monthly exchange rate and inflation rate data are taken from Financial Statistics of International Monetary Fund (IMF)[1]. Data on real FDI, GDP, GDPPC, export and import, and the number of telephones per 100 population have been found from World Bank Development Indicators (WBDI)[2]. The data on political instability index, and property right index is found from International Country Risk Guide (ICRG). [3]

3.2 Methods of data analysis

This study used descriptive and econometric analysis tools. Descriptive statistics such as mean, standard deviation, minimum and maximum values are used to describe economic, political and property right uncertainties that affect the inflows of FDI to SSA. Using fixed effect and Arellano-

[1] **Exchange Rates and inflation rate selected indicators Nominal Effective Exchange Rate, Consumer Price Index: Source: International Financial Statistics (IFS)**

[2] **https://datacatalog.worldbank.org/public-licenses#cc-by**

[3] **International Country Risk Guide Copyright, 1984-Present, The PRS Group, Inc., TABLE 3B: Researcher's Dataset**

bond GMM dynamic panel model estimation, the study analyzes the influence of explanatory variables on the dependent variable.

3.3 Empirical model specification

This study analyzes the effect of economic, political, and property right uncertainties on FDI inflows to SSA economies. Using panel data techniques: the country-specific heterogeneities of these countries are managed by fixed or random effects panel data models. The study also applies Arellano-bond dynamic panel GMM (Panel Generalized Method of Moments at first difference) estimation techniques to measure effects of various uncertainties as proxied by macroeconomic, political and property rights on the inflow of FDI to SSA countries by controlling for other variables.

FDI triggers capital, technology transfers, and management skills to the host countries. Consequently, it is vital to recognize why in many countries anticipated in lower FDI inflows (Baniak et al., 2005). According to (Baniak et al., 2005), we anticipate that, the MNCs considers two feasible alternatives as to where to produce their commodities. The one possible alternative is that MNCs produce the commodity in a plant, located in a host country or the MNCs to assemble or built a foreign plant, located in the foreign country (home country for the foreign firm). Note that we use the following convention: home or host plant refers to the plant located in the host country for FDI; foreign plant is the plant located in the foreign country (home country for foreign firm).

Following (Baniak et al., 2005), we focused on a host country single commodity market. We assume that this particular commodity is not produced with in the host country, even though demand is satisfied by imports. The unit price of this commodity p_{world} is determined in the world market and is expressed in the currency of the home country of the multinational companies. Consequently, according to (Baniak et al., 2005) and (Sung & Lapan, 2000) is that each plant is assumed to exhibit decreasing average cost, so that in a deterministic setting only one plant will be built. More specifically: (1) there are fixed costs connected with operating of each plant, (2) marginal production cost is constant in each plant, (3) However, the firm faces uncertainty about the marginal costs of producing in the host country (these uncertainties arise due to macroeconomic, political, property rights uncertainties), (4) Every plant faces a perfectly elastic demand, which is the firm can sell any volume produced at the world market price defined as p_{world},

given that the commodity can be sold at the world price. Moreover, we also assume that firms or MNCs are managed according by typical risk-averse asset holders.

Hence, the cost functions are defined as:

$C_{host}(x) = c_{host}x + F_{host}$

$C_{home}(x) = c_{home}x + F_{home}$

Where: C_{host} indicates the costs of prevailing in the host plant, C_{home} indicates the cost of prevailing the home plant, c_{host} which indicates, marginal costs for the host plant, c_{home} indicates the marginal costs for the home plant, x denotes output from the plant, F_{host} denotes the fixed cost for the host plant and F_{home} denotes the fixed costs of the home plant. In this case we assume that Costs of the home plant are expressed in domestic currency (of the host country) and do not depend on the exchange rate (i.e., we assume that only local resources are used in the production process). Correspondingly, Costs of the foreign plant are expressed in foreign currency (in the currency of home country).

In the deterministic case, profits created through the host plant (the host country), that expressed in domestic currency (in the currency of the host country), are defined as:

$$\pi_{host}(x) = (1/e)P_{world}x - c_{host}x - F_{host} \qquad \textit{Equation 1}$$

Where π_{host} indicates profits created by host country and e indicates that, exchange rate of the foreign currency in the host country (its defined as the number of units of foreign currency for one unit of local currency).

Likewise, profits created by the home plant (foreign plant), that expressed in terms of foreign currency are defined as follows:

$$\pi_{home}(x) = P_{world}x - c_{home}x - F_{home} \qquad \textit{Equation 2}$$

Note that the profit of the foreign plant does not depend on the exchange rate. And we assume that the output produced, x, cannot be greater than maximum capacity, K. In order to determine the home plant's profits (knowing the demand curve and the price of the commodity unit in the world market) one has to know estimations of exchange rate and production cost, that, in general, depend

on a number of macroeconomic indicators, political and situations of property rights. In particular, the exchange rate is influenced by the macroeconomic situations. However, political uncertainties, host country institutions and other judicial regulations, determine a number of items included in the calculation of the cost of production. Macroeconomic indicators are based on official forecasts by national institutions which are uncertain(Baniak et al., 2005). Moreover, political situations and host country institutions are not stable. Therefore, the MNCs makes an investment decision in an uncertain environment based on macroeconomic forecasts and political and institutional stability predictions.

