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The Role of Exchange Rate Uncertainty and Political Risk on Foreign Direct Investment into Africa

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THE ROLES OF EXCHANGE RATE UNCERTAINTY, POLITICAL RISK AND HOST COUNTRY INSTITUTIONS ON FOREIGN DIRECT INVESTMENT (FDI) INTO AFRICA

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ABSTRACT

This study, examines the roles of macroeconomic uncertainty, political risk, as well as host country institutions, in affecting FDI inflows into African economies. The past few decades have witnessed a surge of FDI inflows to developing regions. However, FDI inflows to Africa still remain small when compared to other developing regions. What characteristics does Africa exhibit that deter FDI inflows into the region? Investor surveys show political instability, corruption and macroeconomic uncertainty to be strong deterrents of FDI inflows to Africa. However, there are very few studies in the literature that investigate rigorously the impact of macroeconomic uncertainty and political risk, as well as the role of host country institutions for FDI inflows into African economies. I Use a sample of 11 African countries, and employ Fixed Effect and Arellano-Bond GMM estimators. The most important finding is that macroeconomic uncertainty (captured by conditional variances obtained from GARCH models) and the poor quality of host country institutions (proxied by corruption) are deterrents of FDI inflows into these economies. However, political risk (proxied by internal and external conflicts) does not significantly affect FDI inflows into Africa economies.

Key Words: FDI, Macroeconomic Uncertainty, Political Risk, African Economies
JEL Classification: F21, F23, O24, O55

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1. INTRODUCTION

Foreign direct investment (FDI)[1] has become a key element of the global economy. Because of its long-term nature, FDI has the potential to generate employment, raise productivity, transfer skills and technology, enhance exports and contribute to the long-term economic development of the world's developing countries (UNCTAD, 2004). In addition, FDI is considered less prone to crisis as opposed to short term credits and portfolio investments, because direct investors, in general, have a long term perspective when investing in a host country (see Lipsey, 1999). The significant benefits of FDI over other types of capital inflows, has made attracting FDI one of the integral parts of economic development strategies. As a result, developing countries are frequently advised to try to attract FDI (see Bennassy-Quere et al, 2001 and Prasad et al., 2003).

As a result, there is competition among developing countries to attract FDI. Many developing countries have adopted policies that are favorable to increase FDI inflows such as removing trade restrictions and providing sound economic policy environments. Due to these factors, FDI to developing countries has increased. By 2004 the share of developing countries in world FDI inflows was 36%; the highest level since 1997. However, the same year FDI inflows to Africa remained nearly the same, while all other regions experienced a significant increase (WIR[2], 2005). In general, FDI to African countries still remains to be miniscule when compared to other developing regions.

Most countries in Africa are characterized with low domestic savings and do not have access to international capital markets. In addition, official loans and foreign

[1] The United Nations Conference on Trade and Development (UNCTAD) defines foreign direct investment (FDI) as an investment involving a long-term relationship and lasting interest in and control by a resident entity in one economy in an enterprise resident in another economy. The ownership level required in order for a direct investment to exist is 10% of the voting shares (UNCTAD, 2004).
[2] World Investment Report, 2005.

assistance per capita to the region have decreased. These important facts have increased the importance of FDI to Africa to achieve the Millennium Development Goal (MDG) of halving its proportion of people that live in extreme poverty (i.e. the proportion of people whose income is less than $1 a day and the proportion of people who suffer from hunger by 2015 (for more explanation on the MGD see The UN Millennium project, Hamori and Razafimahefa, 2005 and Asiedu 2002)). It can also aid the region to overcome scarcities of resources such as capital and entrepreneur skills, facilitate technological transfer and innovation, and create employment (see Mwilima, 2003). Due to the paramount significance of FDI to the region, it is important to investigate what has deterred FDI inflows to African economies.

What characteristics does Africa exhibit that deter FDI inflows into the region? Asiedu (2006) reconciles the result of four investor surveys[3] and finds corruption, political instability, and macroeconomic instability (such as exchange rate risk and inflation) to be strong deterrents of FDI inflows to Africa. When investing in developing economies, investors are mostly concerned with political and institutional factors as well as macroeconomic uncertainties that might affect their investment (Lemi and Asefa, 2003). However, there are very few studies in the literature that investigate rigorously the impact of macroeconomic uncertainty and political risk[4], as well as the role of host country institutions for African economies (for exceptions see Lemi and Asefa, 2001).

[3] These surveys were the World Business Environment Survey (WBES), World Development Report Survey (WDRS), World Investment Report (WIR) Survey, The Center for Research into Economics and Finance in Southern Africa (CREFSA) Survey.

[4] The concept of political risk has not received a clear cut definition. For example Simmonds and Robock (1973), state that political risk in international investment exists when discontinuities occur in the business environment, when they are difficult to anticipate, and when they result from political change. Haendel (1979) defines political risk as the risk or probability of occurrence of some political event(s) that will change the prospects for the profitability of a given investment. For the purpose of this paper we will use the definition provided by Haendel (1979).

Therefore, by incorporating proxies for economic uncertainty, political risk indicators, as well as host country institutions, this study examines the role of uncertainty and risk in affecting FDI inflows to African economies.

This study contributes to the literature in three ways. First, we investigate the joint impacts of political risk, host country institutions and economic uncertainties as well as other economic determinants of FDI on the FDI inflows to Africa.[5] We employ the overall political risk index as well as particular political risk components given by International Country Risk Guide (ICRG) in order to capture the political risk and institutional quality associated with the selected African economies. To our knowledge only two studies have used this dataset to analyze FDI inflows into African economies (Asiedu, 2002, 2006). Secondly, we apply a theoretical model developed by Baniak et al (2006) to explain FDI under uncertainty transition economies, to African economies. Lastly, we test the predictions of this model that macroeconomic uncertainty as well as political and institutional instability deters FDI inflows.

The paper is organized as follows: section 2 gives a background on FDI and its determinants. The 3rd section gives a theoretical background from which we derive testable predictions about the effects of uncertainty on FDI.

The 4th section describes the data, while section 5 gives the empirical methodology. Section 6 discusses the empirical findings and finally the section 7 gives the conclusions and policy recommendations.

[5] In order to measure political risk, we use the political risk indices provided by the International Country Risk Guide (ICRG). The ICRG is published by Political Risk Services (PRS) and is used by institutional investors, banks, multinational corporations, importers, exporters, foreign exchange traders, shipping concerns, and a multitude of others, to determine how political risk might affect their business and investments now and in the future (ICRG, 2006). This dataset has been used by very few studies concerned with African economies (for exceptions see Asiedu, 2005).

2. FOREIGN DIRECT INVESTMENT AND ITS DETERMINANTS

The OLI (ownership, location, and internalization) framework is generally considered as the classic theory of the multinational firm's investment decisions (Dunning, 1973, 1993). In the OLI framework multinational enterprises (MNEs) invest internationally when three sets of determining factors (ownership, location, and internalization factors) exist simultaneously. The OLI framework argues that in order for the MNE to be successful in FDI, it must have some kind of an advantage that overcomes the costs of operating in a foreign market. That is, the MNE must have some advantages specific to the firm and readily transferable within the firm and between countries, which is the (O or) ownership factor. The (L or) location factor implies that the firm must be attracted by specific characteristics in the foreign market that will allow it to exploit its advantage in that (host) market. Finally, the (I or) internalization factor implies that the MNE must weigh the relative benefits and costs of the variety of alternative contractual arrangements to determine how it enters the foreign market and expands its operations over time.

