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Chinese Foreign Direct Investments into Africa. Economic determinants and the political role of the Chinese government.

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Abstract

Since 2003, China's foreign direct investment has been growing at a breakneck pace. China-Africa commercial and trade links have rapidly developed, owing to the Chinese government's "going out" strategy and the China-Africa Cooperation Forum. With the deepening of China-Africa economic and trade relations, the resource-rich African continent has become one of China's primary locations for implementing its "going out" strategy. This makes us wonder: what is China's foreign direct investment strategy? What elements do Chinese investors take into account while making investment decisions? What sets China apart from other capitalist countries in terms of its investment strategy? What methodology does China employ when it comes to investing in Africa? Do state-owned enterprises and private-sector enterprises invest in the same direction? This article briefly reviews the China and the United States' foreign direct investment history, using the investment data from 2003 to 2021 to analyzes the economic and political influencing factors of Chinese and American companies, particularly Chinese state-owned companies, when they enter the African continent, and determines which factors can have the greatest impact on Sino-US investment decisions in Africa. More importantly, examine how state-owned enterprises differ from other enterprises.

1. Introduction

1.1 Definition of FDI

Foreign direct investment (FDI) refers to the direct export of production capital by investors from one country to another country, as well as the investors' direct operation and administration of the firm. Foreign direct investment is one of the most common types of modern capital internationalization. According to the International Monetary Fund's rules, shareholders that have 25% of the voting rights are considered directly controllers. Multinational corporations are the most common form of FDI today. Because FDI can only operate smoothly when capital is plentiful, if global FDI is active, it signals that the world economic situation is improving.

Foreign direct investment has indeed aided economic growth and social progress in both developed and developing countries, and it has also effectively promoted the expansion of international trade and finance, deepened the international division of social production, and had a growing impact on the entire international economy (Meyer, 2015; Plouffe, 2020; Taylor, 2020; Benedik and Gulinao, 2021). Most of the capital of foreign direct investment has flowed into developed countries, such as the United Kingdom and EU countries. Although the inflow capital accounts for a relatively small proportion of the overall capital, the absorptive capacity and support capacity of developing countries (host countries) are much weaker than those of developed ones. Nevertheless, as FDI receivers, emerging countries play an important role in global trade.

It is undeniable that FDI has a number of negative consequences, for example, foreign businessmen use cheap labor in developing countries, and the recipient country can only be at the end of the global industrial chain, foreign businessmen produce and sell products in the recipient country, but a "market for technology" has yet to be established, and the majority of technology transferred to the recipient country remains undeveloped(Chung, 2001; Saggi, 2001; Osabutey and Debrah, 2012; Osano and Koine, 2015). Even though developing countries should consider absorbing more employment and adopting appropriate technologies, they will not be able to compete with industrialized countries if they remain behind in technology, particularly in the technology of vital industries. It will also put the country's industrial security, and its overall economic security, at jeopardy. Furthermore, many foreign direct investments move the manufacturing of products or serious pollution firms that have been phased out in their home nations to emerging countries, causing significant harm to the recipient country's economy's long-term development.

Foreign direct investment, on the other hand, provides the receiving country with both tangible and intangible comprehensive assets, and it continues to have a significant impact on the recipient country's economic development. FDI boosts the host economy's productivity by increasing the capital stock, which promotes domestic

savings and investment. (Zhang, Alon and Chen, 2014), as a result, it helps the host country's domestic economy flourish. (Aitken and Harrison, 1999). FDI is a major source of valuable technology and commercial knowledge to developing economies. It helps to boost domestic economic growth by transferring technology, improving local labor skills, cutting production costs, and creating a more competitive market. (Görg and Greenaway, 2003).

1.2 FDI to host economies

For numerous years, China has ranked first among emerging countries in terms of foreign direct investment. Due to the United States' incapacity to combat the COVID epidemic, China's foreign direct investment surpassed 153.71 billion US dollars in 2020, overtaking the United States for the first time and placing China first in the world. In the context of a persistent global economic downturn and a sharp drop in international direct investment, China's strong performance in bucking the trend has sparked widespread interest in both domestically and overseas, with some scholars even claiming that the era of Chinese foreign direct investment has arrived(Chen, 2013). However, in terms of experience accumulation, personnel reserves, and risk management, Chinese enterprises still have a long way to go if they wish to compete successfully in the future international investment market. There are some signs that China is actively learning from the successful experience of the US's foreign direct investment industry selection(Si, Liefner and Wang, 2013), location selection, and management policies. At the same time, China is also making strategic choices based on the reality of internal economic and social realities. This leads us to ask, what are the variables driving China's foreign investment in comparison to the United States?

We chose Africa as the focus of our research in order to compare the differences between China and the US in terms of foreign direct investment decisions. Both China and the United States place a strong premium on location when it comes to foreign investments. China's location selection strategy is centered on developing countries, particularly Southeast Asian countries, because these countries' technological development levels are similar to China's, allowing for the development of small-scale production and labor-intensive industries (Samphantharak, 2011; Zhao, 2014). Foreign direct investment outflows of the United States are primarily concentrated in developed countries such as Europe, with a focus on high-tech industries and cross-border mergers and acquisitions. Because Africa is physically separated from China and the United States, and because the flow of investment from China and the United States into Africa has historically been relatively consistent and only accounts for a tiny share, Africa was chosen as the region for examination. Despite that, in terms of economics, Africa been through a major shift in 2013. China has surpassed the United States as the continent's largest direct investor in terms of FDI flows, this causes a lot of debate about China's intentions.

Africa-China trade has expanded from $10.6 billion in 2000 to $166 billion in 2011. Africa's largest trading partner is currently China. Over 2000 Chinese companies operate in over 50 African countries, spanning a wide range of industries including oil production, mining, construction, and agriculture. Oil, minerals, and other natural resources such as lumber and copper are the primary exports of Africa to China. These are the ingredients required to keep China's manufacturing economy humming. The majority of China's exports to Africa are produced items, such as textiles and clothes, as well as electronic devices and machinery (Foster *et al.*, 2009).

