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The Effect of Corruption on Foreign Direct Investment: A Panel Data Study

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Abstract. Foreign direct investment (FDI) has become an important factor of development in low income countries. At the same time, corruption continues to be one of the greatest obstacles to economic and social development in these countries. However, in East Africa, the study of the nature of corruption as well as its relationship with FDI is scanty. In addition, the existing literature provides controversial results. Motivated by these issues, this paper examines the effects of corruption on FDI inflows by incorporating an econometric method based on panel data from 5 East African countries over the 1996-2015 period. The paper contributes to the existing literature by modeling the relationship between corruption and FDI inflows using two measures of corruption, namely corruption perception index (CPI) and control of corruption (CC). Equally important, both economic factors such as GDP per capita, GDP growth, inflation and degree of openness, and quality of institutions or governance indicators such as voice and accountability, political stability and absence of violence, government effectiveness and rule of law are considered in the analysis. Data were obtained from Transparency International, World Bank Development Indicators, Worldwide Governance Indicators and United Nations Conference on Trade and Development. Analytically the paper uses fixed effects (FE) as the preferable model. The results show that the corruption level in the host country has an adverse effect on FDI inflows when eliminating GDP per capita in the regression. Nonetheless, the results show that the GDP per capita as a proxy for market size and country's quality of institutions are more important than the level of corruption in encouraging FDI inflows into the country. The key implication of these results is that an increase in the real GDP per capita, improvement in the quality of institutions as well as control of corruption may be an important strategy for increase in FDI inflows.

Keywords. Corruption, Foreign direct investment, Quality of institutions. JEL. C23, F21, F23, E02, O16.

1. Introduction

By and large, it is widely accepted that the relationship between domestic private investments and economic growth is positive and significant (see for example Epaphra & Massawe, 2016). For this reason, there is a great need to promote domestic saving so as to encourage domestic private investment that can finally increase growth. Nevertheless, a failure of the country to use its domestic saving to achieve growth through investment, can then allow the foreign saving to serve the purpose. The foreign saving to be used can be in form of loan, equity investment, foreign direct investment (FDI) and portfolio direct investment. Understandably, during the 1990-2000 period, it was witnessed a remarkable and consistent decrease in development assistance to developing countries forcing them to an alternative source of financing such as FDI. More importantly, in 1998, FDI

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emerged as the largest source of capital for developing countries, rising from US\$ 174 billion in 1992 to US\$ 664 billion in 1998 (Missama, 2010; Kiiza, 2007). Accordingly, FDI has been a major emphasis to both developing and transitional economies in securing economy-wide efficiency to a host country mainly through the transfer of technology and new knowledge, and increasing an access to the foreign market. It also improves standard of living through creation of employment and improving the standards and quality of goods, and transfer of new knowledge to a nation. In summary, FDI plays a crucial role in the economy by serving three development gap: investment gap, when domestic savings are not enough to meet investment needs of the country; foreign exchange gap by bringing the foreign currency during investment and through international trade; and tax revenue gap, through corporate tax in various economic activities.

It is however, important to note the limitations of FDI to less developed countries. For example, FDI may lead to repatriation of the profits and unfair advantages in competing with the domestic companies which might cause small and medium companies to collapse (Dabour, 2000). In fact, FDI may subsequently, lead to the monopolistic structure of the market (Dabour, 2000). Notwithstanding these limitations, the importance of FDI to the economy of a host country cannot be overemphasized. Politicians and policy makers have been creating the favourable business environment such as infrastructural development, financial services and social services aiming at increasing investment in their economies. Besides, theories and empirical studies have discussed the main determinants of FDI. In brief, political risk factors such as instability and corruption, weak security, nature of labour, infrastructure and lack of transparency in regulatory policy are among of the important determinants of FDI in the host economy (see for example Lambsdorff, 2003; Dabour, 2000). Also, factors such as structure of the domestic market, tax policy and inflation rate may affect foreign investors.

The issue of corruption is relevant to the context of abundance of natural resources which is likely to foster rent seeking behaviour (Leite & Weidmann, 1999). Corruption takes place in the economy where government institution has the great authority and can exercise discretion without respect to interpretation and application of regulation (CETA, 2011). Similarly, Lambsdorff (2007); Goel & Nelson (1998); Leite & Weidmann (1999) and Krueger (1974) suggest that government restrictions on economic activity tend to generate rent seeking behaviour, which in turn adversely affects the economy.

Many studies show that corruption reduces the investment profits by acting as an additional cost to the investment. For example, Bray (2006) and Control Risks and Simmons & Simmons (2006) argue that companies fail to win contract or to gain new business because their competitor pays bribe. Also, Chêne (2014) and Sanyal & Samanta (2008) suggest that USA firms are less likely to invest in countries where corruption is widely spread. Overall, corruption discourages FDI in the host country and it has been considered to be a major cost to international business (Bray, 2006). Under this circumstance, FDI flows to corrupt countries from countries that criminalise corruption are less than FDI inflows from the countries with higher levels of corruption.

Whilst the discussion in the preceding paragraphs is supported with both theoretical and empirical studies, corruption is a complex idea with different definitions. For instance, Transparency International describes corruption as the abuse of the entrusted power for the private gain which can either be a financial or non-financial gain. It may occur when private agents offer bribes to circumvent public policies and process for competitive advantage or profit. Under these circumstances, corruption can also have some positive effects on FDI. This counter argument is supported by Wei (1997) and Ohlsson (2007). According to Wei (1997), East Asia attracts more foreign investors regardless of its highest level of corruption. However, East Asia has a large market and has been growing faster than the world average. This is fairly direct reasoning, with a large market there are high incentives for foreign companies to try to conquer the local market. Besides,

by paying bribes a global multinational enterprise (MNE) can reduce the time for bureaucratic paper work. It can also skip inspections, reduce taxes, or even receive government funding (Ohlsson, 2007). Furthermore, in some cases governments' bureaucrats receive a bribe and allow MNE to charge an over price for public services, so this increases the return on the FDI (Ohlsson, 2007). In addition, while relying on static efficiency arguments, Leite & Weidmann (1999) view bribing as a type of coarsen bargaining process and so, it can play a positive role in the development process.

Notwithstanding the possible advantages of corruption to some MNEs the uncertainty and the risk of dealing with corrupt government may be higher. In fact, Kaufmann & Wei (1999) show that within a country, firms which pay more bribe spend more time on average, negotiating with the government officials. Thus, corruption remains a growing problem. Of central concern therefore is to examine the adverse effect of corruption on FDI in the host country while controlling other factors such as market size. This is important because corruption heightens the uncertainty (Habib & Zurawicki, 2002). In general, the empirical findings of this paper are very significant for policy makers and decision making process because most of the developing countries have recently shifted their emphasis in terms of acquiring foreign currency. For the purpose of this paper, unless specifically mentioned, corruption means the abuse of entrusted power for private gain.

2. Descriptive Analysis of Foreign Direct Investment and Corruption

Table 1 reports the global distribution of FDI during the 1990-2015 period. In that period grobal FDI increased by 38 percent (UNCTAD, 2016). That increase was contributed chiefly by changes in legal or ownership structures of MNEs, including tax inversions which involve large movements in the balance of payment with little changes in operations (UNCTAD, 2016). In 2015, FDI inflow growth rate in developing economies was 9.5 percent; however, in Asia, FDI inflows grew by 15.6 percent making it the largest FDI recipient region in the World. Markedly, FDI inflows in Asia increased from US\$467.94bil in 2014 to US\$540.72bil in 2015 (UNCTAD, 2016). The strong performance of the economy and high population growth in the region are, unsurprisingly, the chief reasons for the large FDI inflows in Asia. An increase in GDP and population has been an incentive for the foreign firms to make market seeking investment. Undoubtedly, the long run relationship between FDI inflows and market size seems to be positive.

	World	Developed Countries	Europe	North America	Developing Economies	Africa	North Africa	West Africa	Central Africa	East Africa	Asia
1990-00	20.8	22.8	23.6	27.8	19.8	14.3	16.2	-1.1	-26.1	38.1	19.7
2001-10	5.1	2.6	8.5	11.5	12.5	22.0	23.3	22.1	46.5	16.8	13.4
2011	12.8	16.8	10.7	19.0	7.2	9.7	-52.1	57.9	-5.3	5.7	3.5
2012	-3.6	-3.7	1.1	-14.1	-1.7	15.4	108.8	-11.0	21.5	14.5	-4.0
2013	-5.5	-13.6	-33.1	22.3	0.6	-5.4	-24.1	-14.1	-12.0	24	5.3
2014	-10.5	-23.3	-5.4	-41.7	5.4	11.8	-2.8	-16.4	15.5	16.8	8.5
2015	38.0	84.4	64.6	159.5	9.5	-7.2	8.8	-18.3	-35.9	-1.5	15.6
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Source: Authors computations using Data from UNCTAD (2016)

There are also, however, further points to be considered in East Africa, West Africa, Central Africa and Africa in general. It can be seen from Table 1 that, Africa FDI flows in 2015 decreased by 7.2 percent. In West Africa and Central Africa the decline in FDI inflows was even worse. The UNCTAD (2016) suggests that the low commodity prices and a depreciation of the local currencies were the chief factors. These low commodity prices depressed FDI inflows in natural

resources based economies. Likewise, depreciation of national currencies put a downward pressure to MNEs on reinvesting earnings. Nonetheless, Economist (2011) shows that generally growth of FDI in Africa rises because the African countries have initiated economic and political reforms; and opened their economies to international trade. In the same way, FDI inflow to Sub-Saharan Africa (SSA) is expected to rise because the region is among the fastest growing regions in the world. However, the decisions to invest abroad depend on a complex set of factors but the least corrupt countries may attract more FDI because they provide a more favorable climate for investors (Castro, 2013).