Generally studies focus on the locational factors of FDI. However, the absence of a generally accepted theoretical framework has led researchers to rely on empirical evidence for explaining the locational determinants of FDI. Location specific economic factors such as the size and growth of the market measured by the GDP of the host country, the availability of labor, labor costs, inflation, and the availability of natural resources have been found to affect FDI inflows.

Indeed, the empirical literature cites a large number of very different location specific economic factors that impact investments associated with individual locations.

However, in order for investors to feel safe about their investments in developing countries, it is widely believed that stable political and social institutions should be in place. In developing countries, the main factors that affect investors' confidence are political risk, institutional factors and market failure that results in price and exchange rate uncertainty (Lemi and Asefa, 2001). The ICC (International Chamber of Commerce)[6] confirms that political instability; bureaucratic bottle-necks and absence of proper legal framework are the major factors which investors see as impediments to FDI in developing countries. However, most studies ignore the importance of uncertainty that emanates from macroeconomic variables (such as exchange rates) as well as political and institutional instabilities that affect FDI inflows. Due to the importance of these factors in affecting investment decisions, recent studies have begun to focus on the impact of political risk and host country institutions on capital flows to developing countries.

2.1 POLITICAL RISK, INSTITUTIONS AND FDI

Political risk is frequently thought to negatively affect the MNEs' decisions to invest in a foreign country. This is because the occurrence of political and institutional instability might significantly affect firms' costs of operating in a foreign country. However, empirical evidence has not come to a consensus about the effects of political risk on FDI inflows. Some of the empirical research relating FDI to political risks finds that political instability decreases FDI inflows (see Biswas, 2002; Harms, 2002; Edwards, 1990; and Singh and Jun, 1995). In particular, political risk indicators such as internal armed conflict, political strikes, riots, and external conflicts have been found to deter FDI

[6] The ICC (International Chamber of Commerce) is a global business organization that covers a broad spectrum, from arbitration and dispute resolution to making the case for open trade and the market economy system, business self-regulation, fighting corruption or combating commercial crime.

inflows by some studies (see Nigh, 1985; and Tuman and Emmet, 1999; and Schneider and Frey, 1985).

On the contrary, Busse and Hefeker (2005), using Arellano-Bond GMM estimators, did not find a significant effect of internal and external conflicts on FDI into developing economies. Similarly, Bennett and Green (1972) and Wheeler and Mody (1992), employing a broad principal component measure of political risk, find political risk to be insignificant in explaining U.S. FDI.

Another type of political factor that might affect FDI inflows is host country institutional quality. Benassy et al. (2005) state that quality of institutions may matter for attracting FDI because; higher quality of institutions may signal higher productivity prospects for direct investors. Conversely, poor institutions can bring additional costs to FDI and therefore deter FDI inflows. Some empirical studies support the hypothesis that poor institutional quality decreases FDI inflows. These studies show that host country institutions proxied by the prevalence of corruption to have a negative and significant effect on FDI inflows (see and Wei, 2002; Habib and Zurawicki, 2002; and Asiedu, 2006). However, empirical studies have not consistently found poor host country institutional quality to be negatively related to FDI inflows. For example, Kolstad and Villanger (2004) find that corruption increases tertiary sector FDI inflows, while Wheeler and Mody (1992) find corruption and quality of the legal system to have no significant effect on U.S. FDI.

Studies that focus on the linkages between political risk and institutional quality to FDI inflows specifically to developing economies (such as, Globerman and Shapiro, 2004; and Busse and Hefeker, 2005) find governance infrastructure (a country's political,

institutional and legal environment, as well as to the policies that accompany them) to be an important determinant of FDI inflows. They find that investments in governance infrastructure not only attract capital but may also create the conditions under which domestic MNE emerge and invest abroad.

With regards to the impact of political risk and institutions on FDI inflows to Africa, empirical research is very limited (for exceptions, see Asiedu, 2002 and 2006, Lemi and Asefa 2001, and Hamori and Razafimahefa, 2005). This is surprising since Africa receives a very small percentage of total FDI inflows to developing economies. In addition, Africa is characterized with a high degree of political instability and inefficient institutions. Reinhart and Rogoff (2001), show that 40% of the countries in Africa have had at least one war (an extreme form of political instability) during the period of analysis and 28% have had two or more. The probability of such adverse outcomes might have a critical influence on FDI inflows. Asiedu (2002, 2006) finds that political instability and inefficient institutions have a negative impact on the inflow of FDI to African countries. Lemi and Asefa (2001), argue that there is a differential effect of governance on different industries due to the nature, size and objectives of the FDI firms that enter African economies.

In this paper we make use of the political risk measures provided by International Country Risk Guide (ICRG) in order to study the effects of risk and uncertainty on FDI inflows into African economies. The ICRG provides composite political risk indices as well particular measures of political instability and host country institutions (such as internal and external conflict; government stability, corruption, and the ability of the government to ensure law and order) for the countries in this study. We employ the

overall political risk index as well as particular measures of political instability such as internal conflict and external conflict in order to measure political stability. Host country institutional quality can also be captured by, corruption, bureaucratic quality and the extent to which law and order is enforced.

2.2 MACROECONOMIC UNCERTAINTY

Most FDI decisions are made in an uncertain environment. Uncertainty is important to investors because investors necessarily look into the future before undertaking any investments. Macroeconomic uncertainty is another important factor that is likely to affect FDI inflows into developing economies. Recent theoretical literature has focused on the work of Dixit (1989), and Dixit and Pindyck (1994), which stresses on the role played by uncertainty in determining investment decisions. The irreversible nature of investment, uncertainty about the future benefits and costs of the investment, and the flexibility about investment timing, may cause a wait and see attitude in making investment decisions. Investors care about uncertainty because they look into the future before undertaking any investments. Therefore, investment behavior will be responsive to the degree of investment uncertainty about future prices, rates of return, and economic conditions (see Dixit and Pindyck, 1994).

The effect of the uncertainty of the real exchange rate on FDI has been explored by many studies. However, there is no consensus about the effects of uncertainty on FDI. Exchange rate uncertainty may decrease FDI since investors might want to avoid changing terms of trade, or increase FDI as firms attempt to reduce exposure to demand fluctuations due to changing terms of trade (Cushman, 1985, 1988; Goldberg and

Kolstad, 1995; and Sung and Lapan, 2000). If the purpose of FDI is to diversify location of production (increase market share) and to have the option of production flexibility, then a positive relationship between uncertainty and FDI is to be expected. On the other hand, if the purpose of FDI were either to serve other markets or bring production back to the home country, a negative relationship between FDI and exchange rate uncertainty would arise (see Blonigen, 2005).

Empirical work on the effects of exchange rate uncertainty and FDI inflows has concentrated on developed economies. However, studies that do focus on developing countries find a negative relationship between uncertainty of exchange rates and FDI inflows (see Lehmann, 1999; Bennassy et al, 2001; Lemi and Asefa, 2001). A high degree of uncertainty might deter companies from making the initial investment in developing countries (see Blonigen and Wang, 2004).