In general, from the above two equations following (Baniak et al., 2005) we understood that, the net expected returns whether investing in home or foreign country is depends on exchange rate, returns from investment and production costs. These variables depend on a number of macroeconomic conditions, political situations and institutional (security of property rights) factors that happen in certain countries. The existence of exchange rate fluctuation, inflation, political instability, and property right uncertainties in a country may raise the costs of doing business. In this study, we examine how these variables affect the FDI inflows to sub-Saharan Africa, using fixed effects panel data models, and Arellano-bond GMM dynamic panel model (Panel Generalized Method of Moments at first difference). Using this model, different authors like (Bloom, 2007; Krifa-schneider et al., 2010; Asiedu, 2015; Barugahara, 2015) and others are addressed their studies.

3.3.1 Fixed effect model

The fixed effect estimation takes the country-specific effects as regressors rather than attributing them to the error term, thereby minimizing omitted variable bias (Krifa-schneider et al., 2010). In this study the (Hausman, 1978) specification tests is conducted to choose between fixed and random effects. In the Hausman test, the null hypothesis states that random effect model is appropriate to fixed effect model and consequently, rejecting the null hypothesis suggested that the appropriate model is a fixed effect model. Consequently, following (Baltagi, 2001; Gujarati, 2004; Verbeek, 2004; Greene, 2012) the study conducts a panel data regression model.

Thus,

$$Y_{it} = \alpha_i + \beta X_{it} + \mu_{it} \ldots\ldots\ldots \text{ Equation 3}$$

Where: i = 1,2,….., N & t = 1,2, ……., T, Y_{it} = the dependent variable, $X_{it\ is}$ a K dimensional vector of explanatory variables, α_i is the unobserved individual heterogeneity or the individual fixed effects, β is the parameter to be estimated which represents the coefficients that specify the relationship between the predicted variable and the predictor variables, μ_{it} = is the error term

In summary, depending on the literature and the above model, the study estimates the following equations, which is the functional form of the model. In the following functional expression of the model FDI is the predicted variable and all the right-hand side variables are predictor variables of the model.

FDI = f (EXCH, INF, OPN, RR, INFRA, POLIST, PR) …… ……. Equation 4

Following the literature (for instance, Asiedu, 2002 and 2006; Solomon, 2007; Krifa-schneider et al., 2010; Eregha, 2019; Canh et al., 2020), the above equation can be expressed as in statistical form as in Equation 5.

$$FDI/GDP_{it} = \alpha_i + \beta_1 EXCH_{it} + \beta_2 INF_{it} + \beta_3 OPN_{it} + \beta_4 RR_{it} + \beta_5 INFRA_{it} + \beta_6 POLIST_{it} + \beta_7 PRit + \mu_{it} \ldots\ldots\ldots \text{Equation 5}$$

Where:

$FDI/GDPit$ = is the FDI inflows in % of GDP in country i at the time t
$EXCH_{it}$ = average of real effective exchange rate in country i at time t
INF_{it} = average of inflation rate in country i at time t
OPN_{it} = trade openness in country i at time t
$INFRA_{it}$ = availability of infrastructure in country i at time t
RR_{it} = rate of return on capital in country i at time t
$POLIS_{it}$ = political instability measure(s)in country i at time t
PR_{it} = property right measures in country i at time t

3.3.2 Arellano-Bond GMM dynamic panel data model

In our panel, the data set has a short time dimension (T=19 years) and a larger country dimension (N=26 countries). To solve these econometric aspects, the (Arellano - Bond, 1991) dynamic panel GMM estimation (Panel Generalized Method of Moments at first difference) is applied in the

study. The Arellano-Bond GMM dynamic panel estimator addresses the problem of the autocorrelation of the residuals, as the lagged dependent variable is included as an additional regressor (Krifa-schneider et al., 2010). The problems related to simultaneity bias, inverse causality, and omitted variables are corrected by GMM dynamic panel data estimators (Sylviane et.al., 2005). This estimator, often referred to as the difference generalized method of moments estimator, takes the first difference of the data and then uses lagged values of the endogenous variables as an instrument. The first differenced GMM estimators applied to panel data models address the problem of the potential endogeneity of all explanatory variables, measurement errors, and omitted variables. Therefore, the main idea of the Arellano bond first differenced GMM is to take first differences to remove time-invariant country-specific unobserved effects. The instruments build the variables on the right-hand side in the first difference equations using series levels and one lagged period or more. In addition, the assumptions of time-varying disturbances in the original level equations are not serially correlated (Bond S.et al., 2001).

Finally, the literature (Douglas et.al.., 1988; Roodman, 2006 and 2009) argues that (Arellano - Bond, 1991) GMM estimator is usually recommended for a small number of -T and a large number of -N panels. Therefore, in addition to fixed effect model, this study conducts the Arellano bond first difference GMM dynamic panel data model estimation, following (Baltagi, 2001; Gujarati, 2004; Verbeek, 2004; Greene, 2012; Roodman, 2006 and 2009), which is defined as follows:

$$y_{it} = \gamma y_{i,t-1} + \mathbf{x}_{it}^{'}\boldsymbol{\beta} + \nu_{it}$$
$$\nu_{it} = \mu_i + \varepsilon_{it} \quad \text{. ....} \quad \textit{Equation 6}$$
$$\mathrm{E}[\mu_i] = \mathrm{E}[\varepsilon_{it}] = \mathrm{E}[\mu_i \varepsilon_{it}] = 0$$

Where i = 1,2,….., N & t = 2, ..., T, x is a vector of controls, which can include deeper lags of y and γ is the parameter to be estimated. The error term has two orthogonal components that is the fixed effects, μ and idiosyncratic shocks v_{it}. The Arellano bond GMM first difference estimation model is designed for short time dimension, wide panels, and to fit linear models with one dynamic variable, additional controls, and fixed effects. Therefore, according to *(Roodman, 2006 and 2009)* the first difference transforms which is Arellano-Bond dynamic panel GMM first difference transform is:

$$\Delta y_{it} = \gamma \Delta y_{i,t-1} + \Delta \mathbf{x}_{it}^{'}\beta + \Delta \nu_{it} \ldots\ldots\ldots \textit{Equation 7}$$