It is important to note that there is no even a single country anywhere in the world, which is corrupt free (Transparency International, 2015). This also suggests that corruption is a global threat. Corruption is principally a governance issue, a failure of institutions and a lack of capacity to manage society by means of a framework of social, judicial, political and economic checks and balances. Figure 1 and Figure 2, respectively show the global mean CPI over the 1998-2015 period and the CPI for selected countries as reported by Transparency International (2015). In fact, as it has been presented above, there is no one single country that gets a perfect score and that more than two-thirds scored below 50, on a scale from 0 (highly corrupt) to 100 (very clean) (Figure 2). According to Transparency International (2015), corruption undermines justice and economic development, and destroys public trust in government and leaders. Furthermore, Figure 1 reports the global average score of 4.3 on scale from 0 (highly corrupt) to 10 (very clean) during the 1998-2015 period. Notably, European Union and Western Europe had an average score of 6.7 whereas Asian Pacific and Americas had average scores of 4.3 and 4.0, respectively. Other regions such as Middle East and Northern Africa, Eastern Europe and Central Asia, and Sub Saharan Africa had the lowest scores of 3.9, 3.3 and 3.3 respectively. Overall, Denmark and Finland have the highest scores in the world, whereas Northern Korea and Somalia and Afghanistan are among the most corrupt countries in the world.

In 2005, corruption was observed to be a greater problem to the poorest countries. In that year the global score stood at 2.6 out of 10 a clean index. Clearly, in that time there was an inclusion of new least developed countries namely Chad, Bangladesh, Turkmenistan, Myanmar and Haiti into the list. Without question, these countries are among the poorest countries in the world. It is important to note however, that even developed countries are observed to be victims of corruption. This point is supported by the scores of Spain, South Korea, Greece and Italy of 5.8, 5.6, 4.6 and 4.4 out of 10 respectively.

The gentle slope of the global average CPI indicates that the world's control of corruption has been improving albeit insipidly. This situation raises great interest to economists and policy makers because literature suggests that corruption reduces both investment and economic growth (see for example Arvas & Atta, 2011; Leite & Weidmann, 1999; Murphy et al., 1993; Romer, 1994; and Shleifer & Visny, 1993). Unquestionably, corruption affects decision making associated with investment and composition of investment and consequently it may lead to a reduced both domestic and foreign investments. It may also lead to less efficient but more manipulatable projects and distorted composition of government expenditure away from infrastructure, health and education (Wei, 2005). According to Ravi (2015) corruption affects foreign firms in many ways including increment of cost of doing business in a host country. It may also create uncertainty for corporation such as in a process of obtaining a required license (Ravi, 2015). Similarly, corruption remains a huge challenge for East African economies. In 2015, South Sudan, Burundi, Kenya and Uganda were the most corrupt countries in the East Africa region with scores of 15, 21, 25 and 25 out of 100, respectively (Transparency International, 2015). Other East African countries, namely Tanzania and Rwanda had scores of 30 and 54 respectively (Transparency International, 2015). These data suggest that the Government of Rwanda has undertaken serious measures including immense political will and public support that led to a low

level of corruption relative to other countries in the region. Over the 1996-2010, Rwanda moved from 20.0 percent score in 1996 to 70.8 percent in 2010, emerging the fourth least corrupt country out of 53 countries in Africa after Botswana (79.9 percent), Cape Verde (74.6 percent) and Mauritius (73.2 percent) (See also World Bank Worldwide Governance Indicators, 2011 and the Republic of Rwanda, 2012). Undoubtedly, Rwanda is the least corrupt country in the East African region even by the transparency report. For example, in 2011, Burundi, Kenya, Uganda, Tanzania and Rwanda scores were 1.9, 2.2, 2.4, 3 and 5 respectively (Transparency International, 2015). For detailed description of corruption and the correlation between corruption and FDI inflows, we present the 2015corruption rank/index and the trends of the variables during the 1996-2015 period. Table 2 reports the corruption rank and index across East African countries whereas Figures 3 illustrates the trends of corruption (right scale) and FDI per capita (left scale) for individual East African countries. Furthermore, Figure 4 presents the trends of FDI in US\$ millions for the countries in consideration over the 1990-2015 period.



Figure 1. *Global Mean Corruption Perception Index, 1998-2015* Source: Authors' computations using Transparency International Data (2016)



Figure 2. CPI, 2015: Selected Countries.

Note: The Corruption Perceptions Index ranks countries and territories based on how corrupt their public sector is perceived to be. A country or territory's score indicates the perceived level of public sector corruption on a scale of 0 (highly corrupt) to 100 (very clean). A country or territory's rank indicates its position relative to the other countries and territories in the index (Transparency International, 2015)

The most compelling evidence is that South Sudan and Burundi are the highly corrupt countries in the region. In 2015, these countries, respectively, ranked 163rd

and 150th out of 167 countries in the Transparency International Corruption Perception Index¹ (Table 2). In fact, they scored 15 and 21 respectively. These scores, on a scale of 10 to 100, mean that South Sudan and Burundi are ranked among the world's most corrupt countries. Understandably, the problem of corruption in Burundi might have been heightened by uncertainty generated by the prolonged civil conflict of 1990s.

Nonetheless, it should not be considered that the other East African countries except Rwanda are less corrupt. Indeed, in 2015 Kenya and Uganda scored 25 out of 100 and ranked 139th out 167 countries whereas Tanzania scored 30 and ranked 117th out of 167 countries. These scores and ranks suggest that corruption in East Africa is pervasive and entrenched. Apparently, Kenya and Uganda are also ranked among the world's most corrupt countries. In these countries, allegations of irregularities in public tenders are frequent (US Department of State, 2015).

In practice, corruption hampers both domestic and foreign business activities (US Department of State, 2015). For example, contracts are awarded to foreign firms that allegedly do not comply with public procurement laws. Consequently, the East-African relationship with foreign investments has been turbulent and the region loses its overall appeal to foreign investors due to political unrest and corruption (US Department of State, 2015).

¹ The index measures the overall extent of corruption, in terms of frequency and the size of the bribes, in both the public and the private sector. The score indicates the perceived level of private and public sector corruption on a scale of 0-100, where 0 means that the country is perceived as highly corrupt and 100 means it is perceived as clean.

_	Table 2. <i>J</i>	5ast Africa Corrup	ntion and Easy of D	oing Business: Ra	nk and Index, 2015		
Measure	Year	Burundi	Kenya	Tanzania	Rwanda	Uganda	South Sudan
TI Corruption Perceptions index	2015	150 out of 167 [CPI 21]	139 out of 167 [CPI 25]	117 out of 167 [CPI 30]	44 out of 167 [CPI 54]	139 out of 167 [CPI 25]	163 out of 167 [CPI 15]
World Bank's Doing Business Report Ease of Doing Business	2015	152 of 189 countries	136 of 189 countries	131 of 189 countries	46 of 189 countries	150 of 189 countries	ı
Global Innovation Index	2015	136 out of 141[Score 21]	92 out of 141[Score 30.2]	117 out of 141[Score 27]	94 out of 141[Score 30.1]	111 out of 141[Score 27.7]	I
World Bank GNI per capita*	2015	US\$260	US\$1,340	US\$920	US\$730	US\$700	US\$790
Sources: Transparency International (20	16) and U	S Department of Sta	te (2015)				

Notably, foreign investors are usually attracted by a relatively stable environment (Agarwal & Ramaswami, 1992) in which corruption tends to be comparatively low. Furthermore, the quality of country political institutions, its democracy, good governance, and law and order are often considered as the main drivers of FDI (FitzGerald, 2001; Blomstrom & Kokko, 2001; Abbott & De Vita, 2001). Indeed, Busse & Hefeker (2007) argue that political stability, socio-economic condition, law and order, democratic accountability and the issue of bureaucracy are, *inter alia*, responsible for attraction of foreign entities.