The literature has made use of different methods in order to measure uncertainty. In general, the future behavior of an economic variable is uncertain since the probability of future events cannot be determined, a priori. Thus, the future volatility of an economic variable is seen as a stochastic process that evolves over time with a random and a deterministic component. We can then define the uncertainty of an economic variable as the unpredictable portion of its volatility (see Carruth et al., 2001, and Crawford and Kasumovich, 1996). Both conditional and unconditional measures of volatility have been used in the literature in order to proxy exchange rate volatility. A classic measure used to proxy volatility is the rolling variance, which is an unconditional measure. On the other hand, conditional measures such as the ARCH and GARCH processes are popular measures of volatility.

The rolling variance displays the total variability of the series; however, part of that total variability is predictable. It is often argued that unconditional measures of volatility should be stronger measures of total volatility because they include both, expected and unexpected volatility (see Goldberg and Kolstad, 1995). However, when studying uncertainty, the conditional should be a better measure because it captures the unexpected volatility (Crawford and Kasumovich, 1996). Therefore the ARCH/GARCH models have been used by many studies that focus on volatility, since they generate the conditional variances of a variable. In this study, we make use of volatility of the exchange rate generated from ARCH/GARCH models in order to measure uncertainty.

3. THEORETICAL BACKGROUND

The literature offers some theoretical models that analyze the impact of uncertainty on FDI inflows. Most of these models have been developed to explain FDI inflows into developed economies. However, recently few theoretical studies have focused on developing economies and uncertainty. One such theoretical model that analyzes the impact of instability on FDI inflows is that of Baniak et al (2005). This study explores the determinants of FDI inflows into transition countries. In particular, Baniak et al (2005) develop a theoretical model that takes into account the impact of instability of the economic and legal environment on the pattern of FDI for two transition economies. They motivate their theoretical model by arguing that in many transition economies, legal changes accompanying market reforms have taken place. However, the new regulatory acts developed in some of these countries are either prepared by non experienced local legislators, or are replicas of the respective laws of the Russian Federation.

Therefore, they do not reflect the specific social, economic and political conditions of new republics. Consequently, it is quite common that already prevailing laws are frequently revised, in short periods of time. All of this creates an uncertainty with regard to the prevailing legal environment in these countries, and acts as hindrance to investment activity.

The model developed by Baniak et al (2005) can be applied to African economies, since most African countries are also characterized with uncertainty that arises from macroeconomic policies as well as uncertainty from political and institutional factors. Reinhart and Rogoff (2001), calculate[7] the percent of countries for three regions: Africa, Asia and Western Hemisphere (excluding Canada and the U.S.) with at least one war over 1960-2001. They show that 40% of the countries in Africa have had at least one war during the period of analysis and 28% have had two or more. This is more than three times the incidence of war for Western Hemisphere and almost twice that of Asia. Their analysis shows that civil unrest and wars occur more frequently in Africa than any other region, and the probability of such outcomes has a critical influence on the investment climate. Therefore investors face an uncertain political environment arising from political risks (such as internal or external conflicts) when investing in Africa. In this paper, we use the overall political risk index as well as particular components of political risk provided by the ICRG in order to capture the political risk investors face while investing in Africa.

In addition, FDI is vulnerable to any form of uncertainty stemming from poor quality of institutions such as government inefficiency, policy reversals, graft or weak enforcement of property rights (Benassy et al, 2005). Moreover, inefficient institutions

[7] They use the dates of wars provided in Collier and Hoeffler (2001) and (2002) for their calculations.

can bring additional costs to FDI, for example, the prevalence of corruption creates additional costs to investing in a foreign country. Inefficient institutions might also lead to "commitment problems" on the part of the host country, in the sense that it may renege on policy promises once key long-term investments are made (see Acemoglu, 2005).[8] Investor surveys and studies show that corruption and weak enforcement of contracts, and policy reversals are prevalent in Africa (World Bank, 1994 and Asiedu, 2002, 2006). As a result, investors face another type of uncertainty with regards to the prevailing institutional environment (such as the prevalence of corruption, the extent to which the rule of law is enforced, the bureaucratic quality of the government) when investing in Africa.

Thus, in this section, we adopt the simple model developed by Baniak et al (2005) to explain investing decisions by MNEs to Africa. The model describes the process of decision-making concerning FDI in a country with an unstable macroeconomic, political and institutional environment. When making investing decisions, MNEs face uncertainty of basic macroeconomic variables such as exchange rate uncertainty. Another important uncertainty is of the political type; for example, the occurrence of political and institutional instability might significantly affect firms' costs of operating in a foreign country. Other things being equal, stability may be a key factor in determining the flow of FDI into a host country (Baniak et al (2005). The purpose of adopting this model is to show the impact of exchange rate uncertainty and political and institutional instability on the decisions of MNEs concerning FDI into Africa.

[8] In the literature on organizational economics, this is referred to as a holdup problem. With holdup, taxes are typically higher and more distortionary. Holdup problems, in turn, are likely to be important, for example, when the relevant investment decisions are long-term, so that a range of policies will be decided after these investments are undertaken (for more explanation see Acemoglu, 2005).

3.1 THE MODEL

Following Baniak et al (2005), we assume that the MNE considers 2 possible alternatives as to where to produce its commodity.[9] It can produce the commodity in a plant, located in a host country[10] or the MNE has an alternative to build a plant located in its own home country. Another important assumption that follows from Sung and Lapan (2000) and Baniak et al (2005) 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 they (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 and institutional instabilities), (4) Every plant faces a perfectly elastic demand, that is, the firm can sell any volume produced at the world market price $\boldsymbol{P_{world}}$, since the commodity can be sold at the world price. Moreover, we also assume that firms are managed according by typical risk-averse asset holders.[11]

Following Baniak et al (2005), we focus on a single commodity market in a host country. We assume that this particular commodity is not produced in the host country, but demand is satisfied by imports. The unit price of this commodity, $\boldsymbol{P_{world}}$, is determined in the world market and is expressed in the currency of the home country of the MNE.