In general, the Arellano-Bond dynamic panel GMM estimator is developed for the following situations: first, it develops for a small number of T and a large number of N panels, that is a few periods and multiple individuals; second, it develops for a linear functional relationship; third, it develops for one left-hand side variable which is dynamic, and depending on its previous realizations; fourth, develops for the explanatory variables that are not strictly exogenous, meaning that they are correlated with previous and possibly current realizations of the error term; fifth, it develops for the individual fixed effects; and the last, it develops for heteroscedasticity and autocorrelation problems within but not across individuals(Roodman, 2006, 2007 and 2009).
Consequently, following the above (equation 7) the study estimates the following equation, which defined as follows:

$$\Delta FDI/GDP_{it} = \beta_o + \gamma \Delta FDI/GDP_{i,t-1} + \beta_1 \Delta EXCH_{it} + \beta_2 \Delta INF_{it} + \beta_3 \Delta OPN_{it} + \beta_4 \Delta RR_{it} + \beta_5 \Delta INFRA_{it} + \beta_6 \Delta POLIST_{it} + \beta_7 \Delta PRit + \Delta v_{it} \ldots\ldots\ldots \text{Equation 8,}$$

Where:

FDI/GDP_{it-1} *is the lagged FDI inflows as a percentage of GDP used as a regressor.*

$EXCH_{it}$ *= average of real effective exchange rate in country i at time t*
INF_{it} *= average of inflation rate in country i at time t*
OPN_{it} *= trade openness in country i at time t*
$INFRA_{it}$ *= availability of infrastructure in country i at time t*
RR_{it} *= rate of return on capital in country i at time t*
$POLIS_{it}$ *= political instability measure(s)in country i at time t*
PR_{it} *= property right measures in country i at time t*

3.4 Description of variables and measures

Depending on the previous studies, our dependent variable is FDI inflows scaled by the GDP (FDI/GDP) of each host country. Our independent variables can be grouped into different categories such as macroeconomic uncertainty indicators (exchange rate and inflation), political uncertainty indicators (internal and external conflict), property right uncertainty indicators (investment profile, corruption, rule of law, and bureaucratic quality) and other control variables such as trade openness, rate of return, and infrastructure development.

Dependent variable

FDI_{it} a vector of dependent variables, which measures ratios of FDI to GDP of a host country

Explanatory variables

a) **Macroeconomic variables**

Real effective exchange rate

Real effective exchange rate is a measure of macroeconomic uncertainty measured by the average of the real effective exchange rate. It is generated by taking the monthly exchange rate and aggregated it to annual frequency (Rodrik, 1986; Asefa & Lemi, 2003).

Inflation rate

Inflation rate is also one of the measures of macroeconomic uncertainty measured by the consumer price index. It is generated by taking the average from the monthly inflation rate of host countries and aggregated it to annual frequency to relate it to the FDI model (Rodrik, 1986; Asefa & Lemi, 2003).

Trade connection (trade openness)

Trade connection (trade openness) is measured by the sum of import and export (i.e. (X+M)) and most studies use this variable as a measure of trade restrictions (Asiedu, 2002). The standard hypothesis stated that the high tariff rate (low values of trade) increases the costs of doing business and deters the inflow of FDI, meaning that a high value of this variable is an incentive to attract foreign businesses (Gary Hufbauer & Darius Lakdawalla, 1994). However, there are arguments stated that a low value of this variable could help in attraction of horizontal FDI (Caves, 1996).

Infrastructure development

Infrastructure developments are the emphasis on communications channels such as TV stations, newspapers, televisions, and radios. In different studies, the level of infrastructure development in the host countries is captured by the number of telephone lines per 100 population. The argument here is that the availability and efficiency of the telephone are crucial to facilitate communication among countries and create a good understanding of marketing channels (Tsai, 1994; Loree & Guisinger, 1995; Asiedu, 2002; Lemi, 2003). Thus, this variable is expected to have a positive effect on the FDI inflow. Another scholar (Su et al., 2020) stated that infrastructure variable has brought positive effects like knowledge Spillovers from FDI, for instance, through becoming local suppliers.

Rate of return

The investment profitability is one of the primary interests of multinational corporations (MNCs) and these MNCs will go to countries that pay a higher capital return (UNCTAD, 1999). The capital return or rate of return on investment represented as RR is captured by using the log of the inverse of the real GDP per capita (Asiedu, 2002; Solomon, 2007; Razafimahefa & Hamori, 2005). The intuition behind the choice of this proxy variable following the above scholars is that capital-scarce countries typically have higher rates of return on investment. These countries also tend to have low GDP per capita. Following the literature, the rate of return on capital is inversely related to GDP per capita, therefore it suggested that the lower the GDP per capita, the higher the rate of return on capital and the flow of FDI. Conversely, an increase in the GDP per capita lowers the rate of return on investment and the flow of FDI. A high return on capital is one of the consequential incentives for FDI inflows to sub-Saharan Africa (Razafimahefa & Hamori, 2005).

b) **Political instability variables**

To proxy the particular measures of political instability, the study uses the internal conflict (which has three sub-components; Civil War or Coup Threat, Terrorism or Political Violence, and Civil Disorder) and external conflict (has also three sub-components; War, Cross-Border Conflict, and Foreign Pressure).

