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Ranking risks and opportunities of African cities

A data-driven model to support MNE's FDI strategies

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Abstract

The purpose of this paper is to build a model that incorporates current data of Africa, both regarding risks and opportunities into a strategic framework that should enable a more informed foreign direct investment decision for multinational enterprises (MNEs). The parameters used in the model were carefully chosen as determinants to foreign direct investment (FDI) based on extensive literature reviews. The model currently covers 101 major cities in 40 African countries. The model calculates and ranks indexes of African cities in terms of prospective investment opportunities. It is a general model with the flexibility of adapting to the user's specific needs, since they can be highly heterogeneous depending on the industry and the type of to FDI considers. To test the validity of the model, standardized weights were used and the results were compared to current reports of FDI inflows to Africa. The results given by the model were to some extent compliable with the result of current FDI inflows, which thereby can be seen as sign of validity.

Key-words

Africa, FDI Inflows, Determinants, Risk, Investment, OLI paradigm, City Risk

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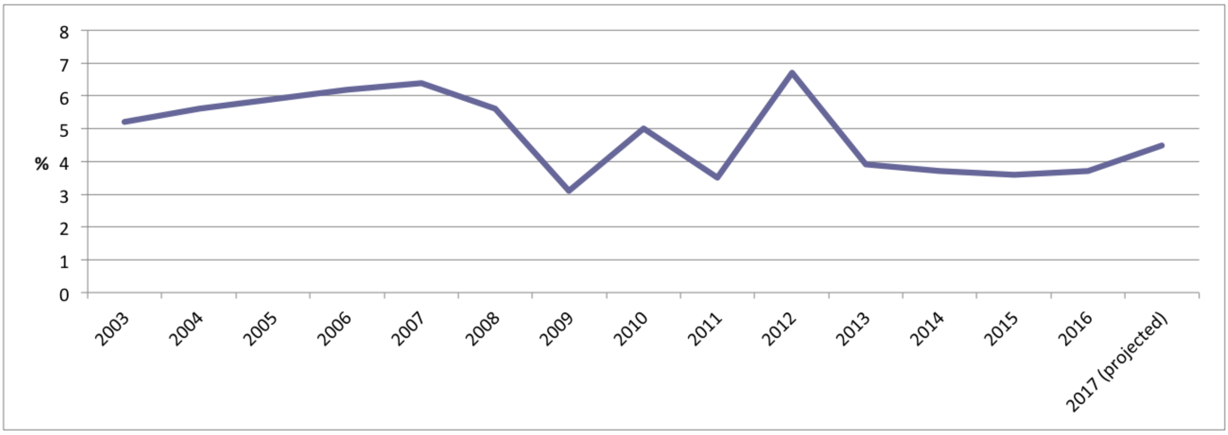
1 Introduction

The persistent global growth slowdown has inevitably raised increasing pressure on many of the economies on the African continent, and at the same time doubts have increased regarding the sustainability of the continents past 15 years growth momentum. The African growth-path has indeed slowed down considerably 2013- 2016 (Figure 1). However, these growth rates are expected to be rather constant if not increased in the future both for many of the main key players in the continent but also for the continent as a whole (UNDP, 2016).

Figure 6. Africa's economic growth rate 2003-2017



Source: African Economic Outlook (Databank)

Due to the high growth from the year of 2003 FDI inflows to the continent has increased substantially. However, the continent's share of World FDI is still comparatively low (3%) in 2015, although Africa had a higher growth in 2015 compared to the world growth rate the FDI inflows continues to be low (UNDP, 2016). Table 1 shows that the FDI inflows received by developing Asia in 2015 was 10 times the size of the FDI inflows in Africa, even though its economy is only around 6 times larger when looking at GDP. The same is true for Latin America and the Caribbean where FDI inflows in 2015 were around 3 times the size of the FDI inflows to Africa, even though its economy only is 1.7 times larger. The conclusion of this is that Africa still fails to attract FDI at the levels of other developing economies.

Table 4. FDI Shares

2015	GDP PPP valuation (USD Billions)	FDI inflows (USD Billions)	Share in world FDI inflows
Africa	5 769	54	3,10%
Developing Asia	34782	541	30,70%
Latin America and the Caribbean	9753	168	9.5 %

Source African Economic Outlook (Data bank), Economy Watch, The World Bank (Databank)

There is an increasing trend of developing economies such as the Middle East and Asia to invest in Africa however; many prospective investors still view Africa a too high risk (The World Bank, 2016a).

On the other hand, it was reported that FDI in Africa has since 2006 showed an average rate of return of 9 %, which is considerably higher than both the world's FDI overall rate of return of 7.5 % and developing economies' average of 8.1 %, and thus gives a contradictory positive view on investments in Africa (Arosanyin, 2016). The complexity of the continent due to its scale and fragmented nature, and the uncertainties both politically and economically makes Africa a continent difficult to invest in (Chaudhuri and Mukhopadhyay, 2014).

Moreover, there is in general a lack of empirical studies on FDI in Africa, which further adds to the complexity of investments decisions in Africa. The vast majority focuses on FDI between developed countries, Latin America, and Asia. Although there are a handful studies which focus on FDI in African countries (e.g. Asiedu, 2006; Naudé and Krugell, 2007; Cleeve, 2008; Chaudhuri and Mukhopadhyay 2014). Furthermore, there are no academic research papers that specifically study FDI in Africa on a city level. When assessing the location to invest from an investor's perspective, it is important to know not only which country to invest in, but also which city to invest in, especially if the countries are large. In many cases, the size of the cities (measured by population or GRP) are larger than the size of other countries. For example, the city Cairo in Egypt has a population of just over 19 million (Canback, 2017) whilst the country Botswana has a population of only 2 million (The World Bank, 2017). This make it particularly interesting to study Africa on a city level.

A dynamic model was built to address the current gap of studies in the field of African cities in terms of market assessment and risks. By using an analytical approach that incorporates current data of Africa into strategic frameworks should enable a more informed investment decision for MNE’s and facilitates the decision process. The model will provide a ranking index of African cities. Rankings are commonly used as a method to compare countries by international standards provided by e.g. the World Bank and World Economic Forum. This method can also be applied on city levels and is easily understood regardless of the user’s background. Another advantage of rankings is the ability to see how they will change when the explanatory variables change, e.g. changes in political policies and reforms.

The created model is dynamic with a flexible weighting system that can be customized for the company or industry in question. The weight on each factor will be decided after interviews with respective company. However, to test the model's accuracy, weightings from recognized index has been used. The result of the model will be evaluated against currents reports of FDI inflows and compared to other indicators of FDI level such as Real GDP growth and the Global Competitiveness Index.

1.1 Purpose and research question

The purpose of this paper is to use an analytical approach that incorporates current data of Africa into a strategic framework that should enable a more informed investment decision for an MNE.

The research question is thereby:

- How to create a dynamic and aggregated index of FDI determinants and deterrents to help companies with FDI strategies?

1.2 Sustainability aspects

The issue of where MNE’s are to locate their FDI can be reviewed from several different aspects in regard of sustainability. The decision can both affect the environment, the social community and the economically sustainable development in the chosen location. This implies that the research of FDI determinants chosen for this thesis can be reviewed as important factors to what a country or economy should focus on to receive a larger amount of FDI in the future However, how FDI inflows affects the sustainability of the environment, the social community or economically is not further investigated in this paper.

1.3 Outline of the paper

The paper is presented as follows. Section 1 presents the purpose and research question. Section 2 gives an overview of historical development of FDI inflows to Africa. Section 3 explains the determinants for multinationals to undertake FDI with theoretical frameworks and empirical studies. Section 4 presents the methodology used to create the city index. Section 5 presents the results of the city index conducted by the model. Section 6 will compare the results with the current FDI situation to assess the accuracy of the mode while also discuss other indicators such as Real GDP growth and the Global Competiveness Index. Section 7 concludes the paper.

2 Foreign direct investment (FDI) and Africa

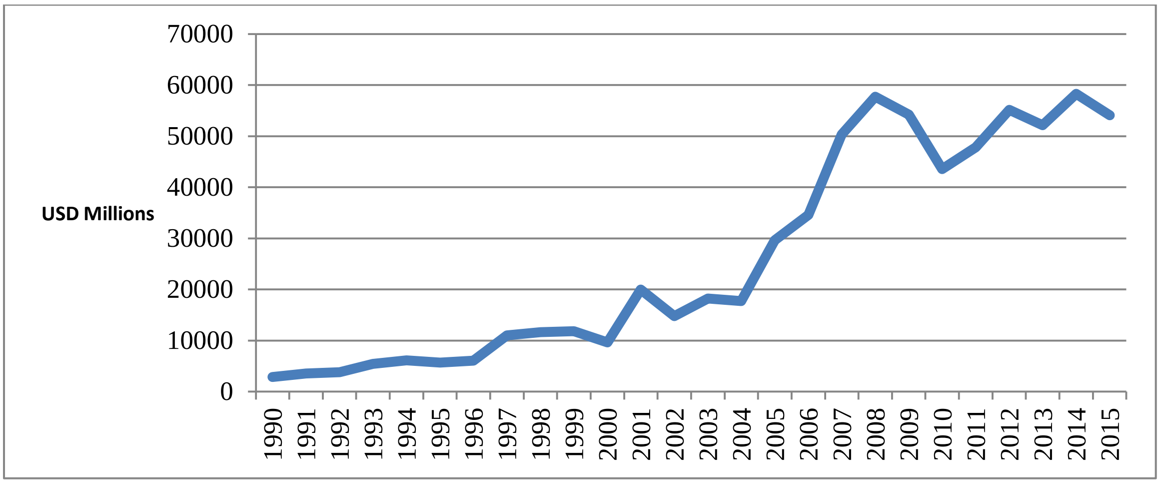
2.1 Definition FDI

The United Nation (2016a:1) has stated, *"FDI refers to an investment made to acquire lasting interest in enterprises operating outside of the economy of the investor."* In other words, foreign direct investments (FDI) are defined as cross-border investments made by firms operating in another economy. To create an FDI investment the foreign company must have long lasting interest in their cross-border investment and the company must also have a certain level of control over the other entity (OECD, 2008). To achieve this type of investment, the MNE can either establish a new business operation or acquire an existing business with controlling interest in a foreign country. FDI can be classified into two main categories, market seeking (horizontal) and factor seeking (vertical). Market seeking FDI operates in the same industry in which the investing firm operates at home, and is motivated by market demand and the sales potentials, i.e. the firm aims to serve the foreign market with goods or services. Factor seeking FDI operates in a different industry and is typically motivated by exploiting input advantages such as lower labor costs and raw material costs, i.e. the firm in the foreign country is a part of the investing firm's operating value chain. (Hofmann, 2013)