To be able to succinctly describe the ease of doing business in East Africa, we use the World Bank's 2015 Ease of Doing Business report (Table 2). As can be seen in the Table, Rwanda ranks high in the World Bank's Ease of Doing Business Index, and at the same time scores high CPI of 54 out of 100 suggesting that Rwanda is among the World's less corrupt countries. Notwithstanding the business-friendly reputation in Rwanda, FDI inflows in this country lag well behind Tanzania, Uganda and Kenya (Figure 4). Low level of FDI in Rwanda is chiefly contributed to high transport costs, a small domestic market, limited access to affordable financing, inadequate infrastructure, ambiguous tax rules, and an under-skilled workforce ill-suited to the needs of foreign investors (US Department of State, 2015).

Tanzania and Kenya generally have favorable attitude toward FDI and have had considerable success in attracting it. Explicitly, Tanzania attracts the highest share of FDI in the East Africa region (Figure 4). The economy of Tanzania attracts FDI inflows mainly in sectors such mining, manufacturing and the recent development of the Southern Agricultural Growth Corridor of Tanzania (SAGCOT). Also, natural gas off the southern coast of the country has chiefly influenced foreign investment. Different from many other countries in the region, the investment climate in Kenya is characterized by stable monetary and fiscal conditions. Moreover, Kenya has a strong telecommunications infrastructure, a robust financial sector, and solid aviation connections both within Africa and to Europe and Asia (US Department of State, 2015). Surprisingly, Tanzania and Kenya rank 131st and 136th of 189 countries, respectively, in the World Bank's Ease of Doing Business Index whereas Rwanda ranks 46th, third best in Africa behind Mauritius and South Africa.

Uganda and Burundi rank 150th and 152nd of 189 countries, respectively, in the World Bank Doing Business 2015 report. Using East African countries' data, one may conclude that there is certainly, correlation between overall easy of doing business, corruption and FDI inflows. For example, Burundi is one of the most corrupt countries in the region and ranking low in easy of doing business, as a result, the country attracts very low level of FDI inflows in the region (Figure 4). An increase in corruption tends to discourage the FDI inflows in the country. This is because investors become too uncertain about the costs that will be involved in the future. Moreover, this may be accompanied with the macroeconomic instability in the country such as inflation and weak currency rate.

Admittedly, corruption is an essential means for assessing the business environment of a country. However, the relationship between corruption and FDI is more complex. Given that there are many determinants of FDI and corruption, it is hard to determine how each factor determines a country in relation to FDI and corruption. An empirical analysis of corruption and FDI in this case is of great significance. In this paper, CC and CPI are used independently as corruption indicators. Specifically, the effect of these factors on FDI is used to identify the corruption effects on FDI in the panel data setting. CPI is constructed as a joint measure of different corruption channels and is recognized in terms of validity and reliability (Lancaster & Montinola, 2001). It is interesting to analyze possible effect of corruption on FDI inflows, because as shown in Figures 5 and 6, there is a clear strong correlation between CPI and FDI on one hand and control of corruption and FDI on the other, for the countries included in the analysis.





Figure 3. FDI and CPI Rate: East African Countries Source: Authors computations using UNCTAD and TI data 1996-2015



Source: Authors computations using UNCTAD Data, 1990-2015

These scatter plots provide a rough indication of importance of CPI rank and control of corruption on FDI inflows of the countries in consideration. Also, they

suggest that CPI and control of corruption are indeed driving forces for FDI in East Africa.



Figure 5. Correlation between CPI and FDI in 5 East Africa, 1996-2015 Source: Authors' computations



Figure 6. Correlation between CC and FDI in 5 East Africa, 1996-2015 Source: Authors' computations

3. Literature Review

A number of theories explain the motives behind FDI. For example a behavioural theory of firms developed by Aharoni (1966) describes the *external* and *internal* forces that initiate FDI. In particular, according to Aharoni (1966), initiating forces that originate from the *external* environment include proposals from foreign governments, distributors of the company's products and clients, or a fear of losing market, or strong market competition from abroad in the home market. The initiating forces that stem from *within* the organization include drive of a predetermined internationalization strategy and drive of an influential decision maker such as strong interest of a high-ranking executive inside the organization for a particular FDI. In addition to external and internal forces, auxiliary forces such as creation of a new market for products, utilization of old machinery and capitalization of know-how may enhance the impact of initiating forces.

The three fundamental factors in the initial investment decision are uncertainty, information and commitment. An equally significant aspect of the behaviour theory is that its framework is based on the assumption that FDI location decision-making processes and final choice are contingent upon interactions between the

environmental, firm and decision maker context under which the decision is made. Each of these theoretical positions makes an important contribution to our understanding that foreign investment decision is complex social process that is influenced by social relationships both within and outside the firm. Despite its importance it seems to have, particularly in the initial investment decision making, certainly, the behaviour theory does not go unchallenged. For example, the analysis of the theory does not lead to testable empirical hypotheses. In addition, the sample size used for analysis is too small (see also Shin, 1998).

Another significant theory of FDI is the international product life cycle theory (IPLC). IPLC describes the role attributed to MNEs in the interaction between technology, international production and trade (Posner, 1961; Hufbauer, 1966; Vernon, 1966; Hirsch, 1967 and Wells, 1983) and it takes into account the role of innovation and the diffusion of knowledge (Hermannsdottir, 2008 and Hennart, 1982). The main argument is that development of technology generates changes in the products' factors intensity, which in turn leads to changes in the comparative advantages of countries. According to this model, companies go through stages from export to FDI (Melin, 1992; Sakarya, *et al.*, 2007) where products typically pass through the phase of introduction, growth and maturity (Almor, *et al.*, 2006). Table 3 summarizes the three stages of IPLC model.

 Table 3. Three Stages of International Product Life Cycle Model

Stage 1: Introduction	Stage 2: Growth	Stage 3: Maturity
Production activities are	Export activities increase	Production activities are
located in the developed country where the	and finally the production activities are	located in less developed countries where costs are
product was developed	located in proximity to consumers in other	low
The product is exported into other industrial	developed countries	The firm exports its product from the less
markets		developed country back
		innovating country

Source: Hermannsdottir (2008)

In the introduction stage the product is newly produced by the innovating firm in its home market (Agarwal, 1980) where the product was developed (Almor *et al.*, 2006; Luo *et al.*, 2005; Melin, 1992 and Hermannsdottir, 2008). At this stage, the firm basically exports the new product to foreign markets. Exporting process enables the firm to acquire enough knowledge about the foreign market. As a result, the firm may shift production abroad (Hermannsdottir, 2008; Kwon & Hu, 1995; Melin, 1992; Sikorski & Menkhoff, 2000).

In the growth stage export activities increase and the demand for products rise leading into additional markets (Hermannsdottir, 2008). Accordingly, as both export and demand for products increase, the innovators locate production activities in proximity to consumers in these countries (Hermannsdottir, 2008; Almor *et al.*, 2006; Galán & González-Benito, 2001; Lou, Zhao & Du, 2005; Melin, 1992).

The next phase is maturity stage. At this stage major markets are saturated and a definite degree of standardization of the product takes place (Melin, 1992). Also, products are exported to developed countries with the highest level of income. Expansion of demand and growing competition in these markets lead eventually to FDI of the innovator into countries for local production of the product (Shin, 1998). In fact, Dunning (1993) suggests that MNCs would prefer to invest the foreign countries rather than exporting to these countries because of access to resources, access to markets, efficiency gains and acquisition of strategic assets. At this stage, the need for flexibility declines due to an increase in the degree of standardization. Also, a commitment to some set of product standards opens up technical possibilities for achieving economies of scales through mass output

(Hermannsdottir, 2008). By and large, the production will be located in less developed countries where labour costs and other factor costs such as land and material are lower (Vernon 1971; Almor *et al.*, 2006; Lou, Zhao & Du, 2005; Melin, 1992; Sikorski & Menkhoff, 2000) and that firms will export their products from the less developed countries back to the original innovating country (Sikorski & Menkhoff, 2008).

It is however, important to note the limitations of the product cycle theory. Understandably, the theory was modified by Vernon (1971; 1974a; 1974b) to take into account factor costs such as labour, land and material cost. Also, Hirsch (1976) and Agmon & Hirsch (1979), respectively, specify the conditions which influence a firm's choice to serve a foreign market through export or FDI and elaborate these conditions to differentiate between developed and developing countries (see also Shin, 1998). Despite these modifications, the applicability of the product cycle hypothesis is still restricted to highly innovative industries (Solomon, 1978). In addition, the theory does not cover the new phenomenon of investment by LDC firms in DC market (Shin, 1998).

An equally important theory is Internalisation Theory of FDI coined by Bucklet & Casson (1976). Initially, the theory was launched by Coase in 1937 in a national context and Hymer in 1976 in an international context. The theory is based on the application of the market imperfections approach in an international context. The most compelling augment under the theory is that firms try to maximise profits under the imperfect market condition existing in intermediate products by internalizing the key intermediate products such as knowledge, marketing, human capital and management expertise (Bucklet & Casson, 1976). As Johanson & Mattsson (1987) and Madhok (1997) point out, a high level of transaction cost results in a preference for internalizing the transaction. Significantly, presence of externalities in goods or factor markets provides the firm with incentive to internalise such markets (Rugman, 1980). In fact, the firms decide to internalize process across frontiers leading to FDI, provided that the replacement of the external imperfect markets reduces transaction costs, and that such reduction in cost is greater than the cost of organizing such activities internally. The benefits of internalization include, inter alia, efficient exploitation of market power, avoidance of buyer uncertainty and minimization of government intervention. It is also important to note that internalization is associated with administrative, communication and risk-taking costs. Nonetheless, these costs are expected to be lower the less different the foreign market is from the home market. For this reason, international expansion is likely start in nearby markets (see Johanson & Mattsson, 1987 and Hermannsdottir, 2008). More significantly, internalization process may continue up to the point where the benefit and costs associated with further internalization are equalized at the margin (Shin, 1998).