Internal Conflict

This is a political violence appraisal in the country and it's an actual or potential consequence on the governance. The countries with the highest rating are those without armed or civil resistance to the government, and the government does not resort to arbitrary direct or indirect violence against its own people. Whereas, the country with the lowest rating is those involved in an on-going civil war.

External Conflict

The measures of external conflicts are an appraisal of the risk of the government taking external actions ranging from non-violent foreign pressure (aid withholdings, restrictions of trade, diplomatic pressures, territorial disputes, sanctions, etc.) to trash foreign pressure. External conflicts can negatively affect foreign companies in many ways, from operating restrictions to trade and investment sanctions, and distort to the distribution of economic resources and to intense change in the structure of society.

c) **Property right variables:**

To proxy the particular measures of property rights, the study uses investment profile (which has three sub components, these are limited Contract Viability/Expropriation, limited profits repatriation, payment delays), rule of law, corruption in government, and bureaucratic quality. All these variables representing both the quality of governance and the structure and organization of legal rights to property (Knack & Keefer, 1995).

Corruption

According to the examination of corruption level within the political system, it's a risk to foreign investment for various reasons: It twists the financial and economic environment, and reduces the efficiency of government and business by allowing people to fill positions of power through patronage rather than skills, and introduces fundamental risk into the political process. Special payments and bribery claims related to import and export licenses, foreign exchange control, taxation, police protection or loans. In some cases, this may lead to recalls or investment retention.

Law and Order

Law and order are one component, but its two elements are graded separately, and each element is graded from zero to three. The "law" element considers the strength and fairness of the legal system, while the "order" element is an assessment of the public's compliance with the law. Therefore, a low rating one is given, if a country has a high crime rate and usually ignores the law without effective sanctions (for example, a wide range of illegal strikes), but its judicial system may have a high rating three.

Bureaucracy

The strength and quality of the bureaucracy is any other shock absorber that has tendency to decrease revisions of policy whilst governments change. Therefore, higher rates are given to countries where the bureaucracy has the expertise and strength to govern without rigorous modifications in policy or disturbance in government services. In these low-risk countries, the bureaucracy has the tendency to be self-sufficient from political stresses and to have an orthodox mechanism for an engagement and training. Countries that lack the cushioning impact of a strong bureaucracy receive lower rating because the tendency to change in government to be upsetting in terms of policy formulation and day-to-day governmental functions.

Investment Profile

Investment profile is one of the risks under property rights uncertainty, which is an assessment of factors that affect investments and are not covered by other elements of financial, economic and political risks. It is mainly focused on three components: limited Contract Viability or Expropriation, limited profits repatriation, and payment delays). The assigned risk rating is the sum of three subcomponents.

3.5 Variables expected sign

Table 1: Variables expected sign

Variables	Expected sign
Lag of 100*(FDI/GDP)	Positive
Exchange rate	Negative
Inflation rate	Negative
Trade openness = Log (imports + exports)	Positive
Rate of return = log (1/GDP per capita)	Positive
Telephone lines per 100 population	Positive
Internal conflict	Positive
External conflict	Negative
Corruption	Negative
Rule of law	Positive
Bureaucratic quality	Negative
Investment profile	Negative
Overall political risk	Negative

CHAPTER FOUR

Results and discussions

Before evaluating the model specified in the previous chapter, this chapter presented the descriptive analysis and look at the time series properties of the data set by performing a panel unit root tests using (Levin et al., 2002). In addition to this several diagnostic tests are conducted to assess the robustness of the estimated model on the basis of econometric benchmarks.

4.1 Descriptive analysis

As a preliminary to the econometric analysis presented in the following section, summary data on the behavior of the variables and categories of individual country units are discussed in this section. The descriptive analysis is based on the statistical summary of the data used for regression analysis. In this summary statistics, the mean, standard deviation, minimum, and maximum value and the number of observations for each variable under study are highlighted in the table 2 below.

Table 2: Summary Statistics for the full sample

	(1)	(2)	(3)	(4)	(5)
VARIABLES	N	mean	Sd	Min	max
100*(FDI/GDP)	494	3.848	5.230	-6.370	39.46
Exchange rate	494	503.4	671.2	0.545	3,727
Inflation rate	494	11.25	34.36	-8.238	550
Internal conflict	494	8.531	1.547	4	12
External conflict	494	9.866	1.319	5.375	12
Corruption	494	2.080	0.712	0.500	4
Bureaucracy	494	1.273	0.804	0	3.500
Rule of Law	494	3.064	1.108	1	6
Investment profile	494	7.686	1.568	1	11.50
Trade openness = Log (imports + exports)	494	22.99	1.557	19.00	27.98
Telephone lines per 100 population	494	2.755	0.345	2.565	4.694
Rate of return = log (1/GDP per capita)	494	-6.761	0.977	-9.022	-4.718
Overall political risk index	494	57.83	10.20	33.17	83.50
Number of countries	26	26	26	26	26

Table 2 above reveals, the summary of descriptive statistics of selected macroeconomic, political and, property right uncertainty variables in sub-Saharan Africa over the period of 2000 to 2018. As shown above, the analysis of the data has established that net FDI as a percentage of GDP has the mean for the entire year and countries under consideration is 3.848, a standard deviation of 5.23 with a minimum value of -6.37 observed in Angola in 2018 and maximum value of 39.46 is observed in Mozambique in 2013 which is the variable has great variation among the cross sections. The average of real effective exchange rate for the entire year and countries under consideration is 503.4 with a minimum value of 0.545 observed in Ghana in 2000 and maximum value of 3,727 is observed in Uganda in 2018, this variable shows a high variation across the cross-section members. The inflation rate has the average for the entire year and country under consideration is 11.25 with a standard deviation of 34.36. In addition to this the minimum value of these variable is -8.238 observe in Ethiopia in 2002 and a maximum value of 550 is recorded in democratic republic of Congo in 2001. This indicated that there are cross sectional variations among explanatory variables over a specified period. The mean value of trade openness is 22.99 percent and a standard deviation of 1.557. It varies across country with a minimum value of 19 percent recorded in Burundi in 2002 and the maximum value of 27.98 percent recorded in Sudan in 2015. The rate of return has the negative average of 6.761 per cent and standard deviation of 0.977 with a minimum value of negative 9.022 percent recorded in Botswana and a maximum of negative 4.718 percent recorded in Ethiopia in 2002.