Scholars have been discussing and debating the growing economic ties between China and Africa. The trade between China and Africa, as well as the flow of foreign direct investment from China into African countries perhaps demonstrate it. The literature on China-Africa ties is frequently divided into two groups. Some feel that China's economic and trade cooperation approach that combines aid and trade with Africa is conducive to giving full play to the comparative advantages of China and Africa, promoting the development of bilateral trade, and achieving mutual benefit and win-win results. Others, on the other hand, see this relationship as a new type of imperialism, particularly in terms of resource exploitation in African countries (Kolstad and Wiig, 2011). In 2004, the British "Economist" magazine regarded China's economic and trade activities in Africa as "neo-colonialism". Also, in 2011, the documentary "The Chinese are Coming" produced by BBC reporter Justin Rowlatt publicized China's neo-colonial activities in Africa. Is China's massive aid to Africa considered "neocolonial"? What are the parallels and differences between China's investment plan in Africa and the investment strategy that developed countries have historically followed as compared to capitalist countries such as the United States?
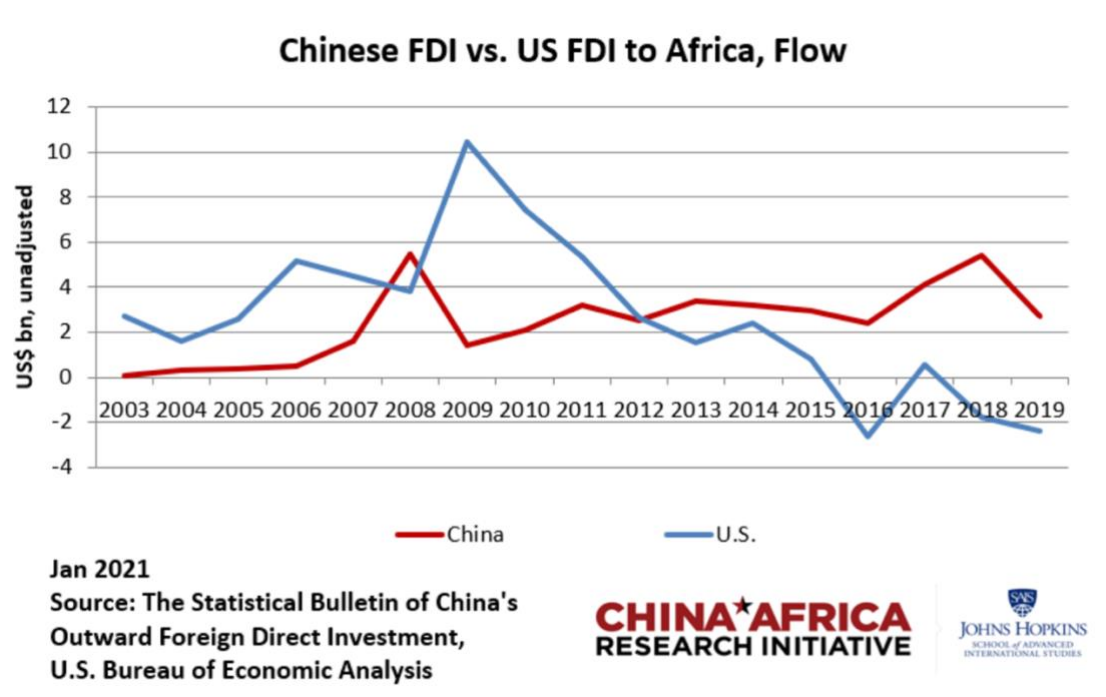