One of the main limitations of internalization theory, however, is that although the theory clearly shows that MNCs do bypass the market in intermediate products, through direct investment, it is not certain that the motive for internalization is the external market's efficiency in terms of relatively high costs (Petrochilos, 1989; Agarwal, 1980; Hennat, 1982). Also, according to Agarwal (1980), the theory cannot explain FDI in the short run, especially by smaller firms operating in one or two foreign countries (see also Shin, 1998). Moreover, although the theory acknowledges the risk of host government intervention, it fails to differentiate the magnitude of this risk across various industries (Nayak & Choudhury, 2014). Notwithstanding these limitations of internalization theory, its popularity remains largely undiminished. In fact, the theory can be effective in explaining Greenfield investments.

In another development, Dunning (1977) put forward the concept of the eclectic paradigm of international production basing on market imperfections². The eclectic

² The model is eclectic because it integrates distinct explanatory approaches from different theories into one single framework (Ekeledo & Sivakumar, 1998; Glückler, 2006).

theory follows the line of the original Hymer (1976)-Kindleberger (1969) approach but it also considers local advantages of the host country (Petrochilos, 1989). The theory comprises of three different theories of direct foreign investments namely ownership-specific advantages (O), location-specific advantages (L) and internalization-specific advantages (I), hence dubbed OLI. Certainly, the firm's decision to enter a foreign market and the choice of entry form depend on a combination of these three advantages that are necessary conditions for entry into foreign markets (Dunning, 1988) (See Figure 6).

As Figure 6 shows, a firm will engage in FDI if the three conditions are satisfied. First, the firm must possess net ownership advantages over firms of other nationalities, which are exclusive or firm-specific proprietary, such as patents (see also Shin, 1998). These tangible and intangible assets may be transferred within transnational companies at low costs, leading either to higher incomes or reduced costs (Ekeledo & Sivakumar, 1998; Mtigwe, 2006; Hermannsdottir, 2008 and Denisia, 2010). According to Shin, (1998), firms are able to develop new products, skills in marketing, organization or finance and expertise in differentiating products with the imperfectly competitive market. This monopolistic advantages developed by firms must be sufficient to offset the additional costs of operating in an unfamiliar foreign environment. However, costs arise from factors such as cultural, legal, institutional and linguistic differences and lack of knowledge of local market conditions may prove barrier to FDI by small firms. This suggests that, to successfully enter a foreign market, company's own specific advantages such as patents and trademarks, technology, economies of large scale and greater access to financial capital must lead to higher marginal profitability or lower marginal cost than other competitors (Dunning, 1973).



Figure 6. Eclectic theory: Firm's specific advantages needed when entering foreign markets.

Source: Hermannsdottir (2008)

Second, when the first condition is satisfied, it must be more advantageous for the company possessing these unique assets to use them itself through FDI, rather than sell them or lease the rights to foreign firms (Denisia, 2010 and Shin, 1998). Notably, location advantages of different countries are key factors to determining who will become host countries for the activities of the transnational corporations (Denisia, 2010). Moreover, favourable government incentives or regulations in different locations and the desire to reduce transaction costs are a strong incentive for relocating production to particular offshore locations (Mtigwe, 2006) and can give the firm great advantage over its rivals (Hermannsdottir, 2008).

Third, assuming the first two conditions are fulfilled, it must be profitable for the firm to use its advantages through production outside its home country rather than through exports (Dunning, 1973 and Shin, 1998). In other words, internalization advantages accrue to firm from the internal use of its ownership

advantages rather than renting them out to external parties in the form of licensing agreements or franchising (Mtigwe, 2006). It can be seen from the analysis of OLI framework that as cross-border market internalization benefit is higher the more the firm will want to engage in foreign production rather than offering this right under license, franchise. However, as Denisia (2010) points out, it is important to note that eclectic paradigm parameters are different from company to company and depend on context and reflect the economic, political, social characteristics of the host country. The main limitation of the eclectic theory is that, since the advantages due to ownership, location and internalization may change over time, if country-specific characteristics are important determinants of FDI, it may be invalid to generalize from one country's experience to another (Petrochilos, 1989).

Given, the high profile debate with regard to FDI, it is quite unsurprising that there many other theories of FDI. These include, *inter alia*, the Uppsala model (Andersson, 2000; Collinson & Houlden, 2005; Johanson & Wiedersheim-Paul, 1975; 2004), the Oligopolistic theory explaining FDI, (Knickerbocker, 1973), FDI theory based on strength of currency (Aliber, 1970; Caves, 1988; Froot & Stein, 1991 and De Mello, 1997), FDI theories related to international trade (Graham, 1996; and Helpman *et al.*, 2003; Smith, 1776; Ricardo, 1817), the Theory of Exchange Rates on Imperfect Capital Markets (Itagaki, 1981 and Cushman, 1985), Theories of FDI based on perfect competition (MacDougall, 1960; Kemp, 1964; Simpson, 1962, Frankel, 1965, Pearce & Rowan, 1966, Caves, 1971; Kindleberger, 1969 and Hymer, 1976). By and large, corruption is now recognized as a policy variable that affects almost all aspects of social and economic life, especially in developing countries (Freckleton *et al.*, 2011). According to Mauro (1995) corruption slows down the economic growth of a country and has an adverse effect on the investment level.

Theories aside, there are a number of empirical studies that examine the relationship between corruption and FDI inflows in the host country. To this end, various models and methodologies such as fixed effect and random models of panel data as well as cross sectional data have been applied. However, there is no certain result on the effect of corruption on FDI inflows. In fact, some studies find a positive relationship between corruption and FDI (Leff, 1964; Al-Sadig, 2009; Bardhan, 1997) while others reveal a negative relationship between the variables (Hines, 1995; Al-Sadig, 2009; Egger & Winner, 2006; Habib & Zurawicki, 2002; Mathur & Sigh, 2013). Also, there studies that show that corruption can have both positive and negative effects on FDI (see for example, Campos et al., 2010). Corruption may have a positive effect on FDI inflows in the sense that it is considered to be a greasing wheel to the host country with rigid regulations and inefficiency bureaucracy (Bardhan, 1997). In a similar fashion, Udenze (2014) finds an insignificant positive relationship between perceived corruption and FDI inflows for the 22 Sub Saharan African countries, but a significant negative relationship for the low and middle income countries outside Sub-Saharan Africa. This also suggests that the effect of corruption on investment varies significantly across regions. For example, Asiedu & Freeman (2009) find that corruption is the most determinant and has a significant negative effect on the investment in transition countries but with no significant impact for firms in Latin America and sub-Saharan Africa. Besides, Egger & Winner (2006) suggest that corruption has a negative effect on FDI for any of the 59 OECD and non-OECD economies analyzed.

Certainly, there is no shortage of disagreement within the study of corruption and FDI. For example, with cross sectional data of 52 developing countries, Akcay (2001) fails to evidence a negative relationship between corruption and FDI inflows and concludes that the most significant determinants of FDI are market size, openness, labour costs and corporate tax rates. Similarly, King (2003) reveals no significant relationship between corruption and FDI when combined with other determinants of FDI, but finds a significant negative effect of corruption on FDI when corruption is used alone. According to King (2003) corruption indirectly

affects FDI through factors such as infrastructure, privatization, oil and growth. In the same manner, Marthur & Sigh (2011) show a negative relationship between FDI and corruption, however they suggest that a host country market size and GDP growth rate, productivity of labour and the level of trade-to-GDP ratio, are the significant determinants of the ability of the host country to attract FDI. More democratic countries may receive less FDI flows if economic freedom or economic reforms are not guaranteed (Marthur & Sigh, 2011).

Both theoretical and empirical perspectives on the effect of corruption on FDI inflows make an important contribution to our understanding that it is important to control for the other determinants of FDI to improve the accuracy of the estimation of the relationship between perceived corruption and FDI inflows. This argument is also supported by evidence from Yasmin *et. al*, (2003). According to Yasmin *et. al*, (2003) factors such as trade openness, GDP growth, inflation rate, GDP per capita, gross capital formation, days to start a business and number of procedures to start a business should be taken into account when analyzing the relationship between corruption and FDI inflows. Moreover, Wei (2000) shows that corruption aside, an increase in tax rate to the multinational enterprises may lead to the decrease of FDI inflows.