2.2 Africa's FDI inflows

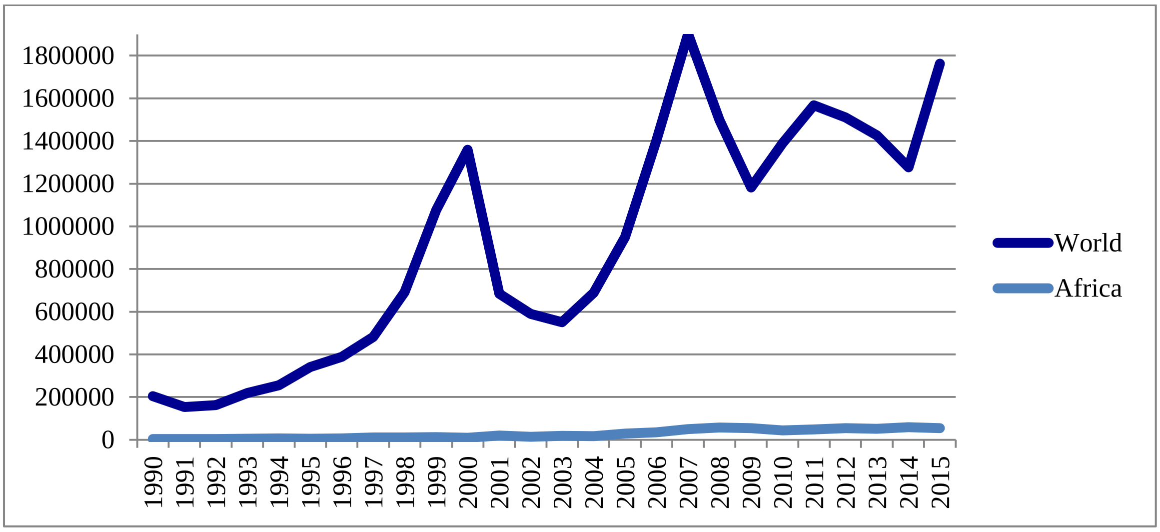
Africa's FDI inflows have increased substantially since the year of 1990, however it has also fluctuated since its peak between 2007 and 2008, which can be seen in figure 2 below (UNCTAD, 2016). However this is not only true for Africa since after the financial crisis in 2008, the world level of FDI decreased due to the weak economic growth, a higher level of fixed capital formation and the slow growth in trade (See figure 3) (UNCTAD, 2016). Nevertheless, in 2015 the global level of FDI reached its highest level since the financial crises in 2008-2009 and the growth can be derived from the larger amount of cross-border mergers and acquisitions made in 2015 (FDI intelligence, 2016). On the other hand, the received level of FDI in Africa still fell with 7% compared to 2014, even though Africa had a higher growth in GDP in 2015 compared to the world growth rate (UNDP, 2016). To conclude, FDI levels are very volatile and it is important to review the result over a longer time period to reach relevant conclusions.

Figure 7. FDI inflows in Africa 1990-2015 (USD Millions)



Source: UNCTAD Databank

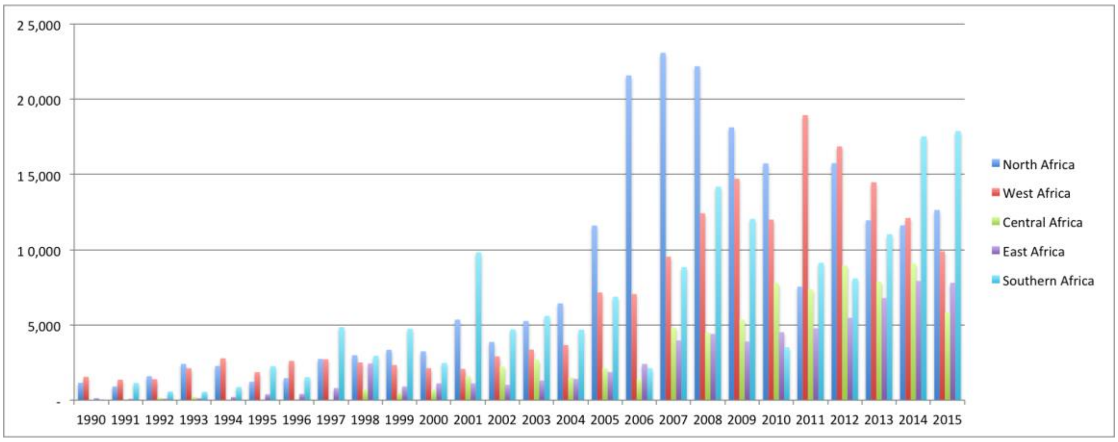
Figure 8. World FDI and Africa's inflows 1990-2015 (USD Millions)



Source: UNCTAD Databank

The different regions in Africa that have received most of these inflows have also varied over the years. For example, in 2007 the Northern countries of Africa received the majority of the inflows, in 2011 West Africa held the lead and in 2015 the Southern part of Africa receives the highest amount (UNCTAD, 2016). The changes of regions are due to several aspects such as weak commodity prices, changes in political stability, growth and inflation. The conclusion of this is that FDI inflows in Africa have a very complex nature that changes continuously in both levels and regions.

Figure 9. FDI Inflows Africa divided by regions 1990-2015 (Billions of dollars and %)



Source: UNCTAD Databank

Looking more closely at the current situation of FDI inflows in 2015 it shows a complicated pattern. As mentioned before, overall as a region, the foreign direct investments fell with 7% compared to 2014 (FDI Intelligence, 2016). However, North Africa actually showed improvements in FDI inflows. Looking more closely at the countries in Africa, it can be found that the main growth in North Africa can be derived from foreign investment to Egypt, which exhibited an FDI inflow increase of 49% from 2014 to 2015 (UNCTAD, 2016). The increase of capital inflows in Egypt was mainly due to an expansion in the financial industry by new foreign affiliates, for example Citadel Capital and CIB Bank. Several investments in the telecom industry were also made and investments in the gas industry continued. FDI inflows remained stable in 2015, and the country continued to attract companies from the foreign manufacturing industry, were industries such as for example the automotive industry had a large impact (UNCTAD, 2016).

However, the increase of FDI in North Africa was counterbalanced by the decline in inflows to Sub-Saharan Africa (Figure 4). This decline can mostly be derived from the decrease in commodity prices, which turned FDI and MNE's towards more natural resource based economies (FDI Intelligence, 2016). Looking more closely, West Africa's FDI inflows decreased with 18% due to the shrinkage of investment to the largest economy in Africa, Nigeria (UNCTAD, 2016). The FDI inflows decreased with 1.6 billion between 2014 and 2015 due to the recession in commodity prices, the weak local currency and delays in several important FDI projects such as the Oil project issued by Royal Dutch Shell (UNCTAD, 2016). However, even though the economy showed weak conditions consumer spending continued to be solid in the country.

Central and East Africa also showed a decrease in FDI inflows although, Kenya showed great promise in 2015 since its FDI inflow hit a record of $1.4 billion (FDI Intelligence, 2016) (Table 2). There has been an increased interest from foreign investors due to the country's improved business climate and the increasing consuming market. The new investor-boom has led to increased oil and gas explorations and also an increase of manufacturing exports. On the other hand, the United Republic of Tanzania's FDI inflows diminished with 25 %. To change this and to continue the growth in Kenya, both Tanzania and Kenya have currently issued a new law that allows total foreign ownership of companies listed on the respective country's stock exchanges (UNCTAD, 2016).

In the southern part of Africa, FDI inflows improved with 2 percent in 2015 (FDI Intelligence, 2016). This was mainly due to the increased inflows to Angola. In 2015 Angola became the largest recipient in Africa attracting a record high level of $8.7 billion of FDI. The growth in FDI can be explained by the intervention of larger loans given by foreign partners to their local associates and partners. The parent companies did this to counteract the increased inflation and the depreciation of the local currency, and by investing more they made the balance sheets look better (UNCTAD, 2016).

South Africa, the previous largest FDI recipient, had their FDI inflow diminished by 69%, making it the lowest level the country has had in 10 years (UNCTAD, 2016). Several factors have influenced this decline in inflows, but the main factors can be said to be the weak commodity prices, the weak economic growth and the higher electricity costs. Mozambique showed a similar decline 2015, however it is still the third largest recipient of all the economies in Africa (FDI Intelligence, 2016). The political election in 2015, the following political instability and the weak gas prices are factors that are worth to be mentioning. Zambia's FDI inflows also declined by 48% due to instability in the mining sector and an inadequate level of electricity. However, increased inflation and the weak local currency also had an affect FDI. (UNCTAD, 2016).

To conclude the results from 2015, North Africa got an increase in FDI and a decline in commodity prices led to lower FDI in Sub-Saharan Africa (FDI Intelligence, 2016). The current major players that invest in Africa are developed countries although developing countries such as China, South Africa and India have been gradually become more active as MNE investors (UNCTAD, 2016).

2.2.1 Future FDI inflows in Africa

In general, the future growth of FDI inflows is dependent on several different factors. These factors have been widely disagreed on by MNE executives but some of the factors always recur in the discussions (UNCTAD, 2016). Factors such as the technological and digital development and an increase of trade agreements are presumed to increase FDI in the future, however these factors are constantly changing with new developments. The increasing urbanization which leads to an increase of potential consumer market is also a factor that is considered important by current MNE's when considering horizontal FDI, However, in some cases even the perception of a positive environment is considered to be enough reason to trigger investment. On the other hand, an increase of terrorism, geopolitical instability, cyber threats, concerns of debt are all factors that are suspected have a negative effect on FDI activity in the future (UNCTAD, 2016).

FDI inflows to Africa are also expected to increase in 2017, which can be seen already in the increasing amount of green field projects on the continent (UNCTAD, 2016). FDI inflows are expected to mainly increase in the service sector such as in gas and water, construction, transport construction and electricity, but also in the manufacturing sector (UNDP, 2016). Diop et al. (2015) states that there are 4 possible factors to why FDI inflows could increase to the continent in 2017:

1. A continued growth-path

Africa has had a high growth rate these past 15 years with a small slowdown from the year of 2013 and compared the world growth rate the same years it has still been higher (UNCTAD, 2016). Even though the international economy strong influences of low growth the continent has kept its growth at a positive level and Africa has continued to be the second fastest growing economy in the world. Several of the continents countries such as Rwanda, Côte d'Ivoire, Ethiopia, Djibouti, Mozambique, Tanzania has also been appointed as among the world's fastest-growing countries with growth rates between 6 and 10%. (UNDP, 2016)

2. A Growing consumer market and urbanization

The African continent has currently the fastest growing population in the world (UNDP, 2016). According to projections made by United Nations Africa's population will increase to around 1.7 billion in 2030 and nearly 2.5 billion in 2050. The United Nation has also predicted that Africa will have the most promising demographics in the world when looking at people available for work (UNDP, 2016). The proportional share that is the working age share of the population in Africa is increasing swiftly and quicker compared to the rest of the population. The continent also has a rapid growing middle class (World bank 2016a). Together these factors support a high demand for consumer products and new possibilities for manufacturing investments.