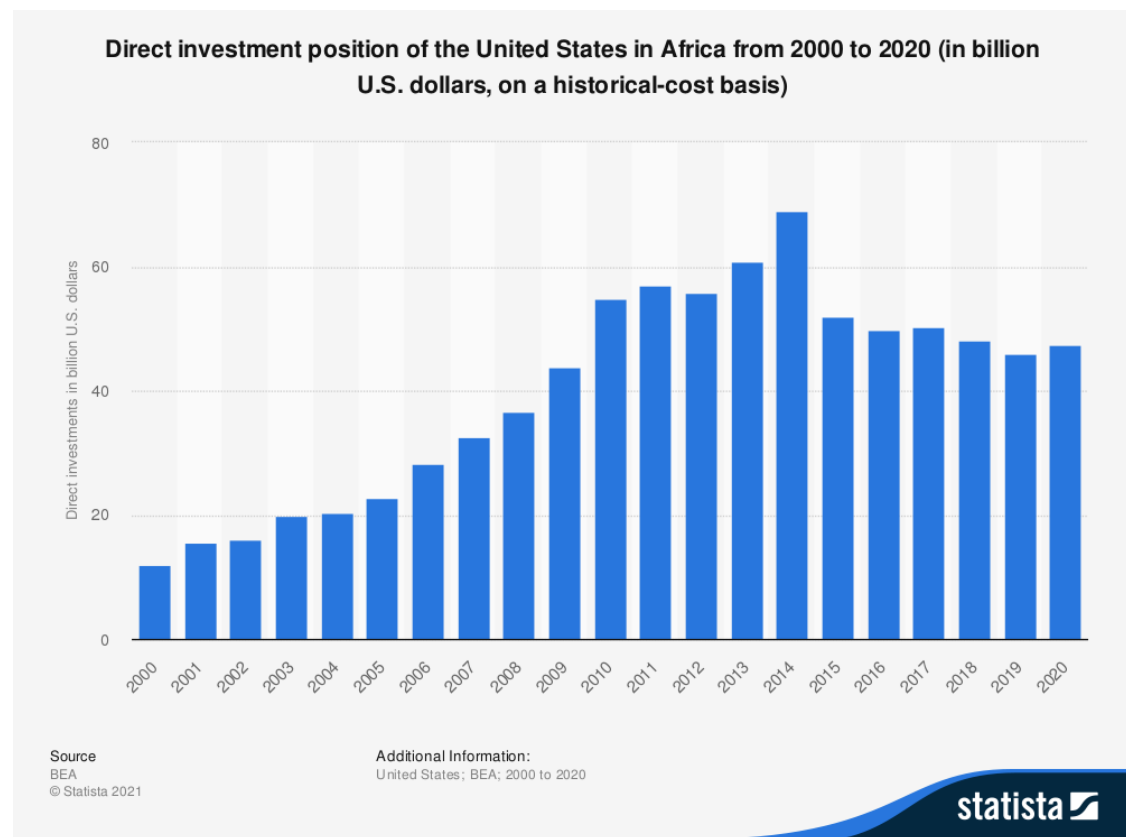Chart 1-1

1.3 FDI made by America

1.3.1 The history and development of American FDI

In the field of international economic cooperation, foreign direct investment has a history of more than 100 years. In the more than half a century since the end of World War II, with the formal formation of modern multinational companies, foreign direct investment has ushered in unprecedented rapidity development (Lipsey, 2001). Global foreign direct investment flow increased rapidly from 239.414 billion U.S. dollars in 1990 to 1.569 trillion U.S. dollars in 2000 (UNCTADstat). During this period, the United States focused its investment activities on developing countries, and direct investment in developed countries showed a downward trend, and continuously rank first in the world. In addition, the allocation of US foreign direct investment in developing countries has also changed (te Velde and Bezemer, 2006). Among the investments in developing countries, the ratio of direct investment in Latin America rose from 37.1% in the 1980s to 44.7%; the proportion of other developing countries in the Asia-Pacific region and developing countries in Africa also rose slightly. In 2003, the cumulative balance of US FDI in developing countries reached about 36.9 billion US dollars, about three times that of 1990, and accounted for 28% of that year's FDI amount.

The transnational mergers and acquisitions of American multinational corporations have become the main method of American foreign direct investment since the 1990s. At the same time, there are significant differences in the investment modes of US multinational companies in countries with different levels of development (Nocke and Yeaple, 2008). In developed countries, US direct investment is mainly carried out in the form of cross-border mergers and acquisitions, while in developing countries it is mainly carried out in the form of greenfield investment. At the same time, U.S. foreign direct investment strategies mainly include three forms: profit reinvestment, equity capital investment, and inter-company lending. In the second half of the 1990s, apart from 1994 and 1998, the reinvestment of profits in foreign investment made by the United States exceeded that of other forms of investment in other years.

In the case of Africa, the increasing trend stopped after experiencing its peak in 2014, US foreign direct investment in Africa fell to 47.5 billion US dollars in 2020 (Statista). Africa receives less foreign direct investment inflows than any other region. As many traditional and emerging global powers are racing to seize the huge economic potential of Africa, the United States' intention to reverse the lost land in Africa is very obvious in recent years. At the same time, the United States has a sustained competitive advantage in cooperating with Africa, promoting trade and investment between the United States and the African continent, and meeting the priorities. However, Wang pointed out, despite the fact that the US government is paying more

attention to Africa's economic prospects and encouraging companies on how to expand their investment in Africa, progress has been gradual.

Direct investment position of the United States in Africa from 2000 to 2020 (in billion U.S. dollars, on a historical-cost basis)

Source: The World Bank

Chart 1-2

1.3.2 The Sector Distribution of American FDI

The sectoral structure of US foreign direct investment has changed dramatically since the war, with manufacturing and service industries being prime examples. To begin with, manufacturing's share of FDI has progressively increased, from 32.5 percent in 1950 to 41.3 percent in 1970, and has hovered around 42 percent since then. The service industry's share of FDI has changed dramatically since then, rising from less than ten percent before the war to 38.4 percent in 1989. Since the 1990s, the structure of US FDI has shifted even further. The service industry has increasingly replaced manufacturing as the major industry in the United States. Finance, insurance, and real estate investment are well ahead of other sectors, and by the mid-1990s, the total investment in the service industry had surpassed the total investment in the manufacturing business, and its proportion of all industries had risen significantly from 27.17 percent in 1992. In 2000, it rose to 41.95 percent, while manufacturing's total investment share fell drastically from 37.41 percent to 27.33 percent.