Therefore, the cost functions are specified as:

[9] Following Sung and Lapan (2000) we assume that the firm produces a homogeneous commodity.
[10] Host country refers to the destination country for FDI.
[11] The decisions in each firm are made by a group of decision-makers with sufficiently similar preferences to guarantee the existence of a group preference function, representable by a strictly concave Von Neuman-Morgenstern utility function (for discussion see Sandmo (1971).

$$C_{host}(Q)=c_{host}Q+F_{host} \quad (1)$$

$$C_{home}(Q)=c_{home}Q+F_{home} \quad (2)$$

Where Q[12] denotes output from the plant, C_{host} (C_{home}) denotes the costs prevailing in the host (home) country, c_{host} (c_{home}) denotes the marginal costs for the host (home) plants, and F_{host} (F_{home}) stands for fixed costs for the home (home) plant. Another assumption is that, the costs of the plant built in the host country are expressed in domestic currency (of the host country) and do not depend on the exchange rate (that is, we assume that only local resources are used in the production process). Similarly, the costs of the plant built in the home country of the MNE are expressed in the currency of the home country. In the fully deterministic case, profits created by the host country plant, expressed in domestic currency, are given by:

$$\Pi_{host}(Q) = (e)P_{world} \cdot Q - c_{host}Q - F_{host} \quad (3)$$

Where *e* denotes exchange rate of the foreign currency in the host country (expressed as the number of units of foreign currency for one unit of local currency). Similarly, profits of the foreign plant, expressed in foreign currency are:

$$\Pi_{home}(Q) = P_{world} \cdot Q - c_{home}Q - F_{home} \quad (4)$$

Note that the profits of the plant built in the foreign country do not depend on exchange rates. 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 and political and institutional situations. In particular, the exchange rate is influenced by the macroeconomic situations. On the other hand, political

[12] We assume that the output produced, namely *Q*, cannot be greater than maximum capacity, *K*.

instability and 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 not certain. In addition, political situations and host country institutions are not stable. Therefore the MNE makes its investing decisions in an uncertain environment. Investing decisions are made by looking at macroeconomic forecasts and political and institutional stability predictions. As a result, in each subsequent period the firm faces exchange rate uncertainty (resulting from an unstable macroeconomic environment), and uncertainty about the marginal cost of production (resulting from unstable political situations and host country institutional factors). Following, Baniak et al (2005) we consider the exchange rate and marginal cost of production to be random variables (we also assume that the two random variables are independent of each other), described by certain probability distributions (known at the moment of decision making).

When making decisions about the volume of output, the risk-averse firm does not maximize profit, but instead it maximizes expected utility from profit.[13] Therefore, when making investment decisions the MNE has to compare expected utility of profits from the investment considered (expressed in home currency) with the cost of this investment (in home currency).

The MNE when contemplating opening the plant in the host country, analyses the value specified by the expression $U(e\,\pi(Q))$, where $e\,\pi(Q)$ are profits from the host plant denominated in foreign currency. When the firm considers opening the plant in its own country, the profits are fully deterministic and given by equation (1), hence the utility

[13] Lower profit with lower risk could sometimes be better for a risk averse firm than higher profit with higher risk.

function value is $U(\pi_{home}(Q_{home}))$, where Q_{home} is the optimal level of output produced. In order to make a decision in which country the plant should be built, the firm compares the maximum of expected utility $U(e\ \pi(Q))$, with the target value $U(\pi_{home}(Q_{home}))$. Due to the assumption we made earlier that the optimal volume of production in the home plant is equal to K , now we denote π_{home} (K) by π_{home*}, then the target value is equal to $U(\pi_{home*})$.

The firm follows the following order when considering the possibility of building the new plant: (1) it learns about the probability distributions of the exchange rate and marginal costs in the host country; (2) the firm finds the optimal value of production x^*, which maximizes the expected utility $U(e\ \pi(Q))$, for the plant built in the host country; (3) if the level of utility computed in (2) is higher than the target value $U(\pi_{home*})$, the firm builds a new plant in the host country, otherwise the new plant is built in its home country; (4) the values of e and c are realized.

How does the expected utility from profit depend on the variability of the exchange rate and marginal cost of production? We follow the analysis given by Sandmo (1971) that increasing the variability of any random variable X as passing from X to a new random variable, defined as $Y=E(X)+a(X-E(X))$, where a is a constant coefficient ($a>1$). The new variable has the same expected value and the same shape of distribution function, but larger variance. Based on such understanding of variability change we reach the proposition (and the corollaries that follow them) given by Baniak et al (2005):

PROPOSITION 1. *If the variability of the exchange rate in the host country increases or the variability of marginal costs c increases, then the expected utility from investing in the host country decreases.*

From Proposition 1 we can immediately get two important corollaries.

COROLLARY 1. *If the expected variability of marginal costs in home plant is high enough, then the company will choose not to invest in the host country but builds a plant in its home country. This is also true when marginal costs in the home plant are higher than the expected value of marginal costs of the host plant (expressed in home currency).*

Corollary 1 implies that even if the expected marginal costs are lower in the host plant, high variability of those costs may prevent the risk-averse firm from investing in the host country. Thus, building a plant in the home country can be perceived as insurance against marginal cost volatility. Therefore, it is vital for the host government to introduce stabilize the political and institutional situations in order to induce FDI inflows.

COROLLARY 2. *If the exchange rate variability is high enough, the MNE will not invest in the host country, but builds a plant in the home country instead.*

Corollary 2 implies that the MNE can ignore better business opportunities in the host country (expressed by lower marginal and fixed costs), if it expects a high variability of the exchange rate. Therefore, it is vital for the host government to introduce stable macroeconomic environment in order to induce FDI inflows.

Following Baniak et al (2005), Corollaries 1 and 2 can be summarized in the following way: Economic, political and institutional stability (that is the reduction of the variability of forecasted variables such as exchange rate and marginal cost) stimulates the inflow of foreign direct investment to the country. On the contrary, economic, political

and institutional instability reduces inflow of foreign direct investment to the country. In this paper, we use conditional variances obtained from GARCH models to measure economic volatility. In addition, we use political and institutional stability indicators provided by the ICRG to measure political instability. Then by controlling for other factors (location specific economic determinants) that affect FDI inflows into African economies, we test the prediction of the model presented above that macroeconomic uncertainty as well as political and institutional instability hinder FDI inflows into these economies.

4. DATA

Our analysis covers 11[14] African economies for the period 1985 through 2004.[15] The variables used in this study are annual in frequency; however, the exchange rates used to generate the conditional variances for the selected African economies are monthly.[16] The data sources for our variables are the World Development Indicators (WDI), the International Financial Statistics (IFS) CD-ROM, and the International Country Risk Guide (ICRG). All variables except the political risk indicators, host country institutions, monthly exchange rates, and monthly consumer price indices, were retrieved from the World Bank's World Development Indicators (WDI). Both the nominal exchange rate and the consumer price index used to construct our real exchange rate variable were obtained from the International Financial Statistics CD-ROM. The

[14] We start out with 20 African economies, however due to the absence of ARCH/GARCH, we end up with only 11 countries.
[15] The selection of the African countries was based on data availability.
[16] We aggregate the monthly conditional variances into annual frequency to obtain our annual volatility measures.

political risk indicators and host country institutions indicators were taken from the ICRG dataset.

Following the literature, our dependent variable is FDI inflows scaled by the GDP (FDIGDP) of each host country. Our independent variables can be grouped into different categories such as macroeconomic variables, labor force availability and quality, natural resource availability, infrastructure quality, investment profile, political risk indicators, host country institutions indicators, macroeconomic uncertainty measures.[17]

The economic variables included in this study are real per capita GDP growth[18] (GDPCG), GDP growth (GDPG), and the inflation rate (INFL). The log of the real per capita GDP (LGDPC) and the log of GDP (LGDP) are used in order to capture market potential. Some studies argue that FDI to Africa is attracted by large markets therefore it is important to control for market potential when analyzing the FDI inflows (see Asiedu, 2006). The inflation rate (INFL) is included in our study in order to capture the macroeconomic stability of the economies in question.