Further, evidence for in support of the position that corruption has a negative effect on FDI, however, suggests that a negative relationship may be contributed by the failure to control a quality institution (Al-Sadig, 2009). Also, according to Wei (2001a) and Abed & Dovooddi (2000) when a strong institutional factor is included in the model then there will be an insignificant relationship between FDI and Corruption. This also indicates that the country with a good quality institution can be able to attract more FDI inflows despite its level of corruption. Likewise, the effect of corruption on FDI depends on both the size of the corruption and the nature of the corruption (Ravi, 2015). To support this argument, Ravi (2015) show that corruption in India has a detrimental effect on FDI, whereas in China has the opposite effect because corruption in China is low while in India is very high. A similar explanation is that predictable corruption³ cannot necessarily adversely affect investor's ability to predict future activities while unpredictable corruption creates insecurity and uncertainty business environment (see for example King, 2003). Indeed, Ngowi (2001) shows that the high risk of doing business which is caused by the lack of political and institutional stability and predictability prevent FDI inflows in Africa. This negative relationship between political instability and FDI inflows is supported by Al-Sadig (2009). These instabilities create uncertainty of the protection of the property right and hence reduce investment and productive activities (Mo, 2001).

Habib & Zurawicki (2002) show that the effect of corruption on FDI negative and consequently, foreigner usually avoid to invest in countries with high level of corruption as they are afraid of operational inefficiencies. In addition, Habib & Zurawicki (2002) reveal that there are positive and significant effects of the population, GDP per capita and economic ties on FDI level.

Despite the controversies about the relationship between corruption and FDI inflows, it should be pointed out that corruption is not the only variable that possibly affects FDI inflows. Undoubtedly, there is a vast literature on the determinants of FDI. Such factors include *inter alia*, economic growth, population, institutional quality, political stability, degree of openness, democracy or rule of law or regulatory quality and economic stability. This paper contributes to the existing literature on the relationship between CPI and FDI in East African countries. The paper also analyzes a broader set of institutional variables such as rule of law, regulatory quality, voice and accountability, political stability and absence of violence, government effectiveness and control of corruption. This is

³It exists when bribes are paid and goods or services are delivered, and the bribe payer feels assured of deliverance. For example ccorruption is very predictable where costs of services is easily estimated and clients feels guaranteed.

due to the fact that not all institutional dimensions have the same importance for the decision of where to invest. Moreover, the paper considers economic variables such as inflation and degree of openness as well as demographic factors such urbanization that may affect the decision of foreign investors to undertake investment projects in a particular country.

3. The Model

As it has been discussed, Dunning (1988) developed the eclectic theory that is generally grounded in the ownership, location, and internalization paradigm (*OLI*). In the *OLI* framework, the ownership (*O*) factor addresses the "why" aspect of foreign production; the location (*L*) factor addresses "where" to locate foreign production; and the internalization (I) factor addresses "how" firms internalize markets (Quazi *et al.*, 2014). Various studies suggest that corruption can influence the *L* factor by affecting the locational advantage of a host country as well as the internalization (*I*) factor by raising transaction costs (Quazi *et al.*, 2014; Habib & Zurawicki, 2002; Caetano & Caleiro, 2005). In view of these arguments, this paper applies a panel data analysis to examine the causal relationship between corruption and FDI in East Africa. With a panel data there will be a greater degree of freedom. In line with Al-Sadig (2009) and Quazi *et al.* (2014), the estimation model is expressed as:

$$\log(FDI/POP)_{i,t} = \gamma_{0} + \gamma_{1}CPI_{i,t} + \gamma_{2}\log(GDPPC)_{i,t} + \gamma_{3}GDPG_{i,t} + \gamma_{4}VA_{i,t} + \gamma_{5}PV_{i,t} + \gamma_{6}GE_{i,t} + \gamma_{7}RQ_{i,t} + \gamma_{8}RL_{i,t} + \gamma_{9}CC_{i,t} + \gamma_{10}\pi_{i,t} + \gamma_{11}POPG_{i,t} + \gamma_{12}\log(OPEN)_{i,t} + \gamma_{13}URPOP_{i,t} + \eta_{i} + \varepsilon_{i,t}$$
(1)

Where *i* is the country subscript, *t* is the time subscript, γs are unknown parameters to be estimated, ε is the usual random disturbance term, and η is the unobserved country-specific effects. The dependent variable, GDP per capita and degree of openness are in logarithm form. Table 3 summarizes the definitions and descriptions of the variables.

The dependent variable is total FDI inflows a host country receives at time tdivided by the host country's total population, that is, FDI per capita. Al-Sadig, 2009 also uses the same measure of FDI. This represents the inflows of foreign investment into a country. The key regressors is the corruption level in the host country as measured by CPI in line with Quazi et al. (2014), Wei (2000a), Habib & Zurawicki (2002), Zhao et al. (2003), Voyer & Beamish (2004), Ketkar et al. (2005), and Egger & Winner (2006) and control of corruption in line with Belgibayeva & Plekhanov, (2015) and Daude & Stein, (2004). Since corruption is illegal, it is very hard to find good statistics on the level of corruption (Ohlsson, 2007). In most cases it is done in secret, so only some cases are discovered and therefore, the amount of cases discovered is not a good measure of the actual corruption, because that also depends on other factors, as the judicial system (Ohlsson, 2007). As a result, CPI is widely considered as a proxy measure of corruption level of a country. It is published by the Transparency International. The CPI ranges from 0 to 10, with 10 being no corruption and 0 being countries where business is totally corrupt. This also implies that a lower CPI score reflects more corruption. If the estimated coefficient of the CPI index, γ_2 , turned out positive, would literally mean that the higher corruption index (very clean) attracts more FDI supporting the "grabbing hand" hypothesis (Quazi et al., 2014). In contrast, a negative coefficient will indicate that lower CPI scores (i.e., more corruption) attract more FDI, validating the "helping hand" hypothesis. In fact, according to Bardhan (1997), the negative relationship between FDI and CPI index suggests that corruption acts as a greasing wheel for the rigid regulations and an inefficient bureaucracy country so as to speed up decision making and bureaucratic efficiency. The annual CPI data are obtained from Transparency International. The control of

corruption which is also one of the indicators of governance performance or quality of institutions is as defined and explained in Table 4.

The choice of the control variables is motivated by the previous empirical studies on the determinants of FDI, the eclectic paradigm of Dunning (1988) and the availability of data. For example, domestic demand in host countries can play a crucial role in attracting "market seeking" FDI, where the primary objective of multinational corporations (MNCs) is to serve the domestic market (Quazi et al., 2014). Market size supports the horizontal nature of FDI that seeks to extend and increase their market base. Also, when a product cycle of the firm reaches its peak, it will be starting to look for the foreign markets with the large market and higher purchasing power (Jordaan, 2004) for efficient utilization of resources and exploitation of the economies of scale (Charkrabarti, 2001). In addition, according to Yu & Walsh (2010), a larger FDI flows to the countries with the larger market potentials because of larger potential demand and lower costs associated with economies of scale. In fact, Chakrabarti (2001) suggests that market size of the host country measured by GDP per capita passes the robustness test as a significant determinant of FDI. GDP per capita is a good estimate of the disposable income and of the well being of each person. With a higher living standard, the level of consumption should be more sophisticated, leading to increase in FDI (Ohlsson, 2007; Demirhan & Masca, 2008). In this case, GDP per capita is expected to have a positive impact on FDI. However, the result of relationship between FDI and GDP per capita as a proxy of market size is not straight forward. For example, Anywanu (2011) finds a negative relationship between the two variables suggesting that this could be due to balancing of the market size effect with the cost of production effect, which should work in the opposite direction. In line with previous empirical studies log of GDP per capita is used in this paper as proxy variable for market size or potential (Al-Sadig, 2009; Quazi et al., 2014; Schneider & Frey, 1985; Loree & Guisinger, 1995; Jaspersen et al., 2000; Wei, 2000a and Quazi et al., 2014).

To control for the host country's market size and market potential, other variables such as the growth rate of GDP (GDPG), and the growth rate of population (POPG) are used (see for example Al-Sadig, 2009). The argument about the growth rate of GDP is that a region that has experienced impressive economic growth in the past is likely to attract more foreign investors (Yin et al., 2014). In the same line, Demirhan & Masca (2008) and Charkrabarti (2001) argue that only rapidly growing economy provides relative better opportunities for making profits than the ones growing slowly. Rapid growth creates a large domestic demand and business opportunities for foreign firms. Similarly, if a country's population is growing very fast, this may serve as a catalyst for FDI inflows (Al-Sadig, 2009). An increase in population may increase the demand for different products in the country or may result into a decrease in production costs via reduced wages (Li et al., 2004). A cheaper labour at the host country than at the home tends to attract efficiency seeking FDI. Foreign investors aim to take advantage of the host country's cheaper factor inputs (Yin et al., 1998). Accordingly, the relationship between FDI and these variables is expected to be positive.