The distribution of telecommunication has a mean of 2.755 percent with a standard deviation of 0.345. The variation in telecommunication among cross sections are distinguished with a minimum value of 2.565 percent in democratic republic of Congo in consecutive years from 2013, 2014, 2015, 2016, 2017, 2018 and a maximum value of 4.694 percent in Kenya in 2018. The average value of internal conflict is 8.531, a standard deviation of 1.551 with a minimum value of 4 in Sudan in 200 and a maximum value of Botswana in 2001, Burundi from 2000 to 2003 and from 2006 to 20013. The average value of external conflict is 9.866 and a standard deviation of 1.319 for the entire years and cross sections. The minimum value of these variable is 5.375 observed in Ethiopia in 2007 and a maximum value of 12 in Ghana 2002, Madagascar from 2000 to 2003, mail from 2000 to 2001, and Mozambique from 2000 to 2009. The mean value of corruption level is 2.080 and a standard deviation of 0.712 from the entire year and country. The minimum value of these variable 0.500 is observed on Sudan from 2013 to 2018 a and maximum value is 4 observed

in Madagascar from the year 2000 to 2001 and 2003 to 2009, in Congo from 2000 to 2001, and in Botswana from 2015 to 2016. The average value of rule of law is 3.064, a standard deviation of 1.108 with a minimum value of 1 in democratic republic of Congo from 2000 to 20018 and a maximum value of 6 recorded in Namibia from 2000 to 2003 and in Burundi from 2000 to 2004. The statistical summary of bureaucracy which is a minimum value of 0 in democratic republic Congo from 2000 to 20018, in Ivory coast from 2001 to 2018, in Mali from 2000 to 20018, in Mozambique from 2000 to 2002, and in Togo from 2000 to 20018, and a maximum value of 3.5 recorded in Burundi from 2009 to 20018, showing a variation across cross section members with a mean of 1.273 and standard deviation of 0.804 for the overall observations. The minimum value of investment profile is 1 in democratic republic of Congo in 2000 whereas the maximum value is 11.5 observed in Botswana from 2003 to 2006, and in Burundi from 2002 to 2013. The mean of the variable for the overall observation is 7.686 and a standard deviation of 1.568.

4.2 Panel unit root test

In this section, we examine the unit root status of our series in order to ascertain their order of integration. If non stationary variables are used in econometric model estimation that may lead to unrealistic regression results (Asteriou, Dimitros and Hall, 2007). Therefore to check the stationary of variables, (Levin et al., 2002) unit-root test have been conducted to test the stationarity of variables in the model. Because, this test is recommended for strongly balanced data, individual deterministic trends and heterogeneous serially correlated errors. It's a more powerful panel unit root tests to performing a test for overall panels rather performing individual unit root tests for each cross-section. The intuition is that individual panel unit root tests have a limited power against alternative hypotheses with highly persistent fluctuations from equilibrium. The null hypothesis: panels contain unit roots while under the alternative hypothesis, panels are stationary (Baltagi, 2001).

4.2.1 Empirical results of panel unit root test

Based on the Levin-Lin-Chu unit-root test results; variables like foreign direct investment as a percentage of GDP, real effective exchange rate, inflation rate, the log of trade openness, rate of return, the log of telecommunication , internal conflict, external conflict, corruption level, rule of low, bureaucratic quality, investment profile, and overall political risk are stationary at level both

with time trend and without time trend except exchange rate and overall political risk are not stationary without and with time trend respectively (see table 3).

Table 3: Results of panel unit root test

Levin-Lin-Chu unit-root test		
Ho: Panels contain unit roots	Number of panels = 26	
Ha: Panels are stationary	Number of periods = 19	
Variables	With individual effect and time trend	With individual effect and without time trend
100*(FDI/GDP)	-4.2312***	-4.1548***
Exchange rate	-3.4160***	0.9852
Inflation rate	-6.9708 ***	-6.8332 ***
Trade openness = Log (imports + exports)	-11.7589 ***	-12.2130***
Rate of return = log (1/GDP per capita)	-9.9782***	-7.2072***
Telephone lines per 100 population	-4.9108***	-3.1040***
Internal conflict	-5.5235 ***	-4.6380 ***
External conflict	-13.8354 ***	-12.9157 ***
Corruption	-8.0374 ***	-4.5221 ***
Rule of law	-1.8000**	-8.4654***
Bureaucratic quality	-6.0171 ***	-4.3091 ***
Investment profile	-2.6127 ***	-2.9522 ***
Overall Political risk indicator	-0.1106	-3.9587 ***

Note: adjusted t value in parentheses *** p<0.01, ** p<0.05, * p<0.1, ***Statistical significance at 1%, **Statistical significance at 5%, * Statistical significance at 10%.