Moreover, as is common in the literature, openness (OPEN) is captured by the share of trade in GDP (that is, (X+M)/GDP). Most studies use this variable as a measure of trade restrictions. A firm investing in a foreign country may import raw materials and semi-manufactured goods and export processed commodities; therefore the host country's trade policy might affect its investing decisions.

Labor force quality is captured by the literacy rate (LR) while labor force availability (POPN) is proxied by ratio of economically active labor force (with ages between 15 and 64 to total population). In addition, a dummy variable that takes account

[17] For the description of data and descriptive statistics refer to the data appendix.
[18] Using per capita figures allows us to take the relative country size (market size) into account. In addition, GDP simply by virtue of favoring large populations is criticized as a poor indicator of market potential.

of the presence of natural resources (such as minerals or oil) in the country (NR) is included since the most FDI inflows into African economies is driven by natural resource availability.[19] Infrastructure quality (TELLINES) proxied by the number of telephone lines per capita has been found to affect FDI inflows to African economies (see Wheeler and Mody, 1992). Therefore we include a proxy for infrastructure development.

We also take account of the rate of return on investment (RR) by using log of the inverse of the real GDP per capita (for more explanations see Asiedu, 2002). In addition, the investment profile (INVPROF) of the country given by the ICRG will be used in order to asses if the country is perceived to be risky for investments. It measures the host country's attitude towards inward investment. This measure contains sub components such as contract viability, expropriation of assets and ability of multinationals to repatriate profits. The index ranges from 0 to 12 (a higher score implies low risk to investment) and assesses risks to investment that are not covered by other political and economic risks. However, to avoid awkwardness in interpreting the coefficients, we convert the index into a dummy variable. The dummy variable has three categories: high risk category (if index ranges from is 0 to 4), medium risk category (if index ranges 4.1 - 8), and low risk if (the index is 8.1 to 12). We use the low risk category as a reference group and therefore our dummy variable takes a value of 0 for the low risk group, a value of 1 for medium risk group and a value of 2 for high risk group.

[19] African countries endowed with abundance of natural resources such as Nigeria, Angola, Equatorial Guinea and Sudan joined Egypt as Africa's top FDI recipients, all of them registering inflows of more than US$ 1 billion (UNCTAD 2005). These five African countries rich in natural resources accounted for almost half of African FDI in 2004. FDI inflows to many African countries, especially those poor in natural resources and classified as having least developed economies, were less than US$100 million each last year.

In addition to the variables mentioned above, proxies for macroeconomic uncertainty (as proxied by ARCH/GARCH measures of conditional volatility), political risk, and host country institutions on FDI inflows are included in our regressions. We use GARCH measures of the real exchange rates[20] to proxy macroeconomic uncertainty as they are closer to capture the concept of foreign exchange uncertainty.

On the other hand, the composite political risk indices for each host country are used to proxy for overall political risk. The ICRG provides a composite political risk index that is made up of particular components of political instability as well as host country institutional quality. The index ranges from 0-100; where scores ranging from 0-49.9 imply very high risk, 50-59.9 high risk, 60-69.9 moderate risk, 70-79.9 low risk and finally 80-100% very low risk. To make the interpretation of our results easier, we convert the indices into dummy variables. The dummy variable has four categories: very high risk category (if index ranges from is 0-49.9%), high risk category (if index ranges 50-59.9%), moderate risk category (if the index is 60-69.9%), low risk (if the index is 70-79.9%), very low risk (if the index is 80-100%). We use the very low risk category as a reference group and therefore our dummy variables take a value of 0 for the very low risk group, a value of 1 for low risk group, a value of 2 for moderate risk group, a value of 3 for high risk group, and a value of 4 for very high risk group.

To proxy particular measures of political instability, we use the external conflict (EX) and internal conflict (INT) from the ICRG. Both these variables have ratings that range from 0-12. A high rating implies no internal or external conflict. To make the

[20] We use the real rather than the nominal exchange rate, since uncertain price levels as well as exchange rates are relevant for long-term investments. All real exchange rates used in this chapter are bilateral exchange rates vis-à-vis the U.S. dollar. The real exchange rates are calculated by multiplying the ratio of prices in the United States relative to national prices by the nominal exchange rates.

interpretation of the coefficients easier, we convert these indices into dummy variables. The dummy variable for both measure of political instability has three categories: high risk category (if index ranges from is 0 to 4), medium risk category (if index ranges 4.1 - 8), and low risk if (the index is 8.1 to 12). We use the low risk category as a reference group and therefore our dummy variables take a value of 0 for the low risk group, a value of 1 for medium risk group and a value of 2 for high risk group.

Host country institutions will be proxied by the level of corruption (CORRU), the extent to which the rule of law is enforced (LAWORD), and bureaucracy quality (BRQUAL). Kaufmann et al., (1999) confirm that these variables constitute relevant sub-components of an overall assessment of "good governance". The bureaucratic quality measure is given a high point if the bureaucracy of a certain country has the strength and expertise to govern without drastic changes in policy or interruptions in government services. The ratings for this measure ranges from 0 to 4.

The corruption variable measures the degree of corruption within the political system. It covers actual or potential corruption in the form of nepotism, excessive patronage and bribery. The rule of law variable measures the impartiality of the legal system and the extent to which the rule of law is enforced. The ratings for both measures range from 0 to 6, a high rating indicates that corruption is less prevalent and a more impartial court system. Following our analysis above, we create a dummy variable for all our three measures of host country institutional quality.

For all the three measures of host country institutions, we have two categories: a category for low level of institutional quality (i.e. high level of corruption, partial legal system, weak bureaucratic quality; if the indices range between 0 and 3), and a category for high level of institutional quality (i.e. low level of corruption, impartial legal system,

strong bureaucratic quality; if the indices range between 3.1 and 6). Our reference group for all measures is the category for low level of institutional quality. We define our dummy variables to have a value of 1 for high level of institutional quality (and 0 otherwise. For expected results of all the variables please refer to the Table 2 in data appendix).

In order to observe the individual effects of macroeconomic uncertainty and political and institutional instability/risk on FDI, we run 4 different regressions. We first estimate our model using only the traditional economic determinants of FDI (such as, economic variables, infrastructure quality, labor force availability and quality, investment profile of the countries). Then, we include the measure of macroeconomic uncertainty. Thereafter, we add measures for political risk and host country institutions, excluding the measure of macroeconomic uncertainty. Finally, the proxies for political risk, institutional quality, and macroeconomic uncertainty will be simultaneously included in our model.

Our empirical models are as follows:

FDI/GDP=(LGDP, INFL, LR, POP, NR, INFRA, OPEN, INP, RR)	(1)
FDI/GDP=(LGDP, INFL, LR, POP, NR, INFRA, OPEN, INVP, RR, GARCH)	(2)
FDI/GDP=(LGDP, INFL, LR, POP, NR, INFRA, OPEN, INVP, RR, EX, INT, BUR, CORR, LAW)	(3)
FDI/GDP=(LGDP, INFL, LR, POP, NR, INFRA, OPEN, INVP, RR,GARCH, INT, EX, BUR, CORR, LAW)	(4)

5. ESTIMATION METHODOLOGY

5.1. Exchange Rate Uncertainty Specification

To account for the effects of exchange rate uncertainty we estimate a GARCH measure of conditional volatility. This measure involves obtaining the variance of the unpredictable part of the series. This is obtained by first specifying a stochastic process for the series. That is, we develop a forecasting equation for the exchange rate based on an information set. The forecasting equation is estimated to obtain the residuals and the uncertainty measure is computed as the variance of the estimated residuals. The stochastic process that generates the predictable part can be any ARIMA (p, q) model. In contrast to the unconditional variance of a variable, conditional variance uses the previous information to measure volatility.