1.3.3 The Regional Distribution of American FDI

Following the severe financial crisis, the achievement of economic reform and the return of economic growth bolstered American FDI flows into ASEAN, which rose rapidly from 0.74 billion US dollars in 2003 to 103.92 billion US dollars in 2004 and reached a peak rate of 40.7 billion US dollar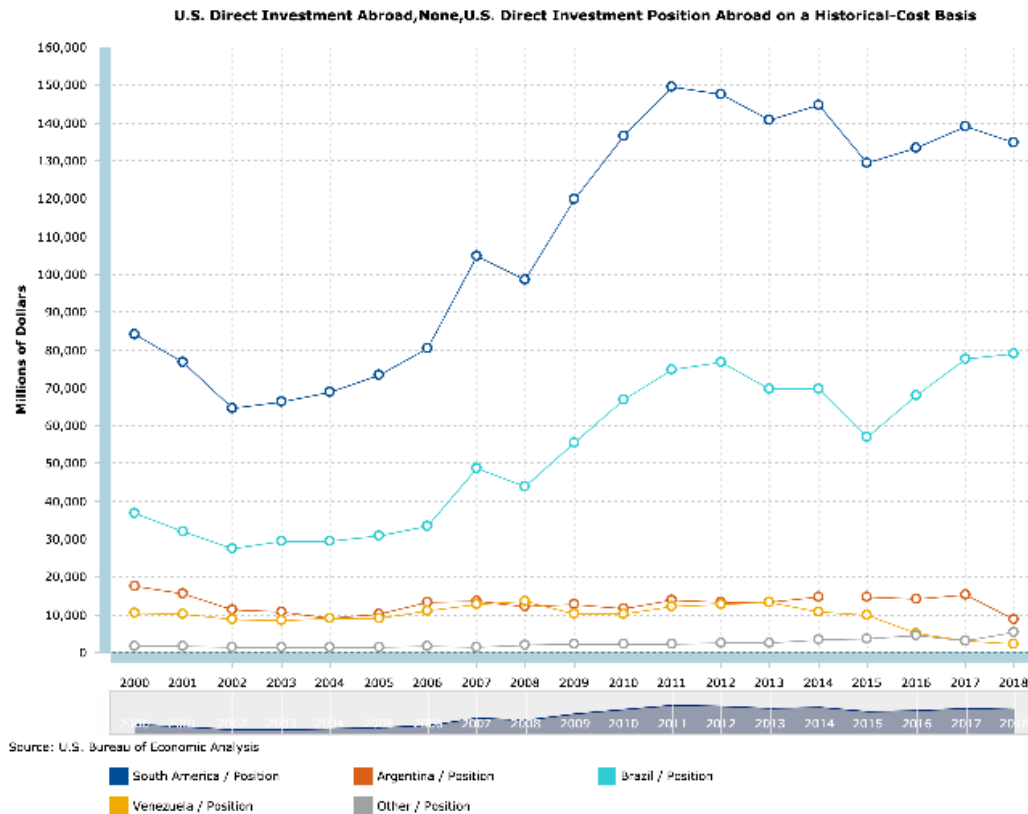s in 2008. Up to 2008, America's cumulative investment in the Asia-Pacific region was 484.8 billion dollars. While the global economic crisis in 2008 had a negative impact on FDI flows into ASEAN. In 2009, FDI declined dramatically to 18.03 billion dollars. Except for a significant increase from 709.62 US dollars in 2013 to 814.62 US dollars in 2014 (UNCTADstat), American investment in ASEAN has remained relatively stable since then.

U.S. Direct Investment Abroad,None,U.S. Direct Investment Position Abroad on a Historical-Cost Basis

Source: U.S. Bureau of Economic Analysis

Legend: Asia and Pacific / Position; Malaysia / Position; Singapore / Position; Other / Position
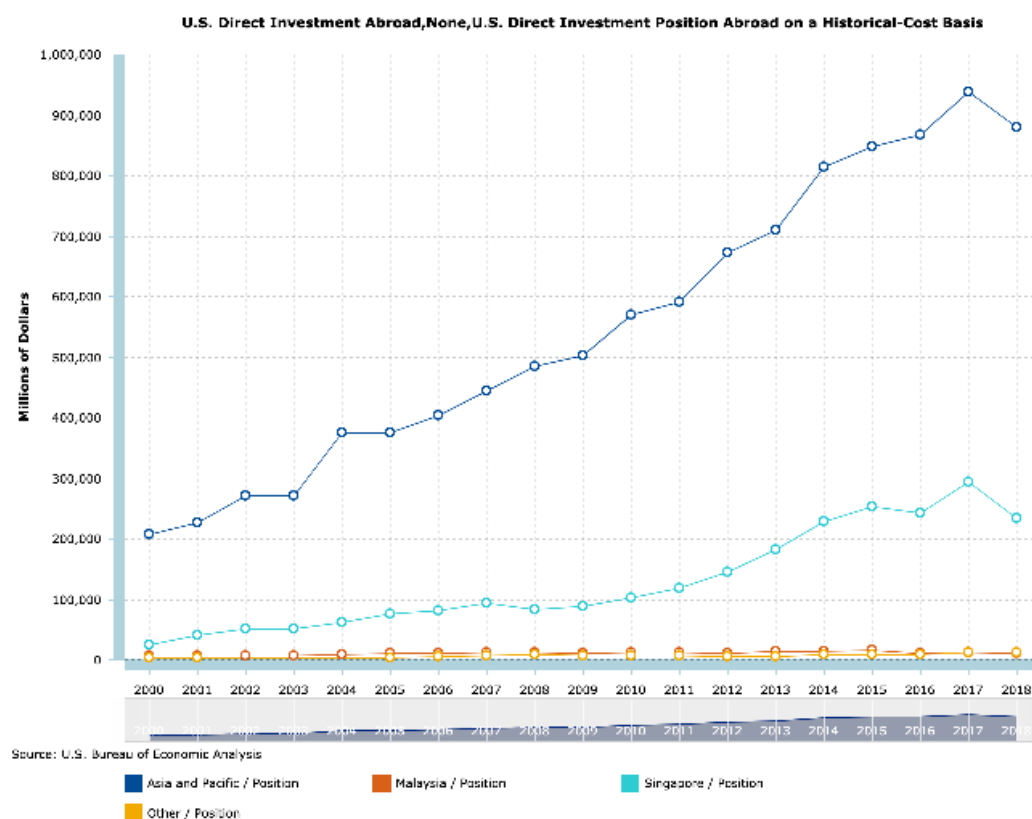
Source: U.S. Bureau of Economic Analysis (BEA)
Chart 1-3

The trend of US investment and growth in South America (MERCOSUR) is similar to that of Brazilian investment and growth, which accounts for half of the Mercosur's total investment. Between 2009 and 2012, the total value of assets held by enterprises based in Brazil that are funded by American capital increased by 37%, from 206.6 billion to 283 billion dollars. Brazil accounted for 53 percent and 8 percent of US assets in South America and Latin America respectively. by the end of this period, Brazil's proportion of global assets in the United States climbed from 1.1 percent to 1.3 percent.