4.3 Empirical results of Hausman specification test

As shown in table 4 based on (Hausman, 1978) specification test result; the p value is less than 1% level of significance indicating that the rejection of the null hypothesis is preferred (fixed effect model is preferred). Therefore, in this study fixed effect model is estimated.

Table 4: Results of Hausman specification test

Variables	Coefficients		(b-B)	sqrt (diag (V_b V_B))
	(b) FE	(B) RE	Difference	S.E.
Exchange rate	-.0023776	-.0011884	-.0011892	.0005366
Inflation rate	-.105305	-.0916984	-.0136066	.0089344
Trade openness = Log (imports + exports)	4.561349	1.606762	2.954586	.638455
Rate of return = log (1/GDP per capita)	5.595523	1.818922	3.776601	.8401641
Telephone lines per 100 population	.2961567	.2682402	.0279165	.1359474
Internal conflict	-.1505667	-.0709654	-.0796013	.0540607
External conflict	-.2555911	-.1502508	-.1053404	.0830399
Corruption	-.6935964	-.3395643	-.354032	.1506368
Rule of law	2.525864	1.437267	1.088597	.6149855
Bureaucratic quality	1.000098	.2669847	.7331131	1.312321
Investment profile	-.6734743	-.8255809	.1521067	.0892099

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg
Test: Ho: difference in coefficients not systematic
chi2(11) = (b-B)'[(V_b-V_B) ^ (-1)] (b-B)
= 40.13
Prob>chi2 = 0.0000
(V_b-V_B is not positive definite)

4.4 Empirical results of multicollinearity

The problem of multicollinearity in the estimations is measured by variance inflation factor (VIF) and the tolerance level (1/VIF). If no correlation exhibits among the explanatory variables VIF values will be 1. When the value of VIF gets greater than 10 and (1/VIF) falls below 0.1, there is severe problem of multicollinearity. According to (Asteriou, Dimitros and Hall, 2007) VIF less

than 10 is acceptable. Therefore, the results of table 5 show that there is no problematic multicollinearity in the model as the value of VIF are less than the standard value of 10 and the values of 1/VIF are greater than 0.1.

Table 5:Empirical results VIF

Variable	(1) VIF	(2) SQRT VIF	(3) Tolerance	(4) R-Squared
100*FDI/GDP	1.08	1.04	0.9298	0.0702
Exchange rate	1.26	1.12	0.7924	0.2076
Inflation rate	1.06	1.03	0.9446	0.0554
Trade openness = Log (imports + exports)	3.25	1.80	0.3079	0.6921
Rate of return = log (1/GDP per capita)	2.72	1.65	0.3677	0.6323
Telephone lines per 100 population	1.18	1.09	0.8452	0.1548
Internal conflict	2.29	1.51	0.4372	0.5628
External conflict	1.84	1.36	0.5442	0.4558
Corruption	1.54	1.24	0.6500	0.3500
Rule of law	1.56	1.25	0.6429	0.3571
Bureaucratic quality	1.57	1.25	0.6372	0.3628
Investment profile	2.10	1.45	0.4769	0.5231
Mean VIF 2.00				

4.5 Autocorrelation test

One of the basic assumptions for applying the Arellano-Bond estimator for zero Autocorrelation test is no second-order serial correlation (Beath et al., 1982). As shown in table 6 the p value is greater than 0.05 level of significant indicating that the null-hypothesis of no auto correlation was not rejected.

Table 6: Arellano-Bond test for zero autocorrelation in first-differenced errors

Arellano-Bond test for zero autocorrelation in first-differenced errors		
(1) Order	(2) Z	(3) Prob > z
First order serial correlation	-1.4592	0.1445
Second order serial correlation	1.0743	0.2827

H0: no autocorrelation

4.6 Empirical results of fixed effect model

Table 7 shows that the significant variables have their expected signs. The coefficient of exchange rate variability carries the theoretically expected negative signs. It is statistically significant at a 1 percent level of significance and its supportive results for (Solomon, 2006; Udoh & Egwaikhide, 2008; Anyanwu, 2011; Brzozowski, 2011; Solomon & Ruiz, 2012; Das, 2018). The hypothesis that these factors hindered FDI inflows to sub-Saharan Africa. Therefore, the stabilization of currency is an important factor that should be attained as a measure to attract FDI inflows in the region. The coefficient of the rate of inflation is also a statistically significant effect on FDI inflows with the expected negative sign meaning that a high inflation rate can signal economic instability or host government's ineffectiveness to maintain an appropriate monetary policy. This finding is consistent with results of previous studies (Asefa & Lemi, 2003; Udoh & Egwaikhide, 2008; Solomon & Ruiz, 2012;Asiedu, 2015; Siddica & Nur Angkur, 2017;Das, 2018).

In addition, the coefficient of trade openness (import + export) has the expected positive signs and significant at a 1 percent significance level and consistent with FDI inflows. The positive sign for openness is supportive of previous findings (Asiedu, 2002; Anyanwu, 2011; Effah et al., 2016; Siddica & Nur Angkur, 2017; Das, 2018). If the multinational corporations (MNCs) import raw materials and semi-manufactured goods and export processed commodities at a low price, then trade openness of the country might positively affect its investing decisions of multinational corporations (MNCs). Thus, the implementation of more liberal economic policies would certainly promote more FDI to the country. In addition, return on capital has the expected positive signs and significant at a 1 percent level of significance. The hypothesis that a positive return on capital attracts more FDI inflows to SSA. This result is supportive of previous papers (Wenkai et al., 2007; Solomon & Ruiz, 2012). The infrastructure development is proxied by the log of the number of telephone lines per 100 population have their expected signs but has not statistically significant.