The ARCH/GARCH model has become a popular method to study volatility (Engle, 1982; Bollerslev, 1986). This is because ARCH/GARCH measures generate the conditional variances of a variable. Unlike the ad-hoc measures of uncertainty such as rolling variances, the ARCH/GARCH approach to estimating uncertainty is obtained on the basis of an estimated econometric model. It is often observed that this method captures volatility in each period more accurately. ARCH/GARCH models capture risk in each period more accurately because they have the advantage of not giving equal weight to correlated shocks and single large outliers. The ARCH model characterizes the distribution of the stochastic error ε_t conditional on the realized values of the set of variables that may include lagged values of the conditional variance. The generalized ARCH model, namely the GARCH (p, q) model is specified as follows:

$$Yt = f(x_t; \delta) + e_t \qquad e_t/\psi_{t-1} \sim D(0, h_t^2) \tag{5}$$

$$h_t^2 = \alpha_0 + \sum_{i=1}^{q} \alpha_i \varepsilon_{t-i}^2 + \sum_{i=1}^{p} \delta_i h_{t-i}^2, \qquad (6)$$

Where f (x_t; δ) refers to the conditional mean, x_t consists of a vector of explanatory variables that may include lagged y_t's, δ is a Mx1 vector of parameters, ψ_{t-1} is the information set that contains all the information available through time t-1, and e_t is the error term which follows, conditional on ψ_{t-1}, a D distribution. The conditional errors have zero mean and time varying variance, h_t^2. The conditional variance follows a GARCH process as in (6). The conditional variance, h_t^2 the proxy for uncertainty, is the one period ahead forecast variance based on the past information. It is a function of three terms: the mean level of volatility α_0, the ARCH term[21] ε_{t-i}^2 and the GARCH term h_{t-i}^2. [22]

5.2. Fixed Effects and Arellano-Bond Dynamic Panel Models

In this paper, given the fact that we analyze the net flow of FDI from all source countries to the selected 10 host countries in Africa, we employ panel data techniques that take into account country-specific effects. Fixed or random effects panel data models take the country-specific heterogeneities of these countries into account. However there is a difference between fixed and random effects estimation. The fixed effect estimation includes the country-specific effects as regressors rather than assigning them to the error term, thereby reducing omitted variable bias.

Before we make the decision of which one of these two models to use, we make use of the F-test to determine whether the fixed effect specification is more appropriate

[21] The ARCH term is the lag of squared errors from the mean equation or news about volatility from the previous period.

[22] To ensure a well-defined process, all the parameters in the infinite order AR representation must lie outside the unit circle. For a GARCH (1,1) process this will be the case if α_1 and δ_1 are non-negative. It is also required that $\alpha_1 + \delta_1 < 1$ for covariance stationarity.

than a pooled specification. Under the null hypothesis, the F-test assumes a pooled model, that is, we restrict the intercept to be equal across observations. Then the alternative hypothesis indicates that at least one of the cross-sections is different. Thus, rejection of the null hypothesis implies the use of a least squares dummy variable (LSDV) model.

After performing the F-test, we use of the Hausman (1978) test to determine whether a fixed effect model or a random effect model is more appropriate. Under the null hypothesis, the Hausman test assumes no correlation among the intercept and the independent variables. Thus, the rejection of the null hypothesis implies that our model is a random effects model. Random effects models give a more efficient estimator but might not be consistent if the true model is a fixed effect model. On the other hand, fixed effects models always give consistent results but they may not be efficient. Therefore using the Hausman test to distinguish between these two types of models is justified. In our case, the Hausman test confirmed the use of a fixed effects model.

The fixed effect estimation assumes that all our independent variables are exogenous. However, this might not be realistic with some of our independent variables. In the case of openness to trade this is obviously an unrealistic assumption, as FDI inflows are highly likely to affect the overall trading volume, if they import raw materials and semi-manufactured goods and export processed commodities. Likewise, FDI may increase the host country capital stock, bring in new technologies and boost GDP growth rates as well as boosting GDP per capita (Busse and Hefeker, 2005). Consequently, we employ an instrumental variable type approach, namely Arellano-Bond generalized method of moments (GMM). The Arellano-Bond GMM dynamic panel estimator

addresses the problem of autocorrelation of the residuals, as the lagged dependent variable is included as an additional regressor, and deals with the fact that some of the control variables are endogenous.

6. RESULTS

6.1 RESULTS FROM GARCH MODELS

In order to generate measures of uncertainty we use the monthly real exchange rate for each of our 20 African countries. However, before we estimate our ARCH/GARCH models, we conducted some preliminary data analysis such as checking for the presence of unit roots. The results from the Augmented Dickey Fuller (ADF) Test for unit root suggest that the log of the real exchange rates for all the countries under consideration are I (1) processes. That is, the real exchange rate for each country has a unit root in levels while they are difference stationary.

To ensure the stationarity of our variables, we use the first differences to fit GARCH models and to generate the conditional variances. The model for the mean of each series is specified with an ARIMA model. Each ARIMA model is selected using traditional Box-Jenkins (1976) methodology. From these models we obtain the series of exchange rate uncertainty (h_t). Table 3 shows the ARIMA models for the mean of each country's real exchange rate. In addition, table 3 presents the coefficients of the GARCH (p, q) estimation. As can be seen from table 3, the coefficients of the GARCH (p, q) have the theoretical signs and magnitude but are insignificant in some cases. Note that some countries are excluded due to the absence of ARCH/GARCH. Figure 1 shows a plot of h_t

for each country in our study. Once the monthly exchange rate uncertainty measures (h_t) are obtained, they are aggregated to produce annual series.

6.2 FIXED EFFECT ESTIMATION RESULTS

The fixed effects results with robust standard errors are shown in Table 4 and Table 5. In Table 4 we display results using the composite political risk index (to measure the combined political and institutional risk of investing in the selected economies) while in Table 5 we employ the particular measures of political and institutional quality noted in section 4.

For each specification (Tables 4 and 5), column (1) reports the results using only the traditional economic determinants of FDI while column (2) presents results after the inclusion of the measure of macroeconomic uncertainty. Column (3) reports the results with political risk and host country institutions, excluding the measure of macroeconomic uncertainty and column (4) reports the results after the inclusion of proxies for political risk, institutional quality and macroeconomic uncertainty. Finally column (4) presents results with interaction terms between macroeconomic uncertainty and political and institutional instability measures.