Likewise, economically open countries generally pursue economic policies that are conducive to foreign trade and investment (Quazi *et al.*, 2014). The fact that foreign investors typically have favorable impressions of such countries with greater degree of openness, the openness of the economy (*OPEN*) which is measured by the sum of exports and imports as a percentage of GDP is expected to have a positive effect on *FDI* (see for example Demirhan & Masca, 2008; Anywanu, 2011 and Al-Sadig, 2009).

Variable	Abbrev.	Definition	Source	Expected Sign
Foreign direct investment	FDI	FDI percent of population	UNCTAD, WDI, 2016	
Corruption	CPI	Corruption Perception Index $Index = \begin{cases} 10: Very \ clean \\ 0: Highly \ corrupt \end{cases}$	Transparency International, 1996-2016	+
Market size	GDPPC	GDP (in current US\$) divided by population (i.e. Per capita GDP)	WDI, 2016	+
Growth	GDPG	Growth rate of GDP, Annual	WDI, 2016	+
Rule of law	RL	Extent to which agents have confidence in and abide by the rules of society (2,5:2,5 scale)	Worldwide Governance	+
Regulatory quality	RQ	Perceptions of the ability of the government to formulate & implement sound policies and regulations that permit and promote private sector development $(-2, 5, 2, 5, scale)$	Worldwide Governance Indicators, 2016	+
Voice and Accountability	VA	Perception of the extent to which citizens are able to participate in selecting their government, freedom of expression, association, and a free media (- 2, 5: 2, 5 scale)	Worldwide Governance Indicators, 2016	+
Political stability & absence of violence /terrorism	PV	Perceptions of the likelihood of political instability and/or politically-motivated violence, including terrorism (-2.5:2.5 scale)	Worldwide Governance Indicators, 2016	+
Government effectiveness	GE	Perceptions of the quality of public services, civil service and the degree of its independence from political pressures (-2.5:2.5 scale)	Worldwide Governance Indicators, 2016	+
Control of Corruption	CC	Perceptions of the extent to which public power is exercised for private gain, including petty and grand forms of corruption. (- 2.5:2.5 scale)	Worldwide Governance Indicators, 2016	+
Inflation	π	Inflation, GDP deflator, Annual	WDI, 2016	_
Population	POPG	Population growth, annual	WDI, 2016	+
Degree of openness	OPEN	Sum of exports and imports of goods and services, percent of GDP	WDI, 2016	+
Urban population	URPOP	Growth rate of urban population	WDI, 2016	+

Table 4. Descriptions of Variables

Source: Authors construction (2016)

Economic stability is controlled by the inflation rate (π) in the host countries (Al-Sadig, 2009 and Demirhan & Masca, 2008). A stable macroeconomic environment indicates less investment risk which in turn promotes FDI (Anywanu, 2011). Thus, the expected relationship between FDI and inflation is negative. Also, a high degree of urbanization tends to encourage FDI inflows since it may imply a high quality of infrastructure and concentrated consumers (Al-Sadig, 2009). Indeed, concentrated consumers and concentrated services such as banking and communications, technological assets etc are always found in the cities. These externalities allow domestic enterprises and multinational firms to achieve efficiencies in production and service deliveries and economies of scale (Yin *et al.*, 2014). This paper uses the growth rate of urban population (*URPOP*) as a proxy for urbanization and it is expected to have a positive correlation with FDI.

Equally important, there has been growing interest in the role of institutions or legal framework and/or political structure in attracting FDI. According to Kaufmann *et al.*, (1999a), the institutional variables include rule of law, regulatory quality, voice and accountability, political stability and absence of violence, government effectiveness and control of corruption. These indicators which are clustering into different dimensions allow us to examine whether some dimensions of governance matter for FDI location, while others do not. Kaufmann *et al.*, (1999a) standardize them so that they all have mean zero and a standard deviation of one; in all cases larger values indicate better institutions.

Indeed, like the other variables, the rule of law (RL) is the variable of most interest to this paper. The rule of law measures the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence (Kaufmann, *et al.*, 2007). A central focus of the rule of law and FDI analysis rests on the significance of property rights and contract enforcement on investors' decision to invest in a country. This is important because individuals and firms are incentivized to invest when these rights are secured. Thus, as articulated in much of the literature (for example Haggard & Tiede, 2011 and Hogan, 2015), all things being equal, a stronger rule of law will in principle encourage FDI by ensuring a transparent, stable and predictable environment in which host governments credibly commit to the enforcement of contracts and the protection of property rights and rights of the person.

Regulation Quality (RQ) as an indicator of the quality institutions measures regulatory barriers to functioning markets. It reflects perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. The empirical study by Busse & Groizard (2006) discusses the impact of quality of government regulation of business on FDI. Specifically, Busse & Groizard (2006) show that, economies with high standards of regulation, have relatively less benefited from the multinational companies. These results are supported by Baklouti & Boujelbene (2014) who finds a negative relationship between the variables.

Similarly, stable social and political environment strongly affects FDI and so this paper uses political stability and absence of violence/terrorism indicator to control for political stability (RISK). Political stability and absence of violence/terrorism measures the perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism. Thus, by its very nature, the FDI decision requires some assessment of the political future of the host country. This is due to the fact that it is a forward-looking activity based on investors' expectations regarding future returns and the confidence that they can place on these returns (Brada, et al., 2004). Thus, domestic instability or civil war or conflict with neighboring countries may reduce the profitability of operating in the host country because domestic sales are impaired, or production is disrupted, or the facility is damaged or destroyed (Brada, et al., 2004). Also, political instability is likely to affect the value of the host country's currency, thus reducing the value of the assets invested in the host country as well as of the future profits generated by the investment (Brada, et al., 2004). Indeed, a number of studies examine the significance of political risk for investment decision (Citron & Nickelsburg, 1987; Cherian & Perotti, 2001; Fielding, 2003; Alesina & Perotti, 1996; Bennett & Green, 1972; Schneider & Frey, 1985; Singh & Jun, 1995; Globerman & Shapiro, 2002 and Cho, 2003) and find that an increase in the intensity of political instability significantly decreases investment. Moreover, Diamonte et al. (1996) show that political risk is a more important determinant of asset returns in emerging markets than in developed markets whereas Bussiere & Mulder (1999) conclude that including political variables in economic models significantly improves the ability of such models to explain economic crises (see also Brada, et

al., 2004). By and large, this variable combines indicators that measure the risk of a destabilization or removal from power of the government in a violent or unconstitutional way.

Government effectiveness (GE) as an indicator of the effectiveness of policy, reflects perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. It measures the competence of the state bureaucracy and the quality of public services. This variable is expected to have a positive effect on FDI. This augment is supported by (Bénassy-Quéré *et al.*, 2007 and Baklouti & Boujelbene, 2014). The indicators clustered in government effectiveness and in regulatory quality are related to the ability of the government to formulate and implement policies.

Voice and accountability focuses on different indicators related to the political process, civil rights, and institutions that facilitate citizens' control of government actions, such as media independence while the control of corruption measures the extent to which public power is exercised for private grain, including both petty and grand forms of corruption. Both indices range from -2.5 to 2.5, with higher values corresponding to better quality of institutions. In general, many empirical studies show that the quality of institutions has positive effects on FDI (see for example, Daude & Stein, 2004). According to Belgibayeva & Plekhanov (2015), with full control of corruption, paying a bribe is prohibitively costly. This also suggests that FDI inflows increase with the control of corruption.

The graphical descriptions of the quality of institutions measures namely voice and accountability, political stability and absence of violence/terrorism, government effectiveness, and regulatory quality, rule of law and control of corruption for the East African countries are presented in Figures 7-12. These indicators are very important as they seem to associate with FDI inflows.



Figure 7. Voice and Accountability



Figure 8. Political Stability and Absence of Violence/Terrorism





Figure 10. Regulatory Quality

TER, 4(1), M. Epaphra, & J. Massawe, p.19-54.



Figure 11. Rule of Law



Among the five countries, Rwanda seems to have a remarkable improvement in political stability and absence of violence/terrorism, government effectiveness, regulatory quality, rule of law and control of corruption while Burundi tends to lag behind in terms of the quality of its institutions. The fact that some explanatory variables such as indicators of quality of institutions seem to have correlation, these variables are included in the models as reported in Table 5 to avoided the problems of multicollinearity and endogeneity.