The particular measure of political uncertainty that is internal and external conflicts is statistically insignificant effect on the inflows of FDI. The result is supportive of the previous studies (Kolstad & Tøndel, 2002; Hefeker, 2005; Solomon, 2007; Solomon & Ruiz, 2012). The statistical insignificance effect of the specific measures of political uncertainty is surprising; but, one

explanation may be that the main concern of multinational companies when deciding to invest in a particular host country is the overall political risk of the host country rather than the Country-related specific risks. Likewise, corruption which is one of the measures of host country property rights uncertainty is statistically insignificant in explaining the inflows of FDI and it's supportive to the previous study (Jacob, 2015; Türedi, 2018). In addition, the quality of bureaucracy is statistically insignificant effect on the inflows of FDI to SSA. Its supportive to the previous result (Khan, Mustaque & Ibne, 2013). However, another measure of property rights uncertainty, namely, rule of law is found to positively and significantly affect the inflows of FDI at a 1 percent significance level. This finding is in line with previous (Asiedu, 2006; Solomon & Ruiz, 2012; Siddica & Nur Angkur, 2017). The intuition is: the strength and impartiality of the legal system of the government can promote the inflows of FDI to SSA. Whereas, investment profile is found to negatively and significantly affect the inflows of FDI. The coefficient of this variables is logical and consistent with theoretical expectations. Measures of investment profile contain three sub-components such as limited contract viability/ expropriation of assets, limited repatriations of profits of multinationals, and payment delays which are important factors that may affect the MNCs' decisions on where to invest. The intuition is that the higher the risk to investment the lower the inflows of FDI. This result is supportive of the previous papers (Asiedu, 2006; Solomon, 2007; Rafat & Farahani, 2019).

Table 7: Fixed effects and Arellano-bond GMM estimation results for particular measures of political instability

Dependent variable	100*FDI/GDP	
Variables	(1) Fixed effects Estimation Result	(2) Arellano-Bond GMM Estimation Result
Lag of 100*FDI/GDP		0.293***
		(0.0522)
Exchange rate	-0.00238***	-0.00282*
	(0.000861)	(0.00147)
Inflation rate	-0.105**	-0.0448***
	(0.0519)	(0.0157)
Trade openness = Log (imports + exports)	4.561***	6.500**
	(0.836)	(3.221)
Rate of return=log (1/GDP per capita)	5.596***	8.914**
	(1.134)	(4.273)
Telephone lines per 100 population	0.296	2.044
	(0.232)	(1.353)
Internal conflict	-0.151	0.00654
	(0.251)	(0.143)
External conflict	-0.256	-0.139
	(0.295)	(0.186)
Corruption	-0.694	0.0963
	(0.454)	(0.284)
Rule of law	2.526***	3.665**
	(0.825)	(1.569)
Bureaucratic quality	1.000	1.937
	(1.531)	(2.844)
Investment profile	-0.673**	-0.854***
	(0.298)	(0.165)
Constant	-60.41***	-96.09*
	(14.55)	(49.94)
Observations	494	442
Number of countries	26	26
Over all significance Prob > F	0.0000	0.0000
serial correlation test AR (1)		0.1445
serial correlation test AR (2)		0.2827
Sargan test		1.0000

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1.***Statistical significance at 1%, **Statistical significance at 5%, * Statistical significance at 10%. In the table 7 above, on the last row, reported value are p-values and the null hypothesis of the no second-order autocorrelation test is that the errors don't reveal a second order serial correlation. According to the above result, the null hypothesis for the Sargan test is that overidentifying restrictions are valid.

4.7 Empirical results of Arellano-bond GMM dynamic panel estimator

The estimation results of Arellano-Bond GMM first difference are similar to the fixed effects results except the lagged dependent variables that Arellano-Bond GMM first difference used as a regressor. As shown in Tables 7 above, the lagged dependent variable (the lag of FDI) is significant at a 1 percent level of significance and has a positive coefficient. It implies that a better previous record of FDI inflows will increase present FDI flow.

Alike fixed effect results, Arellano-Bond's GMM estimation results also assert that macroeconomic uncertainty which is proxied by the annual average of real exchange rate and inflation rates variability continues to be consistently significant at 10 percent and 1 percent level of significance respectively and continue to have their expected signs. This implies that both exchange rate and inflation rate uncertainty hinder FDI inflows to sub-Saharan Africa regions as predicted by theory meaning a high rate of exchange rate variability and inflation rate can signal economic instability of the host country. Trade openness and rate of return are significant at a 5 percent significance level and positive impact on FDI inflows. In addition, some of the particular measures of property rights uncertainty, namely rule of law, and investment profile also remain to have its expected sign and to be significant at a 5 percent and 1 percent level of significance respectively.

The coefficient of infrastructure facilities proxied by the log of number of telephone lines per 100 population is statistically insignificant. The particular measure of political uncertainty variables (internal and external conflict) is also not statistically significant effect on the inflows of FDI. In addition, the corruption level and bureaucratic quality have statistically insignificant. In general, the overall results of the model, the fixed effects estimation and Arellano-Bond GMM estimations give similar results. In both estimation techniques, real effective exchange rate and inflation rate uncertainties, and investment profile are a negative and significant effect on the inflows of FDI. However, better rule of law has positive and significant effects on FDI inflows.