All the tables (4 and 5) show that macroeconomic instability and uncertainty reduce the FDI inflows to African economies. Macroeconomic instability measured by inflation is consistently significant and negative, implying that a high rate of inflation can signal macroeconomic instability thereby decreasing FDI inflows. Conditional variances measured by GARCH models similarly exhibited negative and significant coefficients implying macroeconomic uncertainty is a deterrent of FDI inflows to African economies. However, contrary to our expectations, political instability is not an important factor

affecting FDI inflows to these economies. Other explanatory variables, such as openness, literacy rate, investment profile (that measures the contract viability, expropriation of assets and ability of multinationals to repatriate profits) and infrastructure quality also had significant and positive signs. Therefore implementing sound and stable macroeconomic policies and adopting an investor friendly regulatory framework (such as removing restrictions on profit repatriation) may significantly increase FDI inflows into these economies.

In all the tables, all the significant variables have their expected signs. For example, the inflation rate (INF) has a negative sign and is significant implying that a high rate of inflation can signal economic instability in addition to creating uncertainty regarding the net present value of long-term investments. The negative sign for inflation is supportive of previous findings (see Asiedu, 2006). In addition, the openness (OPEN) and literacy rate variable (LR) have the expected positive signs and are significant. If the MNE import raw materials and semi-manufactured goods and export processed commodities, then openness of the country might positively affect their investing decisions. Similarly, the literacy rate (proxy of labor force quality) is expected to positively affect FDI. Previous studies have also found measures of openness and literacy rate to have a positive relationship with FDI inflows (For results regarding measures of openness, see Edwards, 1990; Pistoresi, 2000, for studies regarding literacy rate see, Asiedu, 2006; Lemi and Asefa, 2001).

Another significant variable is the investment profile from the ICRG that measures the host country's attitude towards inward investment. The index ranges from 0 to 12 (a higher score implies low risk to investment) and assesses risks to investment that

are not covered by other political and economic risks. This measure contains sub components such as contract viability, expropriation of assets and ability of multinationals to repatriate profits. Therefore, we believe that this variable is important to MNEs investing in a foreign country. As a result, the significant and positive sign of this variable implies that the lower the risk to investment the higher FDI inflows. This result is supportive of previous research (see La Porta et al., 1998 and Busse and Hefeker, 2005, Asiedu, 2006).

The insignificance of the rate of return to investment in affecting FDI inflows is surprising since we would expect a high rate of return to investment to increase FDI inflows. However, since Africa is perceived to be risky, a higher return to investment might not translate into higher FDI. That is the high return might not offset the risk associated with the investment. Some previous studies also document the insignificance of the rate of return of investment in explaining FDI inflows into Africa (see Asiedu, 2002 and Hamori and Razafimahefa, 2005).

Column (2) from both Tables 4 and 5, report results after the inclusion of the conditional measure of uncertainty constructed via a GARCH model. The negative coefficient of the GARCH measure of uncertainty is indicative of a negative and significant impact of uncertainty on FDI flows into African economies (such results are in line with Amuedo-Dorantes and Pozo, 2000; Jeanneret, 2005; Lemi and Asefa, 2001; and Hamori and Razafimahefa, 2005). In addition, this negative coefficient of the measure of uncertainty confirms the predictions of the theoretical model presented above. That is, the MNE can ignore better business opportunities in the host country if it expects a high variability of the exchange rate. In order to reduce risk of exchange rate

variability, portfolio investors can hedge through the derivative market in the short run. However, FDI investors lack the capability to hedge in the long run, therefore must pay close attention to exchange rate variability (Hamori and Razafimahefa, 2005).

Column (3) of Table 4 reports results including our composite measure of political risk. The coefficient for this measure of political risk is negative as expected, however it is not significant. This result surprising since political risk (be it from political instability or institutional inefficiencies) creates an additional cost to investors and therefore one would expect a negative relationship with FDI inflows. Similar to our result, Bennett and Green (1972) and Wheeler and Mody (1992), employing a broad principal component measure of political risk, find political risk to be insignificant in explaining U.S. FDI.

Column (4) from Table 4 reports results after the inclusion of the composite political risk index, as well as the GARCH measures of exchange rate uncertainty. Composite measure of political risk still remains to be insignificant (but has the expected negative sign). On the other hand, the uncertainty measure is still negative and significant implying that macroeconomic uncertainty deters FDI inflows. In order to observe the combined effect of macroeconomic uncertainty and political and institutional risks, we add an interaction term (GARCHPOL) of the measure of macroeconomic uncertainty and political risk. Column (5) shows that this interaction term is significant. This result implies that political and institutional instability is significant only when combined with macroeconomic uncertainty.

Table 5 displays results obtained by employing the particular measures of political and institutional quality. Column (3) shows that measures of political risk,

namely, external and internal conflict are not significant. This result is again surprising since political risk creates an additional cost to investors and therefore one would expect a negative relationship with FDI inflows. However, Busse and Hefeker (2005) report the insignificance of external and internal conflict in explaining FDI inflows for one of their model specifications. Similarly, Bennett and Green (1972) and Wheeler and Mody (1992), employing a broad principal component measure of political risk, find political risk to be insignificant in explaining U.S. FDI.

Similarly, we find corruption and law and order (measures of host country institutions), to be insignificant in explaining FDI inflows. Conversely, our other measure of host country institutions, namely, bureaucratic quality, is found to significantly affect FDI inflows. If the bureaucracy of a certain country has the strength and expertise to govern without drastic changes in policy or interruptions in government services, then an increase in FDI inflows is to be expected. The irreversibility of FDI combined with the uncertainty of policy reversals makes Africa overly risky. For example, a World Bank (1994) survey of 150 foreign investors in East Africa found the risk of policy reversal to be the most important risk factor (see World Bank, 1994 and Asiedu, 2002). As a result a government's ability to govern without changes in policy makes the country attractive for FDI. Column (4) shows that the inclusion of the measure of macroeconomic uncertainty has not changed the results of Column (3). That is macroeconomic uncertainty, political risk and host country institutions have the same effect on FDI inflows into Africa whether they are added singly or simultaneously into the regression.

6.2 ARRELANO-BOND GMM DYNAMIC PANEL RESULTS

The fixed effect estimation assumes that all our independent variables are exogenous. However, some of our independent variables might be endogenous to FDI decisions. One such independent variable is the openness to trade, since FDI inflows are highly likely to affect the overall trading volume. This is especially true if they import raw materials and semi-manufactured goods and export processed commodities. Likewise, FDI may increase the host country capital stock, bring in new technologies and boost GDP growth rates as well as boosting GDP per capita (Busse and Hefeker, 2005). Consequently, we employ an instrumental variable type approach, namely Arellano-Bond generalized method of moments (GMM). The Arellano-Bond GMM dynamic panel estimator addresses the problem of autocorrelation of the residuals, as the lagged dependent variable is included as an additional regressor, and deals with the fact that some of the control variables are endogenous.

7. CONCLUSIONS AND POLICY RECOMMENDATIONS

The past few decades have witnessed a surge of FDI inflows to developing regions. However, FDI inflows to Africa still remain small when compared to other developing regions. What characteristics does Africa exhibit that deter FDI inflows into the region? Investor surveys show political instability, corruption and macroeconomic uncertainty to be strong deterrents of FDI inflows to Africa. However, there are very few studies in the literature that investigate rigorously the impact of macroeconomic uncertainty and political risk, as well as the role of host country institutions for FDI inflows into African economies. Therefore, this study, examines the roles of macroeconomic uncertainty, political risk, as well as host country institutions, in

affecting FDI inflows into African economies. I Use a sample of 10 African countries, and employ Fixed Effect and Arellano-Bond GMM estimators.