Variable	Abbrev				Mo	dels				
	•	1	2	3	4	5	6	7	8	
Foreign direct investment	FDI	\checkmark								
Corruption	CPI	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	x	x	
Market size	<i>GDPPC</i>	x	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	x	
Growth	GDPG	\checkmark								
Voice and Accountability	VA	\checkmark	\checkmark	x	x	х	x	x	x	
Political stability & absence of violence	PV	x	x	\checkmark	×	x	x	x	x	
Government effectiveness	GE	x	x	x	\checkmark	х	x	x	x	
Regulatory quality	RQ	x	x	x	×	\checkmark	x	x	x	
Rule of law	RĹ	x	x	x	×	x	\checkmark	x	x	
Control of corruption	CC	x	x	x	×	x	x	\checkmark	\checkmark	
Inflation	π	\checkmark								
Population	POPG	\checkmark								
Degree of openness	OPEN	\checkmark								
Urban population	URPOP	\checkmark								

 Table 5. Variables Included in the Models

Note: \checkmark included in the model, \times not included in the model

Source: Authors construction (2016)

In all models, the dependent variable is the ratio of FDI inflow to population. In the first six models, we use CPI as a measure of the level of corruption. In the last two models we use control of corruption as an indicator of the level of the corruption in the economy. The two measures are applied separately because of their strong correlation. Likewise, in models 1 and 8, we exclude GDP per capita because some previous studies show that when GDP per capita and CPI are put together they are not significant at 0.05 level (see for example Ohlsson, 2007). This suggests that there is a positive correlation between GDP per capita and CPI. General, countries with higher GDP per capita have lower levels of corruption, or that countries with lower levels of corruption in general have higher levels of GDP per capita (Ohlsson, 2007). In the same manner, control of corruption is an indicator of the quality of institutions limiting corruption.

4. The Data and Country Sample

This paper employs panel data for 5 East African countries namely Burundi, Kenya, Rwanda, Tanzania and Uganda over the 1996-2015 period. The paper uses FDI per capita, measured in current U.S. dollars divided by the host country's total population as the dependent variable. FDI inflows are obtained from United Nations Conference on Trade and Development (UNCTAD) and World Bank's World Development Indicators (WDI 2016) while total population of the appropriate country is obtained from (WDI 2016). Data on corruption, indexed from 0 (highly corrupt) to 10 (very clean) are obtained from Transparency International (2016). With respect to the control variables, data on GDP per capita (measured in current U.S. dollars), the growth rate of GDP, the degree of openness, the inflation rate, population growth rate and the growth rate of urban population come from WDI (2006). To capture the effect of democracy of the host country on FDI, the paper uses rule of law. Also, to capture the effect of the institutional quality, regulatory quality is used. Institutional quality indicators are from the World Bank's World Bank Governance, and they range from -2.5 to 2.5. Because high levels of correlation between the explanatory variables may lead into multicorreneality problem we check whether the explanatory variables have high levels of correlation. In a case when correlation between explanatory variables is in excess of 0.8 it may be the best decision to drop some of the variables which represent the similar information about FDI.

Analytically, Baltagi (2005) recommends the use of fixed effect (*FE*) for a panel with a small N (in our case, N=5) because for large N, the regression includes (N-1) dummies that lead to a large loss of degrees of freedom equal to (N-1). In addition, we use the F-test to test for the significance of the country effects, that is, the null hypothesis that all country dummy coefficients are equal. When the test is significant, it means that the country dummies are jointly significant.

5. Empirical Findings

5.1. Descriptive Statistics and Correlation Coefficients

As has been stated, descriptive analysis and correlation coefficients are employed to ascertain the statistical properties of the variables used in the empirical analysis. Tables 6 and 7 respectively present the descriptive analysis and correlations of the variables included in the models. The summary statistics show that data for the five countries over the 1996-2015 period, giving rise to 100 observations. The values of the standard deviations, suggest that the variables are worth including in the regressions. Similarly, the statistics suggest that there are no outliers since the mean of each variable is relatively close to its mean. Furthermore, in Table 6, the values of skewness and kurtosis show the normality test. For a variable to be normally distributed the skewness value should be equal to zero whereas the kurtosis value should be three. Specifically, skewness gives a measure of how symmetric the observations are about the mean while kurtosis gives a measure of the thickness in the tails of a probability density function. However, it is also important to note that the Jarque-Bera (JB) test for normality is the one that computes the skewness and kurtosis measures of the OLS residuals. Under the null hypothesis of normal distribution, if the calculated p-value of the JB statistic is greater than 0.05, we fail to reject the null hypothesis at 5 percent level of significance.

The Table shows the results of the normally test for the variables: foreign direct investment per capita (FDI), corruption (CPI), market size (GDPPC), growth (GDPG), voice and accountability (VA), political stability & absence of violence (PV), government effectiveness (GE), regulatory quality (RQ), rule of law (RL), control of corruption (CC), inflation(π), population growth (POPG), degree of openness (OPEN), and urban population growth (URPOP). It is observed that rule of law, political stability and absence of violence, voice and accountability; and gross domestic product per capita are normally distributed because their skewness is approximately equal to zero as they are less than 0.5 in absolute terms. Also, it is clear that the calculated p-value of these variables plus degree of openness is greater than significance level, 0.05, suggesting that there is no evidence to reject the null hypothesis of a normal distribution for the variables. However, FDI per capita, corruption perception index, population growth, urban population, GDP growth, inflation, government effectiveness, regulatory quality and control of corruption do not follow a normal distribution as their p-value is less than 0.05. Some of the variables such FDI are transformed into log to reduce the severity of non-normality problem.

	Table 6.	Summar	y of the 1	Values of V	/ariables									
	FDI	CPI	POPG	URPOP	GDPG	GDPPC	μ	OPEN	$\mathbf{V}\mathbf{A}$	Ad	GE	RQ	RL	\mathcal{CC}
Mean	10.27	2.52	3.01	5.69	5.43	552.21	8.70	42.91	-0.79	-1.12	-0.66	-0.51	-0.77	-0.77
Median	5.17	2.40	2.07	5.44	5.36	526.61	7.43	43.64	-0.73	-1.16	-0.57	-0.36	-0.70	-0.91
Maximum	41.52	5.40	7.99	17.60	13.85	1133.46	31.11	64.48	-0.13	0.07	0.07	0.25	0.08	0.83
Minimum	00.00	1.70	1.36	3.69	-8.00	205.07	-2.41	20.96	-1.75	-2.51	-1.73	167	-1.73	-1.44
Std. Dev.	11.68	0.78	0.95	2.31	3.33	254.76	5.94	9.88	0.47	0.65	0.40	0.47	0.43	0.45
Skewness	1.08	2.07	2.88	1.17	-0.66	0.33	1.36	-2.27	-0.26	-0.19	-0.83	-0.74	-0.45	1.92
Kurtosis	2.98	7.69	15.02	14.26	5.29	2.18	5.50	2.40	1.90	2.43	3.21	2.62	2.38	6.54
Jarque-Bera	19.41	162.94	740.00	696.25	29.15	4.70	56.74	2.70	6.14	1.93	11.64	9.66	4.94	113.57
Probability	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.26	0.05	0.38	0.00	0.01	0.08	0.00
Observations	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Source. Authors	computation	Si												

-	Table 7.	Correlati	on Matrix											
	1	7	б	4	S	9	7	8	6	10	11	12	13	14
LOG(FDI/POP)	1													
CPI	0.49	1												
POPG	-0.13	-0.13	1											
URPOP	-0.25	-0.01	0.67	1										
GDPG	0.26	0.29	0.36	0.47	1									
LOG(GDPPC)	0.64	0.36	-0.20	-0.29	0.21	1								
я	-0.07	-0.25	-0.23	-0.14	-0.35	-0.11	1							
OPEN	0.23	0.21	-0.08	-0.28	0.09	0.68	0.09	1						
VA	0.48	0.07	-0.05	-0.42	0.13	0.67	0.00	0.73	1					
PV	0.66	0.66	-0.21	-0.21	0.28	09.0	-0.12	0.51	0.51	1				
GE	0.67	0.63	-0.08	-0.17	0.42	0.73	-0.35	0.43	0.41	0.76	-			
RQ	0.70	0.50	-0.17	-0.44	0.26	0.73	-0.30	0.48	0.52	09.0	0.85	1		
RL	0.75	0.62	-0.21	-0.34	0.34	0.55	-0.23	0.39	0.52	0.83	0.80	0.76	1	
CC	0.35	0.82	0.07	0.19	0.41	0.23	-0.27	0.01	-0.15	0.56	0.61	0.35	0.51	1
Source. Authors	computat	tions												

As far as correlation is concerned, results in Table 7 suggest that there is a positive correlation between FDI per capita and a number of independent variables such as CPI, GDP per capita, political and violence, government effectiveness, regulatory quality and rule of law. The positive correlation between FDI and CPI suggests that FDI is high in clean economy and less in highly corrupt economy, this illustration is correct because CPI ranges from 0 to 10 to imply highly corrupt to very clean economies. In the same manner, a positive correlation between FDI and governance indicators suggests that FDI inflow is high in economies with good governance. Other variables such as population, inflation, degree of openness, voice and accountability and control of corruption seem to have a low correlation with FDI pa capita. Notwithstanding these correlations do not necessarily mean causations. In addition, pair-wise correlations can be spurious, reflecting the effect of the presence of unobserved country effects. Thus, it is very important to examine these relationships in a multivariate regression analysis. In this case, control variables that are considered key determinants of FDI inflows should be included.

Interestingly, the correlation matrix shows low correlations among the explanatory variables except for CPI and control of corruption on one hand, and among governance indicators on the other hand. These variables have correlation coefficient of 0.8 or more. To avoid the problem of multicollineriality problem we developed eight models with inclusion of one governance indicator for each model. Similarly, CPI and control of corruption are applied exclusively.