U.S. Direct Investment Abroad,None,U.S. Direct Investment Position Abroad on a Historical-Cost Basis

Source: U.S. Bureau of Economic Analysis

- South America / Position
- Argentina / Position
- Brazil / Position
- Venezuela / Position
- Other / Position

Source: U.S. Bureau of Economic Analysis (BEA)
Chart 1-4

Egypt, South Africa, and Nigeria accounts for a substantial portion of overall investment. Firstly, Egypt-US trade is divided into two programs with the goal of expanding Egypt's exports to the US. The Generalized System of Preferences (GSP) and Qualified Industrial Zones (QIZ). The US remains committed to aiding Egypt's ongoing economic reforms and is working with the Egyptian government to help the country overcome its economic difficulties. The Bilateral Trade and Investment Committee conducted a meeting in December 2017 to consider strategies to expand the two countries' economic operations. Besides that, in Africa, South Africa is the America's most important commercial partner. The total value of goods traded back and forth in 2018 was 14 billion dollars. South Africa is home to about 600 American enterprises, many of which utilize the country as their regional headquarters. Last but not least, the United States is Nigeria's largest foreign investor and Nigeria's second-largest export market in Sub-Saharan Africa. The two-way goods trade between the United States and Nigeria totaled more than 10 billion dollars in 2019.

U.S. Direct Investment Abroad,None,U.S. Direct Investment Position Abroad on a Historical-Cost Basis

Source: U.S. Bureau of Economic Analysis

Legend: Africa / Position, Egypt / Position, Nigeria / Position, South Africa / Position, Other / Position
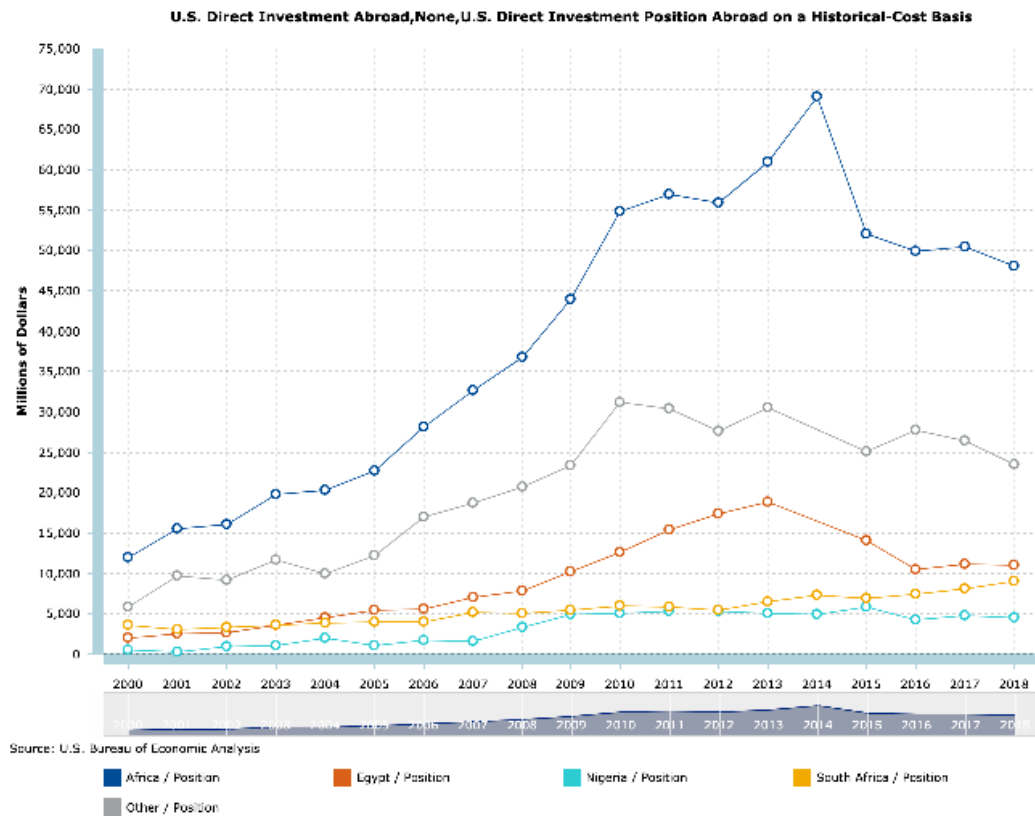
Source: U.S. Bureau of Economic Analysis (BEA)

Chart 1-5

1.4   FDI made by China

1.4.1 The history and development of China FDI

China has become increasingly prominent in foreign investment activities, whether as a host country or as a home country. China's outward foreign direct investment (OFDI) increased from 44 million dollars to 4.612 billion dollars in the first 20 years of reform and opening, from 1982 to 2000. What's more remarkable is that only one year after China entered the WTO, the data has doubled again, jumping to 9.696 billion US dollars. China's FDI, on the other hand, really took off in 2004. China's foreign direct investment flow increased from 2.9 billion US dollars in 2003 to 56.5 billion US dollars in 2009, with an average annual growth rate of 55 percent, as shown in the graph below. After 2004, with the rapid expansion of China's current account surplus and the gradual appreciation of the RENMINBI, China's foreign direct investment flow increased from 2.9 billion US dollars in 2003 to 56.5 billion US dollars in 2009. This rate of growth outpaced the rate of net foreign investment inflows into China, and China's

worldwide share of FDI flows climbed from 0.5 percent to 5.1 percent during the same time period (UNCTADstat).