The results point to the fact that macroeconomic instability and uncertainty reduce the FDI inflows to African economies. Macroeconomic instability measured by inflation was consistently significant and negative, implying that a high rate of inflation can signal macroeconomic instability thereby decreasing FDI inflows. Conditional variances measured by GARCH models similarly exhibited negative and significant coefficients implying macroeconomic uncertainty is a deterrent of FDI inflows to African economies. However, contrary to our expectations, political instability and host country institutions are not important determinants of FDI inflows to these economies. Other explanatory variables, such as openness, literacy rate and infrastructure quality also had significant and positive signs. Therefore implementing sound and stable macroeconomic policies and adopting an 'investor friendly' regulatory framework (such as removing restrictions on profit repatriation) may significantly increase FDI inflows into these economies.

REFERENCES

Aizenman Joshua (1992), "Exchange Rate Flexibility, Volatility and Domestic and foreign Direct Investment", *IMF Staff Papers*, 39(4) December.

Asiedu (2002), "On the Determinants of Foreign Direct Investment to Developing Countries: Is Africa Different?" World Development. Vol. 30 (1), 107-119

Asiedu (2006), "Foreign Direct Investment to Africa: The Role of Government Policy, Governance and Political Instability", world economy. Vol. 29 (1), pp. 63-77

Bacchetta Philippe and Eric van Wincoop (1998), "Does Exchange Rate Stability Increase Trade and capital Flows", *NBER working Paper Series*, WP 6704

Baek In-Mee and Tamani Okawa (2001) "Foreign Exchange Rate and Japanese Foreign Direct Investment in Asia", *Journal of Economics and Business* 53: 69-84

Benassy-Quere A, L Fontagne and A. Lahreche-Revil (2001) “Exchange Rate Strategies in the Competition for Attracting Foreign Direct Investment”, *Journal of Japanese and Inetrnational Economics*, 15:178-198.

Blonigen, B. (1997). “Firm Specific Assets and the Link between Exchange Rates and Foreign Direct Investment” *The American Economic Review*, 87:447-465.

Busse, Matthias and Hefeker, Carsten, "Political Risk, Institutions and Foreign Direct Investment" (April 2005). HWWA Discussion Paper No. 315. Available at SSRN: http://ssrn.com/abstract=704283

Calvo, G., Reinhart, C. (1999), “When capital inflows come to a sudden stop: consequences and policy options” University of Maryland, mimeo.
http://www.puaf.umd.edu/faculty/papers/reinhart/imfbook.pdf

Calvo, G, Mendoza, E (2000), “Capital-Markets Crisis and Economic Collapse in Emerging Markets: An Informational-Frictions Approach” The American Economic Review. Vol. 9, No. 2, pp. 59-64.

Cavallo, E and Frankell, (2004), “Does Openness to Trade Make Countries Less Vulnerable to Sudden Stops? Using Gravity to Establish Causality” John F. Kennedy School of Government, Harvard University.

Caporale Tony and Khosrow Doroodian (1995), “Exchange rate Variability and the Flow of International Trade”, *Economic Letters*, 46: 49-54.

Caporale Tony and Khosrow Doroodian (1995), “Exchange Rate Regimes and Unvertainty”, *Weltwirtschaftliches Archiv* 569-76

Carruth, Alan & Dickerson, Andrew & Henley, Andrew, (2000). " What Do We Know about Investment under Uncertainty?," *Journal of Economic Surveys*, vol. 14(2), 119-53.

Darby Julia, A.H. Hallet, J. Ireland and L. Piscitelli (1999), “Exchange Rate Uncertainty and Business Sector Investment”, Paper Prepared for a Workshop on “Uncertainty and Factor Demand”Hamburg, August.

Dixit A. and R. Pindyck (1994) “Investment Under Uncertainty”, Princeton University Press, Princeton N.J.

Doroodian K. and T. Caporale (1999), “Exchange rate Volatility: an empirical Investigation”, *The Indian economic Journal*, 46(3):66-75.18

Dunning, J. (1988): Explaining international production. London.

Dunning, John H. 1994. "The Prospects for Foreign Direct Investment in Central and Eastern Europe." In *The Economics of Change in East and Central Europe*, edited by Peter J. Buckley and Pervez N. Ghauri. London: Academic Press Limited.

Dunning, J. (1995): Reappraising the eclectic paradigm in an age of alliance capitalism." *Journal of International Business Studies*, III/1995.

Felzer, Sharon (2004), "East Asia and Pacific Private Investors in Infrastructures: Perception Survey. World Bank

Firoozi, Fathali. (1998). "Multinationals FDI and Uncertainty: A Reply", *Journal of Multinational Finance Management,* 8, 455-456.

Goldberg L.S. and C.D. Koslstad (1995) "Foreign Direct Investment, Exchange Rate variability and Demand Uncertainty", *International Economic Review* 36: 855-73

Goldberg L.S. (1993) "Exchange Rates and Investment in United States Industry". Review of Economics and Statistics LXXV: 575-88.

Haendel Dan (1979); Foreign Investments and the Management of Political Risk, Westview Special Studies in International Economics and Business.

Hamori and Razafimahefa (2005) "An Empirical Analysis of FDI competitiveness in Sub-Saharan Africa and Developing Countries" *Economics Bulletin*. Vol. 6, No. 20 pp. 1-8

Harsch, E (2005), "Investors start to eye Africa". *Africa Renewal*, Vol.18 #4 (January 2005), page 20

Hauser, F (2005), "Country Risk and Foreign Direct Investments in Transition Countries" Dissertation, Ludwig-Maximilians-Universit¨at M¨unchen

International Monetary Fund (2001) International Financial Statistics Washington D.C.

Kolstad and Villanger (2004), " Social development and industry level FDI". Chr. Michelsen Institute Development Studies and Human Rights. R 2004:1

Lemi, Adugna and Asefa, Sisay (2003). "Foreign Direct Investment and Uncertainty: Empirical Evidence from Africa." African Finance Journal. Vol. 5, no.1,.

Oliva & Rivera-Batiz (2002), " Political institutions, Capital flows, and Developing country growth: An empirical investigation" *Review of development economics*. Vol. 6 I(2). Pp. 248-62

Pigato, Miriam (2000) “Foreign Direct Invesment in Africa: Old Tales New Evidence” *mimeo.*

Pozo Susan (1992), “Conditional Exchange Rate Volatility and the Volume of International Trade: Evidence from the Early 1900s”, *The Review of Economics and Statistics*, 325-329.

Reinhart and Rogoff (2002), "FDI to Africa: the role of price stability and currency Instability", IMF working paper. Number 3/10

Robock, S. H. and Simmonds, K (1973); International Business and multinational Enterprise, R. Irwin, Homewood.

Sachs et al (1996), “Financial Crisis in Emerging Markets: Lessons from 1995”. *Brookings Papers on Economic Activity*. Vol. 1996, No. 1, pp. 147-215.

Tuman, John Peter (2004), "The Political Economy of U.S. Foreign Direct Investment in Latin America: A Reappraisal" *Latin American Research Review* Vol. 39, Number 3, pp. 9-28.