5.2. Regression Results

Table 8 reports the results of the fixed effects regressions that examine the impact of corruption and other control variables on FDI inflows. In all 8 regressions, the dependent variable is the net FDI inflow per capita. As presented above, we develop 8 panel models with inclusion of one governance indicators in each so as to avoid the problem of multicollineriality. In addition, in some regressions we eliminate GDP per capita because of revealed positive correlation between corruption and GDP per capita. Indeed, when excluding GDP per capita as a proxy for market size, the CPI and CC coefficients in model 1 and model 8 respectively are statistically significant in both regressions and with expected sign. Specifically, positive relationship between CPI and FDI suggests that FDI increases as the economies move from highly corrupt to very clean. Similarly, the positive coefficient for the CC suggests that FDI rises as control of corruption as an indicator of the quality of institutions limiting corruption improves. Overall, these results suggest a negative impact of corruption on FDI inflows.

When including GDP per capita, as in regressions 2-7, both CPI and CC turn to be statistically insignificant. In fact, the non significance of corruption indicator is not that surprising. Some studies, for example, Blancheton & Opara-Opimba (2010); Harrison (2011) and Udenze (2014) reveal that the corruption factor is not clearly significant. Nonetheless, the augment has been not because of significant correlation between corruption measures and GDP per capita. In Africa, corruption has high political and bureaucratic slant which in turn affects mostly public aid or financial loan than it does to private capital. Evidence for in support of this position, can be found in Blancheton & Opara-Opimba (2010).

	<u>9</u> 18				49)				Turl	ish (92	16) 16	omi o 58)	2 . Rev	iew 52)	(0)	001	5	.24	.02	.87	00.
	Mode				0.01 (0.4					0.86*** (3.3	-0.02** (-2.]	-0.03 (-0.2	0.02** (2.2	0.01 (0.2	1.44*** (-3.	1		0	0	5.	0
	Model 7		5.87*** (7.75)	(60.0) 00.0						0.22 (1.13)	-0.02*** (-2.60)	-0.08 (-1.18)	0.03^{***} (4.50)	0.02 (0.56)	-14.07*** (-6.95) -	100	5	0.55	0.53	15.56	0.00
icator	Model 6	0.07 (0.87)	5.07*** (6.65)	0.00 (0.22)					0.94^{***} (3.58)		-0.03*** (-3.69)	-0.08 (-1.28)	0.05^{***} (6.09)	0.06 (1.29)	11.38*** (-5.78) -	100	5	0.61	0.76	17.42	0.00
l of Corruption Ind.	Model 5	0.04 (0.41)	$6.21^{***}(8.10)$	0.00 (0.05)				$0.95^{***}(3.59)$			-0.09*** (-3.80)	-0.29 (-0.43)	$0.04^{***}(5.82)$	0.07 (1.53)	14.64*** (-7.85) -	100	5	0.61	0.61	17.44	0.00
n Index and Control	Model 4	0.40 (0.44)	5.79*** (7.56)	0.00 (0.01)			0.79*** (2.97)				-0.03*** (-3.53)	-0.04 (-0.56)	0.04^{***} (5.51)	0.04~(0.85)	13.56*** (-7.18) -	100	5	0.60	0.59	16.29	0.00
nruption Perception	Model 3	0.04~(0.40)	5.23*** (6.99)	0.00 (0.75)		0.61*** (3.75)					-0.03^{***} (-3.41)	-0.11 (-1.65)	0.05*** (6.24)	0.01 (0.29)	11.40*** (-5.85) -	100	5	0.62	0.69	17.78	0.00
egression Using Co	Model 2	0.15 (1.63)	5.38***(6.38)	0.00 (0.05)	0.19~(0.86)						-0.02*** (-2.76)	-0.08 (-1.05)	0.03^{***} (4.44)	0.03 (0.69)	12.89 ***(-5.69) -	100	5	0.56	0.57	13.96	0.00
uple, Panel Data Ru	Model 1	0.46^{***} (4.89)		0.00 (0.16)							-0.23***(-2.44)	-0.01 (-0.09)	0.01* (1.75)	0.33 (0.69)	-0.12 (-0.30) -	100	5	0.31	0.14	6.71	0.00
Table 8: Full San		CPI	Log (GDPPC)	GDPG	VA	PV	GE	RQ	RL	CC	Я	POPG	OPEN	URPOP	CONST.	No. of obs.	No. of groups	R-sq. within	between	F-statistics	Prob>F

Despite these contradictory results, market size, measured as GDP per capita, seems to be the most important factor in explaining FDI in East Africa. If included in the regression, the GDP per capita is positive and statistically significant at 0.01 level in all regressions. Notably, the size of a market may indicate the attractiveness of a specific location for the investment, in the case that the multinational corporation aims to produce for the local market (horizontal or market-seeking FDI). Also, our estimates reveal that FDI is influenced by the degree of openness and macroeconomic stability. In all regressions, the coefficient for the trade openness is positive and statistically significant suggesting that economies which are more open are likely to attract foreign firms. Indeed, more open economies potentially offer a more efficient allocation of resources, providing economic welfare gains. Equally important, these results are also consistent with the FDI theory that openness is indicative of the host country's ease of access to the world market for material inputs, so the multinational corporations can obtain the raw materials at low price (see also Anyanwu, 2011). In contrast, the coefficient for inflation, which represents economic stability, is negative and statistically significant in all regressions suggesting that economic instability may inhibit inward FDI, because investors prefer to invest in economies with a lesser degree of uncertainty and in more stable economies. In other words, a stable macroeconomic environment promotes FDI by showing less investment risk. These results are consistent with the existing literature.

Other significant factors in our analysis are governance indicators. With the exception of voice and accountability, the other indicators namely political stability and absence of violence, government effectiveness, regulatory quality, and rule of law are significant determinants of the ability of the host country to attract FDI. Remarkably, the coefficients for these variables are positive and statistically significant at 0.01 level. This suggests that foreign investors prefer to invest in the economies that are politically and socially stable. It also suggests that the quality of public services and the quality of the civil service and the degree of its independence from political pressures play an important role in attracting foreign investors. Furthermore, the results imply that the quality of contract enforcement, property rights, as well as the likelihood of crime and violence affect FDI inflows positively. Also, when excluding GDP per capita in the regression, the coefficient of control of corruption in model 8 becomes statistically significant at 0.01 level. suggesting that FDI inflows increase if corruption is controlled. Again, this result confirms the previous studies, which find a negative relationship between the corruption level in the host country and FDI inflows. By and large, governance performance indicators are in the best position of attracting more FDI inflows. These indicators tend to evaluate the quality of the service, independence from the political pressure and quality of the policy formulations. More importantly, positive relationship between FDI and political stability and absence of violence, government effectiveness, and regulatory quality, rule of law and control of corruption provides an indication of the importance of the quality of institutions. This means that if the economy has good quality institutions, it may still be able to attract more FDI inflows despite its level of corruption (see also Al-Sadig, 2009).

There is also, however, a further point to be considered. Contrary to expectations, the coefficients for the overall population growth, urban population, and economic growth are statistically insignificant in all regression. In fact, the counter argument that real growth is not always significant is supported by UNCTAD (1998).

6. Conclusions

It is widely accepted that FDIs are the most desirable form of capital inflows to low income economies because they are less susceptible to crises and sudden stops. However, there are many factors that could affect FDI inflows. The level of corruption in the host economies has been introduced as one of the important factors determining FDI location. In fact, the effects of corruption on FDI have

received attention in socio-economic literature. Interestingly, some empirical studies provide evidence of a negative relationship between corruption and FDI inflows, while others fail to find such a relationship. Also, a matter of great concern is that some empirical works reveal positive and statistically significant association between the two variables. A central concern of this paper was to examine the effects of corruption on FDI inflows. The paper used corruption perception index and control of corruption as measures or indicators of the level of corruption in the economy. Besides, economic factors such as GDP per capita, population, inflation, and openness of the economy and non-economic factors such as the quality of institutions were considered in the analysis as determinants of FDI inflows in East African economy. For analysis, the paper employed fixed effects as a preferable model and it used data for 5 countries over the 1996-2015 period. The empirical evidence revealed in this paper can be presented as follows: When eliminating GDP per capita in the regression the coefficients for the corruption perception index and control of corruption are positive and statistically significant. Indeed, these regressions are consistent with the argument that corruption deters foreign investors. However, when including GDP per capita, both coefficients become statistically insignificant, this may be due to the fact that corruption also affects GDP per capita. Unsurprisingly, empirical results show that the market size proxied by GDP per capita and quality of institutions or governance indicators namely political voice and absence of violence, government effectiveness and rule of law are the main factors that determine FDI inflows in East African economy. These results provide an important strategy for increase in FDI inflows. Economies may attract more FDI if they take effective measures to improve the quality of institutions and combat corruption. Economies may attract more FDI if they take effective measures to increase GDP per capita, improve the quality of institutions and combat corruption.

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