3. Policies addressing the weak commodity prices

To address the issue of the weak commodity prices, several of the African countries are considering new policies to encourage FDI in manufacturing. Diop et al. (2015:1). stated that Africa already have shown that it could handle the weak commodity prices by issuing in that:

"The commodities boom may be over, but sub-Saharan Africa is still experiencing growth, a remarkable fact considering that the continent is a net exporter of primary commodities. By adopting sound macroeconomic policies over the past two decades and sector reforms, many African economies have already shown that they can sustain a trajectory of economic growth and beat the resource curse."

These policies' has already helped East Africa to become a main player in light manufacturing (UNCTAD, 2016). Future MNEs are therefore expected to invest in Africa for efficiency- and market-seeking reasons.

4. Increased amount liberalization measures

To support foreign investment even further several plans are in place for liberalization of old investment regimes. There are for example plans for privatization of several state-owned commodity assets, which should contribute to enhance FDI inflows to the continent. Other liberalization measures that are taken are the elimination of some of the restrictions that are today placed on foreign investments (UNCTAD, 2016). Many African countries have improved the conditions for doing business in the country. In the Doing Business report presented by the World Bank in 2016, 23 of 51 evaluated African countries moved up their ranking in 2016. The countries that showed most promising conditions are Uganda, Kenya, Mauritania and Seychelles. (UNDP, 2016) Africa also had the largest number of regulatory reforms accounted for in the world in 2015. Out of 230 regulatory reforms the continent was responsible for over 75 of these (The World Bank, 2016b).

3 Theory and literature review

3.1 Theories of foreign direct investment

Earlier research has tried to explain the phenomenon of FDI and several theories and models have been presented over the years. In 1960, the first established theory regarding FDI and MNE activity was set. The theory, which was presented by Hymer (1960) worked mainly to answer the question to why firm engages in FDI (Dunning and Lundan, 2008). Hymer (1960) stated in support of the industrial organizational theory that the reason behind FDI is the firm-specific advantages that the investing firm has compared to the already existing firms in the foreign economy. Around the same time another theory was presented by Vernon and his colleagues from Harvard in 1966. Instead of using firm-specific advantages as the determinant Vernon argued that FDI activity is based product life cycle. Vernon (1966) argued that in the beginning of a product lifecycle the product was mainly produced for domestic consumption and at a later stage it was natural due to the innovation and productivity advantages the products was exported to foreign market. This was Vernon's explanation to why FDI exist and why companies turn abroad (Dunning and Lundan, 2008). Both these theories presented above explains the occurrence of horizontal FDI although it does not include the phenomenon of vertical FDI.

Differences in factor endowments are believed to drive vertical FDI and the theories behind this are given by Helpman (1984), however this model is in turn originally derived from the The Heckscher-Ohlin trade theory. The Heckscher-Ohlin trade theory considers production with only two factors and two sectors. One sector produces differentiated products with increasing returns to scale and the other has constant returns to scale and is perfectly competitive (Helpman, 1984). Helpman (1984) continued the theory of the increasing returns of scale by stating that a separation of the headquarter with high-skilled labor activities and low-skilled labor activities induces cost savings for an MNE, if the activities can be divided geographically and have heterogeneous factor intensities. However, the most common theoretical approach that gives a comprehensive analysis on FDI determinants is the OLI paradigm (Dunning, 1979). The eclectic paradigm (or the OLI-model) has tried to incorporate all earlier theories into one consistent model and are still one of the most preeminent paradigms in the field of international business (Cantwell and Narula, 2003). The Eclectic/OLI paradigm will be explained further in the next section.

3.1.1 Eclectic Paradigm or OLI-Model/Framework

Dunning (1979) developed the eclectic paradigm or OLI-Model/Framework to explain FDI patterns. According to the model, there are three fundamental driving forces for FDI engaged by multinational enterprises: *O*wnership advantages, *L*ocation advantages and *I*nternalization advantages. These three interrelated advantages must all exist for the occurrence of FDI (Dunning and Lundan, 2008). The model is built on the firm specific advantages stated by Hymer's (1976) internalization theory but has also taken into the consideration the location issues asked. Since its creation, the paradigm has been modified several times to adjust for the changes in multinational firms' behavioral patterns and is today the most accepted theoretical model when looking at the determinants of FDI for empirical studies (Stoian and Filippaios, 2008).

1. Ownership

Ownership advantages are firm-specific advantages that the investing firm has over others in the potential economy. These advantages can be derived from shared governance, intangible assets and coordination of movements across the borders of the economy (Dunning and Lundan, 2008). However, it is crucial that these firm- specific advantages are unique, irreplaceable and durable (Dunning and Lundan, 2008). Ownership advantage thereby addresses the issue of why some firms internationalize, while other choose not to and the theory proposes that successful multinational-firm has firm-specific advantages that allow them to reduce the cost connected with operating in a foreign country (Dunning and Lundan, 2008).

2. Location

Location-specific advantages refer to location-bound endowments and country specific characteristics that are accessible for investing firms in the recipient countries. Examples of location advantages are market size, good infrastructure, cheaper wages, and other factors that improve the country's competitive advantage (Dunning and Lundan, 2008).

3. Internalization

Internalization-specific advantages are specified to direct MNE decision of how to use of the earlier mentioned ownership advantage (Dunning and Lundan, 2008). In other words, an internationalization advantage finds the most efficient way to proceed from the ownership advantage if it is either through FDI or exports. If there is no Internationalization advantage then it would become more profitable for the firm to license out its ownership advantage (Johnson, 2005).

To conclude, ownership-specific advantages are a requirement for a firm if they are to operate in a foreign market, although location and internationalization advantages establish how the FDI will occur and where (Dunning and Lundan, 2008).

FDI inflows have historically been concentrated to a few of the world economies, in some ways reflecting their respective policy barriers and economic wealth. However, determinants of FDI have changed over the century and will probably keep evolving with the future business climate and MNE corporate development (Velde, 2006). Policy barriers regarding investment and trade have long been considered to affect the allocation of FDI, however the determinants today are considering many more factors. Velde (2006) argues that FDI now allocates to more “sticky” locations by which he considers locations that are in the so-called web of global production processes. In other words, locations have to have good economic fundamentals such as market growth and size, local technological capabilities and suitable skills and infrastructure. In the next section below several FDI determinants and their importance will be more closely discussed.

3.2 Empirical evidence of FDI determinants in Africa

Both empirical studies and surveys have shown that the drivers for FDI in Africa are different from the drivers for FDI in other regions such as developing Asia and Latin America (e.g. Batra et al., 2003; Asiedu, 2002; Naudé and Krugell, 2007). Compared to other developing countries, FDI in Africa seem to be largely driven by market size and natural resources (Asiedu, 2006).

Despite high returns on investments in Africa, it fails to attract foreign investments in comparison to developing Asia and Latin America (Chaudhuri and MukhopadhFoyay 2014) (See table 1.) Risk and uncertainty issues are the main disincentive when it comes to investment with private capital in Southern Africa (Jenkins and Thomas, 2002). Numerous studies suggest the benefits are many times offset by the risks of operating in Africa. Compared to Asia and Latin America, the risk of capital loss in Africa is significantly higher due to unfavorable business environment. The main reason is higher instability and lower accountability in the macroeconomic environment, namely higher political and economic risks (Chaudhuri and Mukhopadhyay 2014). In the following sections, empirical studies of the incentives and disincentives for investing in Africa will be presented.

3.2.1 Market size and demand

Market seeking (horizontal) FDI becomes more likely the bigger the foreign market due to economies of scales. Therefore, current market size and demand, and prospects for market growth are important determinants (Naudé and Krugell, 2007). In empirical studies, the most widely used proxies to measure market size are GDP (e.g. Asiedu, 2006), GDP per capita (e.g. Cleeve, 2008), population (e.g. Naudé and Krugell, 2007; Cleeve, 2008).

3.2.2 Availability of cheaper and/or better resources

The availability of cheaper and/or better resources have been argued as an important factor vertical FDI. Since, factor seeking (vertical) FDI most important distinction from market seeking FDI is that production does not aim to serve the local market, but rather to be located in foreign country and export to serve the home market. In this case, firms invest in foreign countries in order to gain access to lower factor prices and better factor endowments of labor, land and a favorable business environment (Hofmann, 2013).

In Africa, the lower costs are typically material costs especially if located adjacent to natural resources, and labor costs due to lower wage (Asiedu, 2006). However, one should be cautious when estimating the total costs due to the uncertainties related to investing in Africa. Many times the cost advantages are offset by these uncertainties (Chaudhuri and Mukhopadhyay, 2014), which will be further discussed in sections below.

3.2.3 The importance of policies

Despite Africa’s growing economy and market size, unattractive economic policies such as high taxes (Chaudhuri and Mukhopadhyay, 2014) and government imposed trade barriers/ restrictions has a significant negative effect on attracting FDI (Naudé and Krugell, 2007).

Good economic policies that can improve the business environment and reduce risks is thus one of the key determinants (Cleeve, 2008). Asiedu (2006) shows that an improvement on FDI policy from the level in Nigeria to level in South Africa has the same positive effect on FDI as increasing NATEXP (the share of total fuels and minerals in total exports) by 23%.

Several studies have come up suggestions to improve policies, for instance, strong intellectual property rights have been found to attract FDI, especially in high-technology industries (e.g. Smarzynska Javorcik, 2004; Nunnenkamp and Spatz, 2004; Cleeve, 2008). Asiedu (2006) suggests 'investor-friendly' policies, such as abolishing restrictions on profit repatriation. Morisset (2000) emphasizes the importance of openness in the economy by reducing trade barriers, and advocates aggressive trade liberalization. However, in a study of Asiedu (2002), it is proven that trade liberation generates more FDI inflows to non-African countries than to Africa, holding everything else equal. In other words, FDI is uniformly lower in Africa.

3.2.4 The importance of governance

There is a strong relationship between good governance and the foreign country's ability to attract FDI (Kaufmann et al., 1999). To assess the quality governance, Kaufmann et. al used the The Worldwide Governance Indicators, which is aggregated from six different dimensions: (i) voice and accountability; (ii) political stability and absence of violence; (iii) government effectiveness; (iv) regulatory quality; (v) rule of law; (vi) control of corruption. Additional dimensions used in empirical studies are for instance quality of bureaucracy, expropriation risk, regulatory burden (Naudé and Krugell, 2007), the reliability of the host country's legal system (Asiedu, 2006). Block (2001) also interpreted literacy rates as an indicator (or prerequisite) for institutional quality.