China's foreign investment in Latin America and Africa has expanded dramatically, according to a report from the Ministry of Commerce of China, but it is still mostly centered in Asia. Furthermore, China's official figures on foreign investment may not accurately reflect the actual investment destination. Some Chinese enterprises, like corporations in many other nations, make initial investments in tax havens or offshore financial centers with very low or no taxes (such as Hong Kong and the Cayman Islands) (Sutherland *et al.*, 2010; Buckley *et al.*, 2018). Following that, these corporations used subsidiaries in the above-mentioned offshore financial centers to reinvest the same funds in other destinations such as Africa and Latin America. However, China's official data on foreign investment only includes the initial investment destination. Many large mergers and acquisitions, for example, are financed by initial investment from the mainland of China, flowing via Hong Kong to the real destination. According to Reuters and other mainstream financial websites, Sinopec Group, China's largest oil refinery, purchased a 30% stake in Galp Energia (Brazil) for 5.2 billion US dollars in 2012 through its Hong Kong subsidiary Sinopec International Petroleum Exploration and Development Co., Ltd., while claiming that the investment destination was Hong Kong rather than Brazil, and the fact that this purchasing activity is not listed in Sinopec's annual report even proved the point above.

China-Africa commerce began in 1950 when the two nations' trade volume was less than 12 million US dollars. Because of historical circumstances and a variety of other factors at the time, Sino-African trade was relatively slow. By 1979, the bilateral trade volume had risen to 820 million dollars. Since China launched its reform and opening policy, Sino-African commerce has gradually advanced, and the size of collaboration between the two sides has gradually extended, the sectors of cooperation have been continually expanded, and the degree of cooperation has gradually improved. Then, after a half-century of expansion, China-Africa trade volume reached 50 billion US dollars in 2006. In the meantime, China-Africa economic and trade ties have changed considerably, regardless of the structure of imports and exports or trading methods (Regissahui, 2019).

The Chinese government developed a multilateral consultation and dialogue framework between China and African countries by establishing the "China-Africa Cooperation Forum" in October 2000, ushering in a new era of bilateral cooperation. The Chinese government has taken a variety of initiatives, including reducing and canceling 10 billion yuan in loans owed by African countries that are extremely indebted, underprivileged, and least developed, as well as supporting African countries in professional training. The rapid rise of cooperative connections between China and Africa, as well as China's initiatives to strengthen China-Africa economic and trade cooperation, indicate that China-Africa economic and trade cooperation has advanced to a new level.
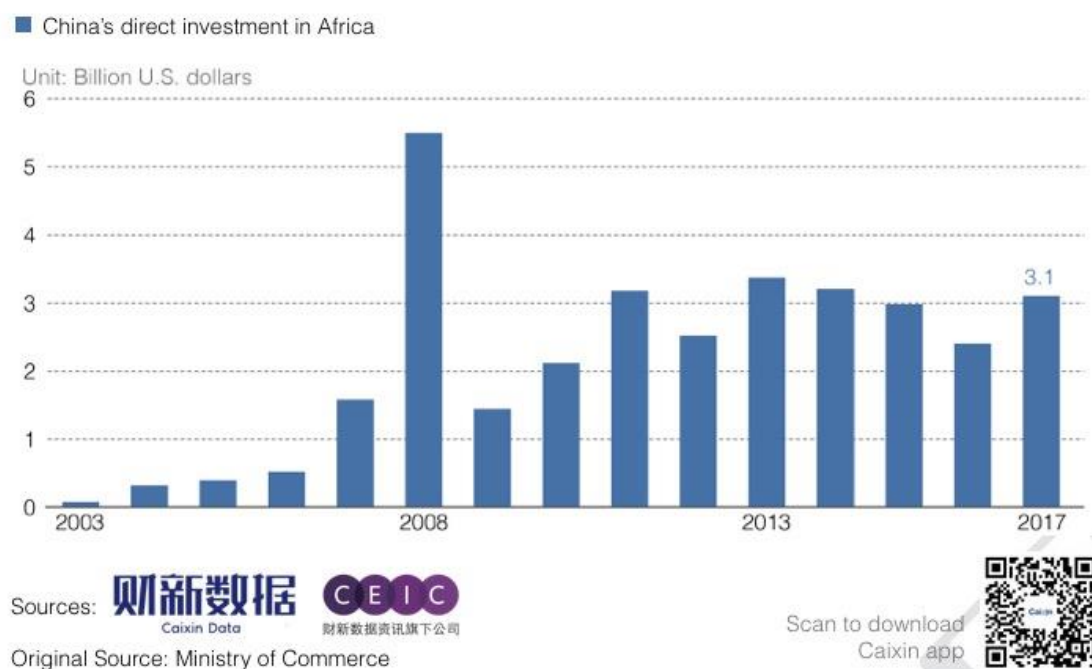
China's Investment in Africa

■ China's direct investment in Africa

Unit: Billion U.S. dollars

Sources: 财新数据 Caixin Data   CEIC 财新数据资讯旗下公司

Scan to download Caixin app

Original Source: Ministry of Commerce

Chart 1-6

1.4.2 The Sector Distribution of China FDI

China's investment in Africa has been enriched as a result of the gradual expansion of foreign direct investment. Energy development and manufacturing investment have quickly become key areas of China's investment in Africa (Shen, 2013; Cozza, Rabellotti and Sanfilippo, 2015), thanks to China's rapid economic expansion, increased demand for resource products, and the need for domestic industry reform in recent years. By the end of 2012, 90 percent of China's foreign investment had gone into six sectors: leasing and business services (33%), finance (18%), mining (14%), wholesale and retail (13%), transportation, warehousing, and postal services (6%), and manufacturing (6%). However, this information may be incomplete because parts of leasing and business services investment (33%) is used to establish investment and asset management subsidiaries in offshore financial centers, and this capital can be re-invested in other industries. At the same time, manufacturing accounts for the majority of China's domestic loans, and China was the world's leading manufacturer in 2012, accounting for 22.4 percent of global manufacturing output. As a result, mining and manufacturing were the two most significant Chinese investments in Africa. It's worth noting that China's financial cooperation with Africa has grown in recent years (MA Wenyuan and ZHAO Jun, 2020).