4.8 Empirical results of overall political risk

Table 8: Fixed effects and Arellano-Bond GMM estimation results for over all political risk indicators

Dependent variable	100*FDI/GDP	
VARIABLES	(1) Fixed effect	(2) Arellano-Bond GMM Estimation
Lag of 100*FDI/GDP		0.424***
		(0.0123)
Exchange rate	-0.00220**	0.00216***
	(0.000853)	(0.000524)
Inflation rate	-0.0962*	-0.0963***
	(0.0520)	(0.0147)
Trade openness = Log (imports + exports)	5.127***	3.550***
	(0.825)	(0.517)
Rate of return=log (1/GDP per capita)	6.126***	3.328***
	(1.120)	(0.604)
Telephone lines per 100 population	0.409*	-0.0991
	(0.225)	(0.162)
Over all political risk	0.0829	-0.102***
	(0.0645)	(0.0260)
Constant	-76.44***	-50.92***
	(14.09)	(7.206)
Observations	494	442
Number of Countries	26	26
Over all significance Prob > F	0.0000	0.0000
serial correlation test AR (1)		0.1239
serial correlation test AR (2)		0.2491
Sargan test		0.3959

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1, ***Statistical significance at 1%, **Statistical significance at 5%, * Statistical significance at 10%. In the table 8 above, on the last row, reported value are p-values and the null hypothesis of the no second-order autocorrelation test is that the errors don't reveal a second order serial correlation. According to the above result, the null hypothesis for the Sargan test is that overidentifying restrictions are valid.

As shown in table 8, the coefficient of the overall political risk index is negative and significant at a 1 percent significance level in Arellano bond GMM first difference estimation as expected. This result meets our expectations and in line with the previous studies (Solomon & Ruiz, 2012; Goswami & Haider, 2014; Khan, Mustaque & Ibne, 2013). Political risks bring additional costs to investors. Therefore, it can be expected that there will be a negative correlation with the inflow of foreign direct investment to the SSA economy. The exchange rate variability, inflation rate uncertainty, trade openness, and rate of return are significant and with their expected sign. On the other hand, infrastructure expressed as telephone lines per 100 population is significant at a 10 percent level of significance in the fixed-effect model implying that the better development of infrastructure facilities can attract more FDI.

CHAPTER FIVE

Conclusion and recommendation

This study examines effects of macroeconomic, political, and property rights uncertainties on FDI inflows to 26 sub-Saharan African economies over 2000-2018 using fixed effect and Arellano-Bond GMM dynamic panel data models. The findings of the study indicate that. macroeconomic uncertainties as proxied by exchange rate and inflation rate have statistically significant and negative effects on inflow of FDI into SSA indicating that macroeconomic uncertainties have a deleterious effect on the FDI inflows into SSA economies by creating instability or uncertainty in the macroeconomic environment of the host countries. Macroeconomic policy uncertainty is the main driver of foreign direct investment because it affects profitability by increasing the cost of foreign companies. The uncertainty of macroeconomic policies increases production costs through price channels and imposes additional taxes in the host country, thereby affecting multinational companies (Anyanwu, 2012). Therefore, policymakers should give attention to the macroeconomic stability of the region by closely looking at the change in inflation and exchange rates to strengthen the economy and build potential investor's confidence i.e., these countries could implement reliable and stable macroeconomic policies to increase the inflows of FDI.

Similarly, overall political risk has statistically significant and it is a negative impact on FDI inflows to SSA. Since foreign direct investment decisions are irreversible, the prospect of policy changes makes investment risky in sub-Saharan Africa. Thus, creating stable political environments, thereby reducing the political risk can increase FDI inflows to sub-Saharan Africa countries. Breakdown of effects of property right uncertainty indicates that better functioning rules of law has positive and statistically significant effects on inflow of FDI indicating that quality of governance matters to attracting foreign direct investment into SSA. However, measures of high risks of expropriation of assets and limited repatriation of profit are negatively association with inflow of FDI into SSA. Thus, improvements in property right which are implementing a better investment profile (better contract viability/minimize expropriation of assets, better repatriations of profits of MNCs, and minimize payment delays) could promote more FDI inflows to SSA. Therefore, the intuition is that if countries have introduced transparent legal systems, improving investment profile, and minimize political risk to protect property, the potential investor’s

confidence could strengthen. Consequently, improving property rights indicators can increase confidence in the host country by protecting the assets of multinational companies (MNCs). However, contrary to expectations, corruption, bureaucratic quality and internal and external conflicts have no significant effects on the inflow of FDI into economies of SSA.

Other economic factors such as the lagged FDI, trade openness, and rate of investment return reveals significant and positive coefficients meaning that these variables attract FDI inflows to SSA economies. This empirical result suggests that trade liberalization (for example removing restrictions on trade policies) and profit repatriation may reward more FDI in SSA. Therefore, policymakers should concentrate on promoting international trade and profit repatriation through further liberalization measures (like reducing trade policy restrictions), thereby opening up the country to improve the investment environment. A higher rate of return on capital also attracts FDI inflows to these regions. An export-oriented regime opens up a country's economy to the outside world, especially since investors need more investment to achieve a higher return on capital. The infrastructure development proxied by the number of telephones per 100 population has a positive significant effect on the inflows of FDI to SSA. This implying that, if there is better infrastructure development in the host country, the more FDI inflows are expected. In general, the study provides policy implications that is governments in SSA countries could attract more FDI inflows by: managing the key macroeconomic variables such as inflation and exchange rate, reducing political risks, and improving property rights enforcement.

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Appendix

Appendix 1.1 -- list of countries in the sample

Angola
Botswana
Burkina Faso
Burundi
Cameroon
Congo
DR. Congo
Ethiopia
Gambia
Ghana
ivory coast
Kenya
Madagascar
Malawi
Mali
Mozambique
Namibia
Niger
Nigeria
Senegal
South Africa
Sudan
Tanzania
Togo
Zambia