In several different surveys conducted by the World Bank and United Nations 1999/2000, the respondents responded that corruption and political instability is the number one constraint on their business operations in Sub-Saharan Africa (Asiedu, 2006). Newer business surveys done by UNTAD show that one of MNE executive' main concerns is geopolitical uncertainty (UNTAD, 2016). A decline in corruption from the level in Nigeria to level in South Africa has the same positive effect on FDI as increasing NATEXP (the share of total fuels and minerals in total exports) by 35% (Asiedu, 2006). Moreover, democracy also encourages FDI inflow. Jensen (2006) discovered that the FDI inflows will increase by 50% when moving from an authoritarian to a democratic regime.

So, why is FDI uniformly lower in Africa compared to non-African countries despite introducing favorable economic policies? Empirical studies on FDI in Africa agree that bad governance is a key deterrent for attracting FDI inflows (e.g. Chaudhuri and Mukhopadhyay, 2014; Asiedu, 2006; Naudé and Krugell, 2007). Except bad governance, other political risks in Africa include for instance riots and conflict with neighboring states and war. Asiedu (2006) used no. of assassinations, no. of coups, and no. of riots as a measurement of political risk the found that it has a significant negative impact on FDI in Africa.

3.2.5 The importance of proximity

Empirical studies show that cultural, geographic and psychic proximity attracts FDI as it facilitates enterprise operations and internationalization, and reduces transportation costs (e.g. Habib and Zurawicki, 2002; Zhang, 2014; Nartey and Mezias, 2013).

Africa is a heterogeneous continent and it comprises over 50 countries, each with several different cultures and languages. For example, Nigeria has over 250 ethnic groups and 500 indigenous languages (CIA, 2017). Nartey and Mezias (2013) investigates Chinese firms' successes in Africa by studying their similarities and dissimilarities. Despite Africa's heterogeneous characteristics and the fact that China has little in common culturally with African countries, they have overcome the cultural barriers and seem to be doing extremely well compared to western developed countries. The study suggests that the underlying factor is that China and Africa have great similarities in their development levels.

3.2.6 The importance of the macroeconomic stability

In addition to corruption and political instability, the surveys conducted by the World Bank and United Nations 1999/2000 also show that macroeconomic instability is a top constraint for FDI in Sub-Saharan Africa (Asiedu, 2006). Newer business survey conducted by UNCTAD shows that one of the main concerns of MNE executives are changes in financial regulations, debt concerns in emerging markets, and exchange rate volatility (UNCTAD, 2016). In empirical studies, the most widely used proxy for macroeconomic instability is inflation and exchange rate risk, some studies also include government deficit (e.g. Asiedu, 2006; Naudé and Krugell, 2007). Unlike policy changes, inflation has a more lagged effect on attracting FDI (Naudé and Krugell, 2007). Exchange rate changes do not influence whether a firm will or will not invest abroad; they only have an effect on the *timing* of investment decision (Love and Lage-Hidalgo, 2000). Chaudhuri and Srivastava (1999) found that government deficit lowers the private foreign investment inflows to Sub-Saharan Africa.

3.2.7 Other determinants

Other determinants that attract FDI inflow are well-developed infrastructure, human capital, and environmental sustainability. To measure the availability of infrastructure, empirical studies have used for instance phones per 1000 population (e.g. Asiedu, 2006; Naudé and Krugell, 2007). Kaufmann et al., (1999) used Human Development Index (HDI) to measure human capital. HDI is aggregated from three dimensions: (i) long and healthy life, measured by life expectancy at birth , (ii) knowledge, measured by educational achievement and literacy standards (iii) standard of living, measured by GDP per capita. Apart from political and macroeconomic instability, survey shows that 39% of MNE executives think environmental issues such as pollution and climate change will decrease global FDI, while 18% think it will increase global FDI. The survey also shows that technological change is a strong driver of global FDI (UNCTAD, 2016). However, there is a lack of detailed academic studies specifically in the case of Africa.

4 Methodology

4.1 The model- The City Index Framework

The model for this paper is created from the earlier mentioned OLI Paradigm with a focus on advantages and disadvantages. The target in this thesis will be in the Location advantages since we will leave the decision of how to internalize to the users of the model and are not able to include firm's specific advantages and merely present a ranking system of investment opportunities. This is a general model with the flexibility of adapting to the user's specific needs. The user needs are highly heterogeneous depending on the industry the user belongs to and the type of FDI it considers. As earlier mentioned, the choice of location on FDI should depend on the motivation. Therefore, the determinants are not equally important for all types of FDI. For example, market size is a more significant determinant for market seeking (horizontal) FDI whilst factor endowment is a more significant determinant for factor seeking (vertical) FDI (see section 3.2). Therefore, the model is able to generate different scores of an index depending on the user in question. The model could be applied to other continents as well due to its flexibility, although for this thesis the focus has been on Africa.

The generated index is an overall score based on successive aggregations of scores on the most disaggregated level, i.e. the indicators. The aggregation follows four levels, from indicator scores to factor scores, from factor scores to pillar scores, from pillar scores to main dimension scores, and lastly from main dimension scores to an overall score. The aggregations are based on percentage weights within each parent category. The weights will be further discussed in section 4.3.3.

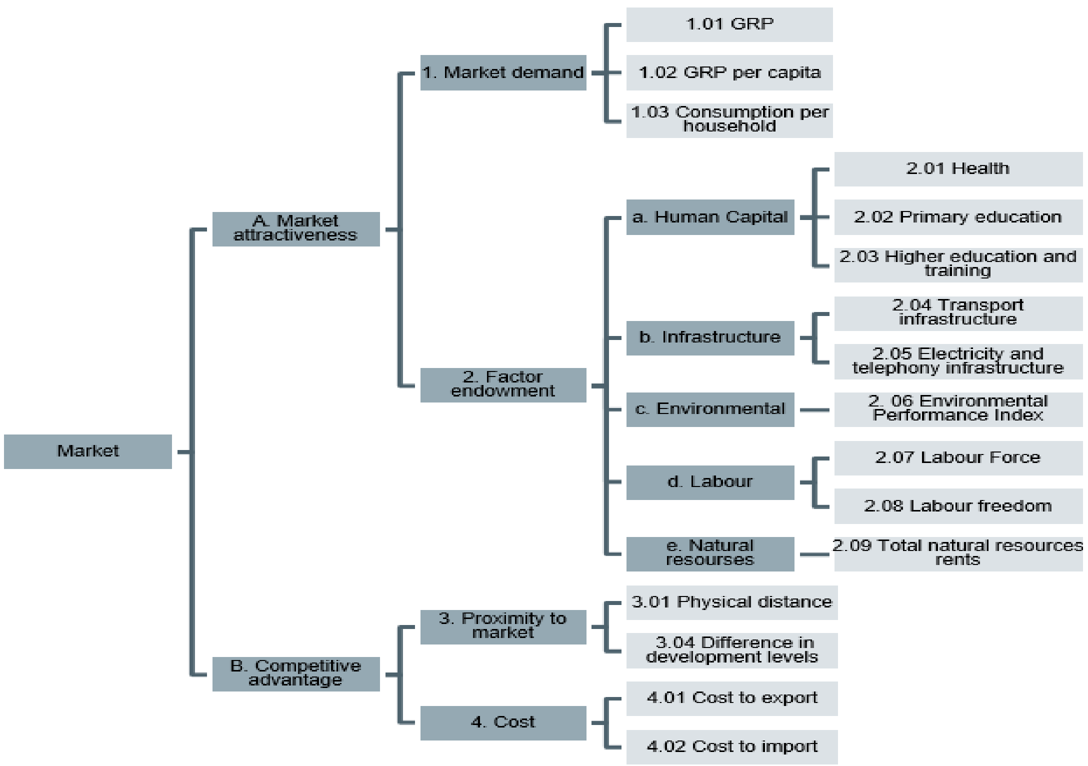
The chosen determinants are presented in a framework in figure 4. The city index is based on two dimensions, market and risks. The *market* dimension is created to reflect the location advantages in the OLI paradigm. In addition, considering all previous studies agree on the relatively high macroeconomic and political risks for firms to invest and operate in African countries (see section 3.2), we have included a second dimension, *risk*, to reflect the disadvantages in the model. It is however important to notice that some risk factors can become an advantage depending on the user. For example, high safety risks may become an opportunity factor for security companies. The indicators of the city index are grouped into four pillars, (see figure 4): market attractiveness, competitive advantage, political and economic.

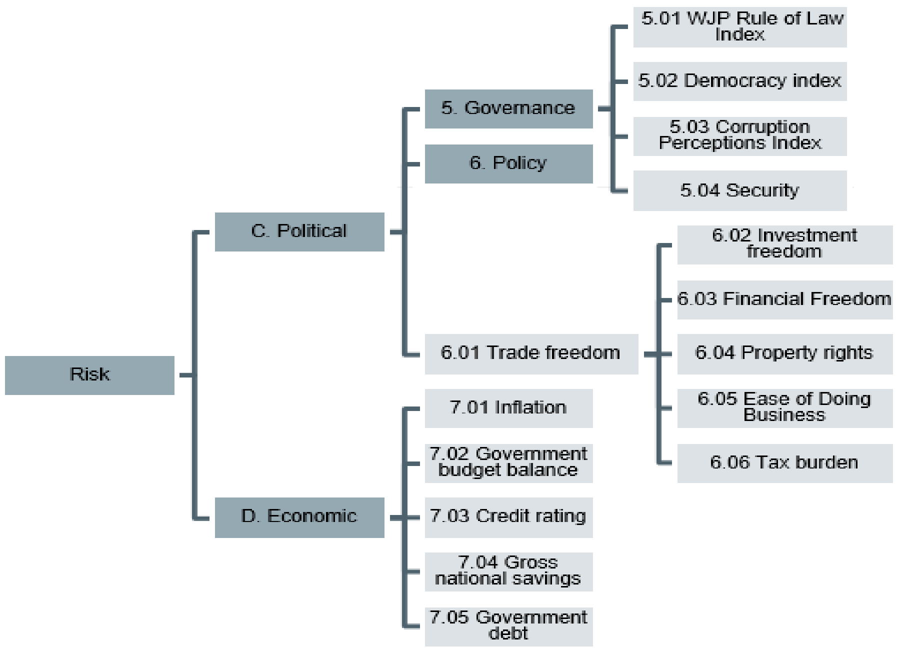
Based on extensive literature reviews the indexes were chosen to represent the factors mentioned above. The determinants chosen for this model are well considered and widely discussed as causes to foreign direct investment.

4.2 Determinants of the model

To test the accuracy of the city index, weightings from recognized indexes has been implemented in the model. In section 4.3.3 the weighting factors will be explained more thoroughly. The result achieved after the implementation will then be compared to currents reports of FDI inflows to African countries. Something to consider is that some of the factors and determinants presented below can have a positive effect for some companies though have a negative effect for others. Due to the dynamics and flexibility of the model each factor can easily be turned around to comply with each company's preference.