1.4.3 The Regional Distribution of China FDI

Between 2005 and 2019, China's FDI into Southeast Asia increased by more than 20 times. Following the global financial crisis, there was a brief reduction in foreign direct investment from other countries, which coincided with the Chinese government's "going out" campaign, which encouraged domestic enterprises to invest abroad. As a result, China's investment has increased significantly since the global financial crisis. Even so, China is not yet a major investor in Southeast Asia. China just became the region's third-largest foreign investor in 2012 and 2018 (UNCTADstat), and its proportion of total yearly FDI in Southeast Asia was only half that of Japan, the region's second-largest investor. The European Union, Japan, and the United States were still the three primary suppliers of FDI in Southeast Asia at this time. Besides that, the top three destinations for Chinese investment in Southeast Asia are Indonesia, Malaysia, and Singapore, which account for 57 percent of China's total investment in the region.

Source: The World Bank
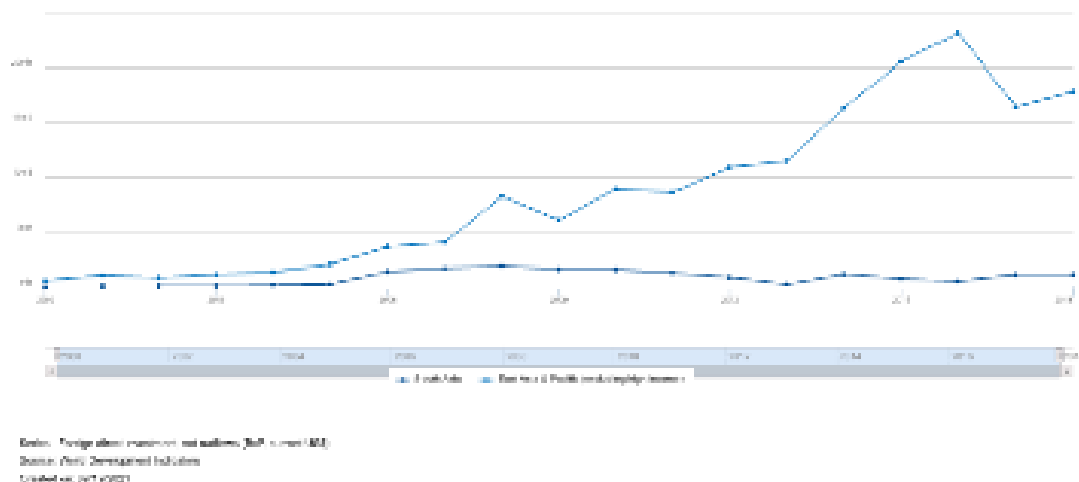
Chart 1-7

According to the China-Celac Forum, China had established 300 businesses in Latin America by 2001, with a total investment of more than 1 billion dollars. Since then, China's leading steel manufacturing company has invested 1.5 billion dollars in Brazil, the largest overseas direct investment in China's history in Brazil. China controls Peru's key iron ore through Shougang Group. Furthermore, China is showing a strong interest in Ecuador's oil, as well as attempting to create fuel and resuscitate the country's gold mines in Venezuela. China is also interested in strengthening infrastructure in Latin America to help with product transportation to ports, and people in the region are looking forward to China's investment in Latin America's trains and ports as well. China has agreed to invest 25 million dollars in grain transit ports and 250 million dollars in highways between Argentina and Chile, making it easier for Argentine raw materials to be exported through Chilean ports.
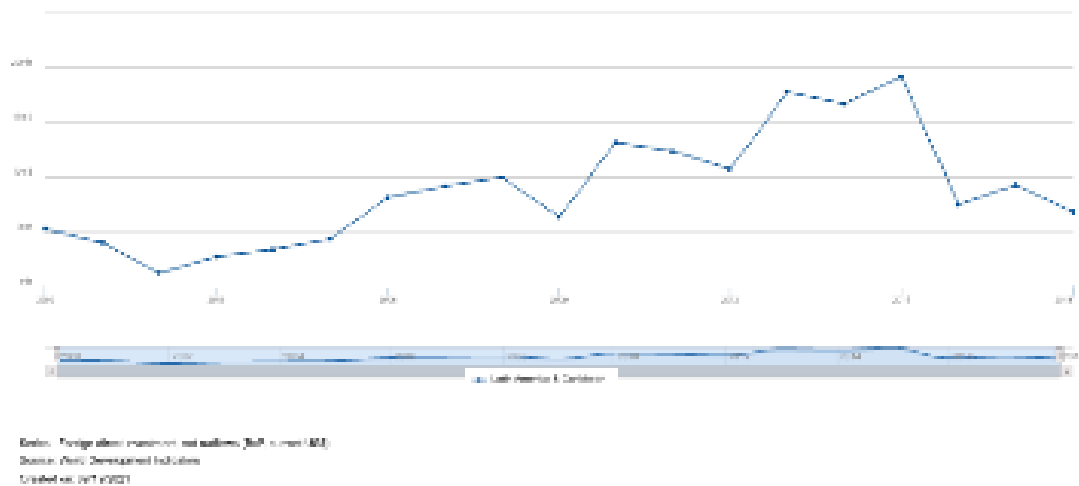
Chart 1-8