Figure 10. City Index Framework (Note: See Appendix (1) for more a detailed structure of the data)





4.2.1 Market

Market is divided into two pillars, *competitive advantages* and *market attractiveness,* to reflect the *L*ocation advantages in the OLI paradigm. Competitive advantages are further divided into the factors *proximity to market* and *cost* to reflect the firm specific competitive advantages. Market attractiveness is further divided into the factors *market demand* and *factor endowments*. Market demand is the only data that has been used on city level (see figure 5). All the advantages in market refer to location-bound endowments and country specific characteristics that are accessible for investing firms in the recipient countries and thereby can be seen as examples of location advantages (Dunning and Lundan, 2008).

Market demand

Market demand includes three factors: i) *GRP (Gross Regional Product),* ii) *GRP/Capita*, iii) *household consumption.* These factors will enable the assessment of the size, wealth and consumption ability of the cities. GDP growth, which is a common proxy used to assess market demand, is not included in the model due to lack of data on city level over time. The model is built to consider a higher GRP, GRP/Capita and household consumption as a positive factor since this is a sign of growing economy and markets.

Factor endowments

Factor endowments include five sub-factors: i) *human capital,* ii) *infrastructure,* iii) *environment,* vi) *labor,* v) *natural resources.* These sub factors enable the assessment of each city's ability to let companies capitalize their human and physical resources.

Components from the Global Competitive Index (GCI) from World Economic Forum are used to measure human capital and infrastructure. A region's productivity is highly depended on the quality of its labor - human capital, which is assessed both in terms of basic requirement such as *health* and *primary education,* and higher requirements such as *higher education and training*. Infrastructure is divided into *transport infrastructure* and *electricity and telephony infrastructure*. Transport infrastructure is a critical foundation to enable businesses to deliver their goods and to facilitate movements of workers. Well functioning economies also depend on telecommunication networks for information flow and electricity supplies so factories can work unimpeded (World Economic Forum, 2017).

A region's productivity and competitiveness is also dependent on the size of its *labor force* and the degree of *labor freedom.* Labor freedom is an index that contains six different factors, obstacle to hiring new employees, firmness of hours, minimum wage, the obstruction of laying off redundant employees, mandatory severance pay and lastly, the legally decreed severance pay (Heritage, 2017). These factors help to investigate both the availability of labor and the degree to which the labor force can be efficiently capitalized. This factor is one that both can be seen as positive and negative from the view of a company. For example, a higher minimum wage can be both seen as a location advantage but also as hindrance for cost effectiveness.

Furthermore, the *Environmental Performance Index (EPI)* from Yale University is used to assess environmental issues. EPI ranks the environmental performance of countries' policies, and includes protection of both human health and of ecosystems. (Yale, 2016) Lastly, the availability of natural resources generates cheap raw materials for factories and is a common driver of FDI in Africa (see section 3.2). This is measured by the total natural resources rent as a percentage of GDP from The World Bank. From a company's perspective EPI could both be considered valuable to be high *and* low. If the factor is high, this could be considered as a competitive advantage if the company itself are selling environmental products however some companies can also consider low numbers a location advantage.

Proximity to market

When entering a new market, proximity to market is an advantage, as it will facilitate the investing firm's operations in foreign regions (see section 3.2). To measure proximity we have included *physical distance* and *difference in development levels*. Physical distance between the investing firm and the foreign market implies easier and less costly transports. The benefits of lower factor prices are especially crucial for factor seeking (vertical) FDI (see section 3.2). Less difference in development levels also implies easier ways of doing business because of similar business routines and market demands.

Physical distance in the model is measured by geodesic distance (i.e. the shortest path between two points) between Stockholm and the respective African cities (Google Maps, 2017). This implies that the model used for this thesis only ranks FDI outflows from Stockholm, nonetheless this could easily be changed for future research of other cities then Stockholm. Transport distance was not used because it is highly dependent on each specific case. Differences in development levels are taken from the Global Competitiveness Index from World Economic Forum, and are grouped into 5 categories. Stage 1: factor seeking economies → transition to stage 2 → stage 2: efficiency seeking economies → transition to stage 3 → stage 3: innovation driven economies. Lastly, although the importance of cultural differences is mentioned in empirical studies, they are not included in the model due to the severe lack of data. The most recognized database for cultural differences, Hofstede, only has data for 18 African countries.

Cost

Finally, it is important for the investing firm to assess the costs of operating in a foreign region. The costs are divided into *costs to export* and *costs to import*. The World Bank's data for costs to export (US$ per container) and costs to import (US$ per container) include all fees associated with completing the export procedures but excludes tariffs and taxes. Cost to export is more interesting for firms considering factor seeking FDI while costs to import is more interesting for firms considering market seeking FDI (see sector 3.2).

4.2.2 Risk

Risk is divided into two pillars, political and *economical*, to mainly reflect the disadvantages in the model in the case of Africa (see section 3.2). Political is divided into *governance* and *policy* to reflect political stability. Economical reflects the macroeconomic environment. Due to the macro nature of politics and economics we have chosen to apply country level data on their respective cities.

Governance

Governance is divided into four factors: i) *WJP Rule of Law Index*, ii) *Democracy Index*, iii) *Corruption Perception Index*, vi) *security*. WJP rule of law index is an indicator for the quality of governments by measuring the quality of the judicial system. Rule of law is defined by several criteria: government agents' and private persons' accountability under law, clear and stable laws, efficient and fair enforcement of laws, protection of fundamental rights, competent, ethical and independent representative from the judicial system (WJP, 2016). The WJP Rule of Law Index also includes the factor "absence of corruption". Since corruption is a main concern for investing in Africa (see section 3.2), we have adjusted the WJP rule of law index by removing its "absence of corruption" component and introduced the Corruption Perception Index from Transparency International to give the user a more comprehensive outline. Also, we included the Economist Intelligence Unit's Democracy Index as an indicator for good governance, as previous research show that democracy increases FDI inflows (see section 3.2). Lastly, security is also an indicator of how well the institutions are functioning (World Economic Forum, 2017). The security indicator is a component extracted from World Economic Forum's Global Competitiveness Index, and consists of business consists of terrorism, crime, violence and the reliability of police services.

Policy

Policy is divided into six factors: i) trade freedom, ii) investment freedom, iii) financial freedom, vi) property rights, v) ease of doing business, vi) tax burden.

Components from Heritage's Index of Economic Freedom are used in the model to measure trade freedom, investment freedom, property rights and tax burden. The data for trade freedom measures non-tariff barriers such as direct government interventions and restrictions within quantity, price, customs and regulations. Investment freedom measures how much restraints there is on capital flows such as capital controls, foreign exchange control, and investment restrictions. Financial freedom is an indicator for the efficiency in the financial sector as well as its independence from government interference and control. Open market policies with high degree of trade, investment and financial freedom facilitate the entrance of foreign firms (see section 3.2). Furthermore, the data for property rights measures the legal framework for property rights as well as the extent to which they are respected and effectively implemented.

Lastly, the Ease of Doing Business index conducted by the World Bank is one of the most widely used index by firms considering to enter new markets (Pinheiro-Alves and Zambujal-Oliveira, 2011). A higher numerical value indicates better and simpler regulations and environment for starting a new businesses in the local market. The index covers factors such as the effort required to start a new business, dealing with permits and contracts, protection for investors, taxes, and costs associated with cross border trading. According to microeconomics, costs (e.g. taxes and trading costs) are highly interesting for the profit seeking firm to make investment decisions, therefore, we have adjusted the Ease of Doing Business index by removing these two variables and instead introduced separate variables: tax burden, and cost to import/export, to give the user a more comprehensive outline.

Economic

A stable and favorable macroeconomic environment is a strong driver to attract FDI (see section 3.2). The economic pillar includes inflation, government budget balance and credit rating.

4.3 Design Excel Model

4.3.1 Data collection

The model created in the paper includes statistical data from credible institutions such as The World Bank, World Economic Forum, The Heritage Foundation, The World Justice Project, Transparency International for data on country level, and Economist Intelligence Unit for data on city level.

To ensure validity of data, each data sources should have clear documentations for the methods used for its data collection. The data used in the model captures both quantitative assessments from statistical registers and qualitative assessments from surveys. Other requirements for credible data source are quantitative granularity and cross country comparability. Quantitative granularity refers to the requirement that scales used in the data source must follow sufficient differentiation so that it can be rescaled to the model's 0-100 scale. All the data used in our model have at least a four-point scale. Lastly, cross-country comparability refers to the requirement that all countries should be measured on the same scale.

4.3.2 Data normalization

Normalization of the data was necessary due to the fact that we received parameters with different scales and units. In order for a fair comparison to be made between the chosen variables a single scale must be made (Saitta, 2007). These values on the same scale were created by using a standard normalization technique called Min-Max normalization model which can be seen in figure 6 below. This model transforms the value x_1 to value $z_1$that will fit into the specific range of [0,100] (See formula a).

Figure 11. Min-Max Normalization Model

Formula a)

$$z_i = \frac{x_i - \min(x)}{\max(x) - \min(x)} * 100$$

Formula b)

$$z_i = 100 - \left(\frac{x_i - \min(x)}{\max(x) - \min(x)}\right) * 100$$

In general, the higher the z-value, the better the impact on the index. However, values of *3.01 Physical distance to Stockholm, 3.03 Difference in development levels, 4.01 Costs to export, 4.02 Costs to import* had to be reversed by using formula (b) because their higher values had negative impact on the index. Thus, <u>all</u> normalized data in the model indicate the higher the value, the higher (better) City Index.

4.3.3 Demarcation

Since the research question in this paper is focused on a city level, a demarcation of which economies to include was necessary. Africa was chosen due to the continents complexity, fragmented nature and uncertainties both politically and economic (The World Bank, 2016a; Chaudhuri and Mukhopadhyay, 2014). Africa was also chosen due to the fact that there is a lack of empirical studies on FDI in Africa as the vast majority focus on FDI between developed countries, Latin America, and Asia, according to our extensive literature research.

The model covers 101 major cities in 40 African countries. Due to lack of data on city level we did not include Botswana, Cape Verde, Comoros, Djibouti, Equatorial Guinea, Gambia, Guinea-Bissau, Lesotho, Mauritius, Namibia, Sao Tome and Principe, Seychelles, Swaziland and South Sudan. The lack of data from South Sudan is due to its relatively recent independence from 2011. The lack of data from the rest of the countries mentioned above is due to their relatively small size (populations vary between 92 000 and 2.1 million), hence lack of major cities. Major cities are defined as cities with more than 500 000 inhabitants (Canback, 2016).

4.3.4 Missing data

During the collection of data to the model some of the data was missing or not available for several economies and factors. According to Higgins and Green (2011) there are two scientific methods for dealing with missing data.

1. Only analyze the data that is available
2. Use replacement values e.g. impute available data from the year before or use assumed values such as the mean or predicted value.

In this paper a combination of these options was used. The second method of imputing reasonably data into the missing values is considered the most practical and is widely used. However, something to consider is that the later option do not consider the uncertainty associated with the imputed results and values. (Higgins and Green, 2011). Therefore in this paper, the second method was only applied when existing data from the year before was available. If there was no data available from the previous year, method one was applied. The first method is only appropriate if the data is believed to be randomly missing. The missing data are in this case presumed to be ‘missing at random’ since the data’s absence is unconnected to the values given by the data and thereby method one is a valid option for this paper. (Higgins and Green, 2011).

4.3.5 Aggregate the normalized data - weighting

1. Weights derived from standard indexes

Some indicators in the model are subcomponents extracted from other indexes; the weights of these indicators are thus derived from their respective weights in the indexes they are extracted from. For example, in our model, the data for 2.01 Health, 2.02 Primary education and 2.03 Higher education and training are subcomponents extracted from the Global Competitiveness Index (GCI). In GCI they account for 6%, 6% and 7% of the total score. Taking the same proportional weights, these indicators then corresponds to 32%, 32% and 37% of the sub factor a. Human Capital in the model. Similarly, the indicators 2.04 Transport infrastructure and 2.05 Electricity and telephony infrastructure accounts for 50% each of the total score in GCI, thus, our model has applied the same weights.

Other times the weights are approximations estimated by using other indexes. For example, the data for 6.05 Ease of Doing Business is an index itself, therefore, its weight cannot be extracted from any other index. Since Ease of doing business can be seen as a proxy for a country's competitiveness, we have used the subcomponent "competition" in GCI as a proxy to estimate its weight. "competition" accounts for 5% of GCI's total score, which corresponds to 26% of the policy factor in our model. Furthermore, in some cases the indexes have used average weights for its components. For example, the indicators 6.01 Trade freedom, 6.02 Investment freedom, 6.03 Financial Freedom, 6.04 Property rights and 6.06 Tax burden are subcomponents extracted from the Economic Freedom Index conducted by The Heritage Foundation. Economic Freedom Index has applied an average weight for all its indicators, thus, we have applied same weights on these indicators in our model.

Lastly, no negative weights are assigned to the indicators with negative impacts, because the data are reversed on a 0-100 scale where 100 refers to best value.

2. Customized weighs

The weights are flexible and able to be changed depending on the user preference. Standardized weights can be used as a benchmark or guideline to set the customized weights

3. Other methods

Other methods to assign weights to the variables are e.g. principal components to avoid double counting, and regression analysis to study the importance of each indicator. Since we have already adjusted the data that have overlapping components, principal components will not be used in the model. To approximate missing data, regression analysis can be used if another variable can be used as a proxy for the variable with missing values, by investigating if they have high correlation. In our model the missing data were taken from earlier years, therefore, regression analysis will not be used.

4.4 Validity and reliability

When creating a quantitative research two measurements, validity and reliability, are commonly used for when discussing the rigor of the study. Reliability refers to the consistency of the result and validity refers to the assessment of the accuracy. In other words, does the model measure what it is supposed to measure? (Heale & Twycross, 2015)

As the model is based on mathematical relationships, it yields the same results when using the same data for the same variables, hence, the model is consistent and reliable. For the same reason, if some variables are changed (excluded or replaced), the results will differ depending on the weight of the variable and the similarity (in terms of what & how they measure) of the replaced and replacing variable. Although the mathematical relationships are robust, reliability can be reduced due to data errors. E.g. when adding new data, one must make sure that their measurements are similar to the old data in terms of scope and scale. Therefore, necessary adjustments of new data are crucial for the reliability.

Creating indexes in general have several weaknesses which lowers the validity. First, it is not always clear which time period one should use. Usually, the most recently ones are the most relevant. However, some parameters have more recent data whilst others have older data, hence, the time periods of data used in the model are mixed. Second, although the model is data driven, its weights assigned are arbitrary, hence, there are inevitably some subjectivity in the model. Third, one cannot take for granted that an index constructed for a particular purpose can be used for the same purpose in another situation. For example, the model assigns an index to the cost parameter, however, costs should be measured differently depending on the user's industry and business objectives. The validity of the model will be tested by comparing its results to the results of current FDI inflows. Furthermore, the results will also be validated against two other measurements, Real GDP growth and the Global Competitiveness Index. The validation will further be discussed in section 6.

The model's strength lies in its general, dynamic, flexible and user friendly characteristics. As the user can change the weights the results will become more customized, hence more accurate. Furthermore, the model is based on different aggregated levels, therefore the user does not have to customize on the most disaggregated level. E.g., if the user considers political issues as a high priority, he/she can change the weight on pillar level instead of indicator level.

5 Results

The result given by the model states that the top 10 countries when using standardized weights are Morocco, South Africa, Tunisia, Egypt, Ghana, Algeria, Senegal, Cote d'Ivoire, Benin and Tanzania (See Table 2). The highest score was assigned to the city of Casablanca in Morocco. In table 3 and 4 below, 20 of the top ranked countries rated from the model will be compared to other measurements and indexes such such as Real GDP growth and the Global Competitiveness Index.

Table 5. The 30 highest ranked cities given by the model's Index

Rank	City	Country	City Index Score
1	Casablanca	Morocco	75,6
2	Tangier	Morocco	74,2
3	Rabat	Morocco	74,1
4	Agadir	Morocco	73,9
5	Meknes	Morocco	73,7
6	Fes	Morocco	73,3
7	Marrakech	Morocco	73,2
8	Johannesburg	South Africa	71,9
9	Tunis	Tunisia	71,7
10	Pretoria	South Africa	71,4
11	Cape Town	South Africa	70,9
12	Durban	South Africa	69,6
13	Cairo	Egypt	69,4
14	Port Elizabeth	South Africa	68,6
15	Safaqis	Tunisia	68,4
16	Emfuleni	South Africa	68,0
17	Kumasi	Ghana	63,8
18	Accra	Ghana	63,7
19	Sekondi Takoradi	Ghana	63,6
20	Alexandria	Egypt	62,7
21	Suez	Egypt	60,9
22	Port Said	Egypt	60,7
23	Oran	Algeria	60,3
24	Constantine	Algeria	58,5
25	Dakar	Senegal	58,3
26	Touba	Senegal	57,9
27	Algiers	Algeria	56,7
28	Abidjan	Cote d'Ivoire	55,2
29	Cotonou	Benin	55,1
30	Mwanza	Tanzania	54,9

Source: The City Index (the model built for this thesis)

Table 6. 20 highest ranked countries using the model's index, FDI inflows, Real GDP growth and Global Competiveness Index (GCI)

City Index	Country	FDI inflows 2015	Country	Real GDP Growth 2015	Country	GCI 2015	Country
1	Morocco	1	Angola	1	Ethiopia	1	South Africa
2	South Africa	2	Egypt, Arab Rep.	2	Côte d'Ivoire	2	Rwanda
3	Tunisia	3	Mozambique	2	Congo, Dem. Rep.	3	Morocco
4	Egypt	4	Morocco	4	Rwanda	4	Algeria
5	Ghana	5	Ghana	5	Tanzania	5	Tunisia
6	Algeria	6	Nigeria	6	Djibouti	6	Kenya
7	Senegal	7	Ethiopia	7	Mozambique	7	Cote d'Ivoire
8	Cote d'Ivoire	8	Tanzania	8	Cameroon	8	Gabon
9	Benin	9	Zambia	9	Kenya	9	Ethiopia
10	Tanzania	10	South Africa	10	Togo	10	Senegal
11	Kenya	11	Congo, Rep.	11	Uganda	11	Uganda
12	Rwanda	12	Kenya	12	Sao Tome and Principe	12	Ghana
13	Zambia	13	Namibia	13	Mali	13	Egypt
14	Nigeria	14	Uganda	14	Benin	14	Tanzania
15	Uganda	15	Tunisia	15	Senegal	15	Zambia
16	Malawi	16	Libya	16	Guinea-Bissau	16	Cameroon
17	Burkina Faso	17	Liberia	17	Burkina Faso	17	Benin
18	Sierra Leone	18	Cameroon	18	Gambia	18	Mali
19	Mali	19	Gabon	19	Seychelles	19	Zimbabwe
20	Libya	20	Chad	20	Morocco	20	Nigeria

Source: The city Index, The World Bank (Databank),The African Development Bank (databank) and The Global Competitive Index Data Bank

Table 3 presents the 20 highest ranked countries given by the model's index results, FDI inflows, Real GDP growth and the Global Competiveness Index. The table presents both similarities and differences between the different rankings, this will be further measured in table 4

.

Table 4. Comparison share of countries between ranking systems

Comparison and compatibility	Share
Model's Index and FDI Inflows	%
10 top ranked	50
15 top ranked	67
20 top ranked	55
GDP Growth and FDI Inflows	%
10 top ranked	20
15 top ranked	20
20 top ranked	30
GCI and FDI Inflows	%
10 top ranked	30
15 top ranked	67
20 top ranked	65
Model's Index and GCI	%
10 top ranked	60
15 top ranked	87
20 top ranked	80

Source: The city Index, The World Bank (Databank) and African Development Bank (Databank)

Table 4 shows the share of countries between the index given by the model and current FDI inflows, the share between GDP growth and FDI inflows, the share between GCI and inflows, and lastly the share between the model and GCI. Between the highest 10 top ranked countries there was a compatibility of 50 % between the index and FDI inflows, and between GDP growth and FDI inflows there was a compatibility of 20 %. The share between GCI and FDI inflows had a compatibility of 30 % at the highest 10 top countries and between the model and GCI the share came across as 60%.

Looking at the 15 top ranked countries the result showed 67 % for the index and inflows and still only 20 % between Real GDP growth and inflows of FDI. The compatibility for GCI and FDI inflows increased to 67 % and the share between the model and GCI increased even further to 80%.

Of the 20 highest ranked countries, the compatibility between the models index and FDI inflows are now 55 % and the share between GDP growth and FDI inflows has increased to 30%. Looking at GCI and FDI Inflows the compatibility is now 65 % and between the model and GCI, the compatibility is now at 80%.

6 Discussion

A fact is that FDI inflows to Africa are expected to increase in 2017 (UNCTAD, 2016). The continent's share of World FDI is still comparatively low (3%) in 2015, although Africa had a higher growth in 2015 compared to the world growth rate the FDI inflows continues to be low (UNDP, 2016). However, the complexity of the continent due to its scale and fragmented nature, and the uncertainties both politically and economically make Africa a continent difficult to invest in (Chaudhuri and Mukhopadhyay, 2014). Considering that investments are expected to increase but the risks are still relatively high compared to other developing countries it is arguable more important for MNE's considering Africa to be well informed about where to locate their FDI. This is why the model was created; to enable and help MNE's to invest in Africa. Since the model incorporates current data of Africa of both risks and opportunities into a strategic framework, the model should thereby enable a more informed investment decision for MNE's in Africa and facilitate and fasten the decision process, which was the purpose of this paper.

However, the result shows that there is a difference between current reports on FDI levels and the highest ranked countries given by the model. Using average weights the model ranked the countries Morocco, South Africa, Tunisia, Egypt, Ghana, Algeria, Senegal, Cote d'Ivoire, Benin and Tanzania as the 10 of the highest possible investment opportunities. However, according to recent development reports on FDI inflow levels Angola, Egypt, Mozambique, Morocco, Ghana, Nigeria, Ethiopia, Tanzania, Zambia and South Africa had the largest inflows of FDI on the African continent (see table 3).

The differences between the model rankings and the reports of FDI recipients can possibly be explained by the reasoning that increased FDI inflows do not always conclude a higher level of investment opportunities. This reasoning is confirmed when reviewing Angola, the current largest recipient of FDI inflows in 2015. Angola has increased their FDI inflows in 2015 due to the intervention of larger loans given by foreign partners to their local associates and partners. The parent companies did this to counteract the increased inflation and the depreciation of the local currency, and by investing more they made the balance sheets look better (UNCTAD, 2016).

This concludes that even though the FDI inflows have increased in Angola, there is no improved business environment from an investment perspective. The model in this thesis only presents investment opportunities that are positive for the company in question and thereby the results of FDI inflows and the index should differ to some extent. The result is also expected to differ due to the fact that some of the countries that are listed as FDI inflows recipients are not included in the model as a result of inadequacy of data; an example of this is the republic of Congo. The Republic of Congo is listed in the FDI inflows ranking as the 11 highest recipient of FDI inflows however when building the model the country had to be excluded due to the earlier mentioned lack of data.

However, the result given by the model's index specifies among others that Morocco, Ghana, South Africa, Egypt, and Tanzania have a high ranking of investment opportunities, given the average weighting system. These countries are also according to current reports of FDI levels, receiving a relatively large amount of the FDI inflows to the continent (See table 3). Due to the fact that 50% of the 10 top countries in the model (See table 4), using average weights, are compliable with the result presented by current reports of FDI levels, the model can possibly be seen as valid. Looking at the comparability of the 15 top countries between FDI inflows and the index presented by the model the percentage has increased even more, now reaching 67%.

Another factor to consider is that even though there are some differences in the results between the model and the reports the model's index still explains FDI inflows more compared to just looking at a simpler indicator such as GDP growth (See table 4). Real GDP growth is a common indicator of investment opportunities and will in this discussion represent an alternative to using the built model. The reasons for choosing real GDP growth as the proxy are stated below.

A higher level of GDP growth can attract more FDI due to the higher possibility of production cost efficiency and realization of economies of scale. (Blonigen et al. 2007; Filippaios et al. 2003). Faster economic growth is also associated with a larger potential market with expansion possibilities. In other words, GDP growth is a sign of market demand and market demand in turn attracts FDI inflows. GDP growth thereby both can explain vertical and horizontal FDI decisions (Agosin and Machado, 2007; Carstensen and Toubal, 2004). Economies that experience faster economic growth also generate more opportunities that are profitable and give the promise of growing profits and growing markets (Blonigen et al. 2007; Filippaios et al. 2003).

Thereby GDP growth can be seen as a simple indicator of FDI inflows. Nonetheless when comparing the results between expected GDP growth and reports of FDI inflows show that of the top 10 countries stated only Tanzania and Mozambique are presented on both lists. None-theless, comparing the 15 top ranked countries of FDI inflows and GDP growth the percent-age are at 20% and looking at the 20 highest rank the compatibility is still only at 30 % These results present a difference between the compatibility of the model's index result and the compatibility of GDP growth as a measurement instrument.

The model built for this thesis is thereby more relevant as a tool for investment ranking com-pared when to only look at Real GDP growth. There is also the fact that sometimes a weak economic growth could lead to increased opportunities of future profits, thereby there is al-ways the chance of a negative association between FDI inflows and GDP growth. The model accounts for this since the weights can be adjusted to customize to the company's preferences.

As mentioned before, numerous studies also suggest the benefits are many times offset by the risks of operating in Africa. Compared to Asia and Latin America, the risk of capital loss in Africa is significantly higher due to unfavorable business environment. The main reason is higher instability and lower accountability in the macroeconomic environment, namely higher political and economic risks (Chaudhuri and Mukhopadhyay 2014). By only looking at sim-pler measurements such as GDP growth the risks goes unaccounted for. That's why the model takes into account both the market possibilities and risks, to help companies with their FDI strategies.

To compare the model's result with a measurement that takes into account the risks of operat-ing in Africa, the Global Competiveness Index (GCI) were used. The World Economic Forum writes the Global Competitiveness Report and the index combines 114 different factors that together are stated to indicate a country's productivity level (World Economic Forum, 2016). GCI was chosen due to the fact that the level of competitiveness affects FDI inflows and this index also takes into account of the risks that is not indicated by only looking at Real GDP growth (Dunning and Zhang, 2008; The World Economic Forum). Competitiveness is defined by The Economic Forum to be "as the set of institutions, policies, and factors that determine the level of productivity of a country" (The Economic Forum 2016). The result shows that of the 10 top highest ranked countries the compatibility between FDI inflows and GCI were only at 30%, however when increasing to 15 countries that improved to 67% and at 20 top ratings the percentage share was at 65 %. (See table 4.) When comparing that to the result that was given by the model, it was shown that the model's index explains FDI inflows at a higher level than GCI index when comparing 10 of the highest rated countries, had the same level of compatibility when looking at the 15 top countries and had a slighter lower level when looking at the 20 top. This means that the model still explains more of FDI inflows then GCI, which also review productivity and risks on foreign markets, when comparing the highest 10 countries. Although when comparing the model's result to the CGI the compatibility between the model and CGI is relatively high at 87 % (see table 4) Considering that the model is partly built on the CGI, the result should show some similarity and this could possible also be seen as a sign of validation.

Nevertheless, an advantage that the model presents that is not given by the other indicators is that the weights in this model are dynamic so that each company can choose the factors and weights that are complied with their investment goals. This is not possible using a simpler indicator such as the GDP growth or the GCI index. Since FDI inflows in Africa has very complex nature that changes continuously in both levels and regions, a flexible model should be model more useful for companies compared to using a standard measurement.

To conclude, the result given by the model is to some extent compliable with the result of current FDI inflows, which thereby can be seen as sign of validity. The differences that exist in the result can possible be explained by the fact that the model includes more variables that takes into account only the perspective of investment opportunities. The model is built to address supplementary issues that not only FDI inflows can explain, however by comparing results and some similarities exist the model can be validated to some extent. The model furthermore explains FDI inflows to relatively higher level compared to using a simpler index such as Real GDP growth and at a 10 top ranking also illuminates FDI inflows at a relatively higher level then the GCI index. Correspondingly, since the validation has to some extent confirmed the determinants and factors used for the index, the OLI model was found to be a relevant and valid tool for building the model.

6.1 Limitations

FDI inflows are very volatile as mentioned in the background of this thesis and the compatibility may change with the following years result either in a positive aspect or a negative. The model would have to be continuously evaluated over a longer time period to be fully validated. There is also the issue of data availability. Since some of data is reports from 2015 there might have occurred changes that are not taken into the account of the model. However it is difficult to review how these changes might affect the result. Another factor that is a limitation in this thesis is that the only data that has been used on city level is the market demand pillar, and then country level data has been applied to the cities. Although a lot of the country data would have been the same between the cities placed in the same country, for example the determinant inflation, there could be differences between other determinants such as corruption. However it would be hard to know how this would affect the result, and by how much.

Something else to consider is that the model built in this thesis only brings out the macroeconomic details to light, the index pay less attention for the investing firm's micro dimension, i.e. factors intrinsic to the company itself. Rather, the index aims to cover the macro dimension that concerns market or industry specific factors such as entry barriers, availability of resources, political stability, country risk, and market size among others. The micro dimension includes firm specific capabilities and of competitive advantages. Also, current individual connections, insight knowledge and familiarity of the foreign market will together with the index have an effect on where to locate FDI. To conclude, in order to have an informed investment decision the micro- dimension have to be reviewed as well. Therefore, this model should only be used as a complement together with in-depth company specific analysis.

7 Conclusions and suggestions for future research

The model in this paper was built in order to create a dynamic and aggregated index of FDI determinants and deterrents to help companies with FDI strategies. The model is general, with the flexibility of adapting to the user's specific needs since the user needs are highly heterogeneous depending on the industry the user belongs to and the type of FDI it considers. Therefore, the model is able to generate different scores of an index depending on the user in question. The model was built from the OLI Paradigm with a focus on location advantages and the determinants chosen to be included are well considered and widely discussed as causes to foreign direct investment. The model incorporates current data of Africa into a strategic framework that should enable a more informed investment decision for MNE's and facilitates the decision process

The model has to some extent been validated by the current reports of FDI inflows to the African continent. Differences were expected between the result of the FDI reports and the model's index due to inadequate data and the variance in motives of FDI. However the result complied by 50 % between the model and the 20 largest recipients of FDI on Africa today. By comparing the index ranking to other measurements such as Real GDP growth and Global Competiveness Index (GCI) the model were to some extent validated further.

Actagon, a Swedish Management consulting firm with a focus on emerging markets, currently uses the model and are right now working with expanding the model to include other continents as well. It is possible to expand the model to include other countries then Africa since the weights can be adapted and the model is general and flexible in itself.

However there are factors that still affect the decision of where to invest that the model cannot account for. For example personal connections with the government or in the key individuals in the industry that will have a positive effect on the location advantages. It is very possible that the allocation of FDI is based entirely of individual contacts and insight knowledge of the foreign market. Since this is arguable a very important factor although however this determinant cannot be measured purely quantitative and are thereby not included in this thesis or in the model. Nonetheless, this could possibly be an interesting topic for future research, to see how much of the FDI decision is affected by individual contacts and capabilities at the chosen foreign market.

8 Appendix

Appendix 1. Data description

Indicator and weight	Level	Raw Unit Type	Period	Source	Additional Description	Source Links
1.01 GRP 7.5 % or 0%	City	PPP Constant 2005 values	2016	Canback Danglar	Real values or inflation-adjusted values.	https://www.cgidd.com
1.02 GRP per capita 7.5 % or 0%	City	PPP Constant 2005 values	2016	Canback Danglar	Real values or inflation-adjusted values.	https://www.cgidd.com
1.03 Consumption per household 7.5 %	City	PPP Constant 2005 values	2016	Canback Danglar	Real values or inflation-adjusted values.	https://www.cgidd.com
2.01 Health 1.0%	Country	1-7 (best)	2014/2015; 2016/2017	World Economic Forum	Component of Global Competitiveness Index (GCI). Measured by life expectancy; infant mortality; cases and business impact of HIV, tuberculosis and malaria.	http://reports.weforum.org/global-competitiveness-index/
2.02 Primary education 1.0%	Country	1-7 (best)	2014/2015; 2016/2017	World Economic Forum	Component of GCI. Measured by quality and quantity of primary education	http://reports.weforum.org/global-competitiveness-index/
2.03 Higher education and training 1.1%	Country	1-7 (best)	2014/2015; 2016/2017	World Economic Forum	Component of GCI. Measured by quantity and quality of secondary and tertiary education; and on-the-job training.	http://reports.weforum.org/global-competitiveness-index/
2.04 Transport infrastructure 1.5%	Country	1-7 (best)	2014/2015; 2016/2017	World Economic Forum	Component of GCI. Measured by quality of road, overall infrastructure, air transport infrastructure, railroad infrastructure, and port infrastructure.	http://reports.weforum.org/global-competitiveness-index/
2.05 Electricity and telephony infrastructure 1.5%	Country	1-7 (best)	2014/2015; 2016/2017	World Economic Forum	Component of GCI. Measured by quality of electricity supply; fixed telephone lines; mobile telephone subscription.	http://reports.weforum.org/global-competitiveness-index/
2.06 Environmental Performance Index 3.0%	Country	0-100 (best)	2016	Yales University	Protection of human health and protection of ecosystems	http://epi.yale.edu/reports/2016-report
2.07 Labour Force 1.5%	Country	Total	2014	World Bank	All people ages 15 and older who meet the International Labor Organization definition of the economically active population. Includes both the employed and the unemployed.	http://data.worldbank.org/indicator/SL.TLF.TOTL.IN

2.08 Labour freedom 1.5%	Country	0-100 (best)	2017	The Heritage Foundation	Component of Index of Economic Freedom. Measured by hindrance to hiring additional workers; rigidity of hours; difficulty of firing redundant employees; legally mandated notice period; mandatory severance pay; labor force participation rate.	http://www.heritage.org/index/download
2.09 Total natural resources rents 3.0%	Country	% GDP	2011; 2015	World Bank	The sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents	http://data.worldbank.org/indicator/NY.GDP.TOTL.RT.ZS
3.01 Physical distance 5.0%	City	Km	2016	Google Maps	Difference between Stockholm and the respective African cities. The values are reversed in our model so that higher values are better than lower values.	https://www.google.se/maps
3.03 Difference in development levels 5.0%	Country	0-4 (worst)	2014/2015; 2016/2017	World Economic Forum	Component of GCI. 5 development levels: 1) factor-driven 2) transition 3) Efficiency-driven 4) transition 5) innovation-driven. The differences between Sweden and the respective countries are reversed in our model so that high values are better than low values.	http://reports.weforum.org/global-competitiveness-index/
4.01 Cost to export 5.0%	Country	US$ per container	2014	World Bank	All the fees associated with completing the procedures to export: costs for documents, administrative fees for customs clearance and technical control, customs broker fees, terminal handling charges and inland transport. Does not include tariffs or trade taxes.	http://data.worldbank.org/indicator/IC.EXP.COST.CD
4.02 Cost to import 5.0%	Country	US$ per container	2014	World Bank	All the fees associated with completing the procedures to import: costs for documents administrative fees for customs clearance and technical control, customs broker fees, terminal handling charges and inland transport. Does not include tariffs or trade taxes.	http://data.worldbank.org/indicator/IC.IMP.COST.CD
5.01 WJP Rule of Law Index 5.6 %	Country	0-1 (best)	2016	World Justice Project	Measured by 9 factors: Constraints on government powers; absence of corruption; open government; fundamental rights; order and security; regulatory enforcement; civil justice; criminal justice; informal justice. Note: Rule of Law Index in our model is adjusted by omitting Absence of Corruption to avoid double counting with the Democracy Index.	http://data.worldjusticeproject.org
5.02 Democracy index 5.6 %	Country	0-10 (best)	2016	The Economist Intelligence Unit	Measured by electoral process and pluralism; civil liberties; the functioning of government; political participation; and political culture.	https://www.eiu.com/public/topical_report.aspx?campaignid=DemocracyIndex2016
5.03 Corruption Perceptions Index 5.6 %	Country	0-100 (best)	2016	Transparency International		http://www.transparency.org/news/feature/corruption_perceptions_index_2016
5.04 Security 1.9 %	Country	1-7(best)	2014/2015; 2016/2017	World Economic Forum	Component of GCI. Measured by reliability of police services; organized crime; business costs of crime, violence and terrorism.	http://reports.weforum.org/global-competitiveness-index/

6.01 Trade freedom 2.8 %	Country	0-100(best)	2017	The Heritage Foundation	Component of Index of Economic Freedom. Measured by price, quantity, regulatory, and customs restrictions; and direct government intervention	http://www.heritage.org/index/download
6.02 Investment freedom 2.8 %	Country	0-100(best)	2017	The Heritage Foundation	Component of Index of Economic Freedom. Measured by foreign investment restrictions; land ownership restrictions; sectoral investment restrictions; foreign exchange controls; capital controls.	http://www.heritage.org/index/download
6.03 Financial Freedom 2.8 %	Country	0-100(best)	2017	The Heritage Foundation	Component of Index of Economic Freedom. Measured by government regulation of financial services; state intervention in financial firms through direct and indirect ownership; government influence on the allocation of credit; financial and capital market development; and openness to foreign competition.	http://www.heritage.org/index/download
6.04 Property rights 2.8 %	Country	0-100(best)	2017	The Heritage Foundation	Component of Index of Economic Freedom. Measured by physical property rights; intellectual property rights; strength of investor protection; risk of expropriation; and quality of land administration.	http://www.heritage.org/index/download
6.05 Ease of Doing Business 4.8 %	Country	0-100(best)	2017	World Bank	Includes 10 factors: starting a business; dealing with construction permits; getting electricity; registering property; getting credit; protecting investors; paying taxes; trading across borders; enforcing contracts; resolving insolvency	http://www.doingbusiness.org/reports/global-reports/doing-business-2017
6.06 Tax burden 2.8 %	Country	0-100(best)	2017	The Heritage Foundation	Component of Index of Economic Freedom. Measured by the top marginal tax rate on individual income and corporate income; the total tax burden as a % of GDP.	http://www.heritage.org/index/download
7.01 Inflation 2.5 %	Country	annual %	2013; 2016	World Bank	Inflation adjusted	http://data.worldbank.org/indicator/NY.GDP.DEFL.KD.ZG
7.02 Government budget balance 2.5 %	Country	% of GDP	2014/2015; 2016/2017	World Economic Forum	Component extracted from Global Competitiveness Index (GCI). It is a financial statement presenting the government's proposed revenues and spending for a year.	http://reports.weforum.org/global-competitiveness-index/
7.03 Credit rating 2.5 %	Country	-1-15(best)	2014/2015; 2016/2017	World Economic Forum	Due to lack of data, credit ratings are extracted from the subcomponent of GCI. See separate calculation.	http://reports.weforum.org/global-competitiveness-index/
7.04 Gross national savings 2.5 %	Country	% of GDP	2014/2015; 2016/2017	World Economic Forum	Component extracted from Global Competitiveness Index (GCI). It is calculated as GDP less final consumption expenditure (total consumption).	http://reports.weforum.org/global-competitiveness-index/
7.05 Government debt 2.5 %	Country	% of GDP	2014/2015; 2016/2017	World Economic Forum	Component extracted from Global Competitiveness Index (GCI).	http://reports.weforum.org/global-competitiveness-index/

Appendix 2. African cities used in the model

City	Country
Algiers	Algeria
Constantine	Algeria
Oran	Algeria
Huambo	Angola
Luanda	Angola
Abomey-Calavi	Benin
Cotonou	Benin
Bobo Dioulasso	Burkina Faso
Ouagadougou	Burkina Faso
Bujumbura	Burundi
Douala	Cameroon
Yaounde	Cameroon
Bangui	Central African Republic
N'Djamena	Chad
Brazzaville	Congo-Brazzaville
Pointe-Noire	Congo-Brazzaville
Bukavu	Congo-Kinshasa
Kananga	Congo-Kinshasa
Kinshasa	Congo-Kinshasa
Kisangani	Congo-Kinshasa
Lubumbashi	Congo-Kinshasa
Mbuji-Mayi	Congo-Kinshasa
Tshikapa	Congo-Kinshasa
Abidjan	Cote d'Ivoire
Bouake	Cote d'Ivoire
Alexandria	Egypt
Cairo	Egypt
Port Said	Egypt
Suez	Egypt
Asmara	Eritrea
Addis Ababa	Ethiopia
Libreville	Gabon
Accra	Ghana
Kumasi	Ghana
Sekondi Takoradi	Ghana
Conakry	Guinea
Mombasa	Kenya
Nairobi	Kenya
Monrovia	Liberia
Benghazi	Libya
Misratah	Libya
Tripoli	Libya
Antananarivo	Madagascar
Blantyre	Malawi
Lilongwe	Malawi
Bamako	Mali
Nouakchott	Mauritania
Agadir	Morocco
Casablanca	Morocco
Fes	Morocco

Marrakech	Morocco
Meknes	Morocco
Rabat	Morocco
Tangier	Morocco
Maputo	Mozambique
Matola	Mozambique
Nampula	Mozambique
Niamey	Niger
Aba	Nigeria
Abuja	Nigeria
Benin City	Nigeria
Enugu	Nigeria
Ibadan	Nigeria
Ilorin	Nigeria
Jos	Nigeria
Kaduna	Nigeria
Kano	Nigeria
Lagos (Entire City)	Nigeria
Maiduguri	Nigeria
Nnewi	Nigeria
Onitsha	Nigeria
Osogbo	Nigeria
Owerri	Nigeria
Port Harcourt	Nigeria
Uyo	Nigeria
Warri	Nigeria
Zaria	Nigeria
Kigali	Rwanda
Dakar	Senegal
Touba	Senegal
Freetown	Sierra Leone
Hargeysa	Somalia
Mogadishu	Somalia
Cape Town	South Africa
Durban	South Africa
Emfuleni	South Africa
Johannesburg	South Africa
Port Elizabeth	South Africa
Pretoria	South Africa
Khartoum	Sudan
Nyala	Sudan
Dar es Salaam	Tanzania
Mwanza	Tanzania
Lome	Togo
Safaqis	Tunisia
Tunis	Tunisia
Kampala	Uganda
Kitwe	Zambia
Lusaka	Zambia
Bulawayo	Zimbabwe
Harare	Zimbabwe

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