For the tenth year in a row, China has surpassed the United States as Africa's greatest trading partner. China-Africa trade volume surpassed 200 billion US dollars for the first time in 2013, according to Ministry of Commerce figures, and reached 221.9 billion US dollars in 2014. As a result of the ongoing downturn in bulk commodities, the volume of Sino-African commerce has gradually decreased. The amount of trade between China and Africa in 2018 was 204.2 billion US dollars, up 20% year on year (UNCTADstat).
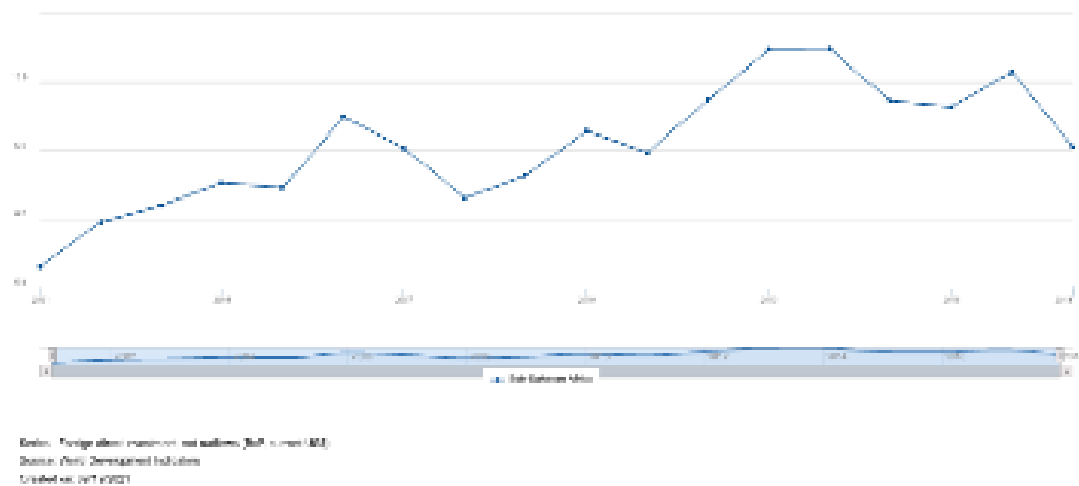
Chart 1-9

1.5 Why Invest in Emerging Countries?

The following two categories highlight China's and the United States' motivations for investing in developing countries. The first is to look for resources, such as energy and

raw materials (Asiedu, 2006; Wadhwa, 2011; Bokpin, Mensah and E. Asamoah, 2015), the second is that people's purchasing power is gradually increasing as the global economy develops. Faced with a domestic market that is already saturated, these two large countries must expand into new markets abroad (Jaumotte, 2004; Asiedu, 2006). China's FDI has increased significantly in recent years, thanks to the country's active promotion of the "Belt and Road" and "supporting the establishment of a new pattern of comprehensive opening up." As of 2019, China's foreign direct investment flow continued to stay second in the world, and its stock ranked third, among that, China's foreign investment is mostly focused on developing countries, even surpassing the amount invested in advanced economies.

The most visible trait of developing countries, in comparison to developed countries, is that their political systems are insecure. Several studies have found that the host country's institutional stability has a major impact on international direct investment (Anghel, 2005; Busse and Hefeker, 2005; Ali, Fiess and MacDonald, 2008), Enterprise investment risk will rise as the institutional environment becomes more unstable. In general, businesses prefer to invest in nations that have strong institutions that can successfully defend property rights (Seyoum, 1996). Developing countries have lower labor costs, abundant natural resource reserves, and poorer domestic enterprise competitiveness than industrialized ones, making it easier for international companies to enter new markets. However, developing countries' system stability is generally lower than that of developed countries, as evidenced by high transaction costs resulting from imperfect legal systems and domestic markets, low economic freedom, high political risks, and protection of property rights, particularly intangible assets, lower institutional stability has driven up enterprise investment costs and risks, and has acted as a deterrent to international investment. However, while developing countries' poorer institutional stability may potentially deter foreign investment, it's worth considering that the majority of Chinese investment goes to undeveloped countries.

One plausible scenario is that different institutional arrangements have facilitated the flow of capital from these 2 countries mentioned above to developing countries. The host country's institutional environment for multinational firms is not merely constrained by formal procedures. Companies will actively seek other informal system (alternative systems) aspects to circumvent, substitute or supplement formal system limits, in order to decrease the actual system costs and hazards of the firm in the absence of formal systems or low efficiency (Holmes *et al.*, 2013; Zhang, 2020). When the host country's system stability is low, multinational businesses will take the initiative to adopt informal institutional arrangements to compensate for the formal system's flaws to avoid high transaction costs and property rights hazards. Informal institutional arrangements are primarily motivated by two factors: increasing the degree of internalization and improving the political connection between the host and home countries. Through bilateral political activities such as friendly countries and high-level visits, China's "One Belt, One Road" practice has proven that bilateral

political ties have significantly boosted China's foreign investment, it has reduced the cost of obtaining information for enterprises, giving them new competitive advantages, and promoting foreign investment.

In the case of the United States, encouraging corporations to expand internationally has become a major national primary concern (Globerman and Shapiro, 2003). The United States has established a relatively complete legal system to protect foreign direct investment assets after decades of development. A complete and effective legal system protects the interests of U.S. private foreign direct investment; a sound service guarantee system allows the government to serve enterprises to a greater extent; and a highly refined government management system has greatly strengthened the pertinence and efficiency of overseas investment management. When companies face risks, the comprehensive risk prevention and control system ensures that the US government compensates the companies first, then demands the host country to reimburse the companies in accordance with the bilateral investment protection agreement.

The investment activities of more than ten developing countries in Africa between China and the United States from 2003 to 2021 will be examined in this article, by contrasting Chinese and American companies' investment strategies and entry modes, as well as site selection, entry time, and macro and micro investment influencing factors (which FDI factors are more able to influence and how to make corporate investment decisions), the similarities and differences in investment strategic planning between the two countries can be determined.

2.Literature Review

(Dong, Li and Zhang, 2011) demonstrated that China's rapid economic growth in recent centuries has led to a huge demand for raw materials and energy, and the country's resources have been not able to meet the needs of China's prosperous economy anymore. At the same time, the demand of products of other developing countries in the world is also expanding rapidly. Facing an increasingly saturated domestic market, Chinese businessmen have begun to expand their commercial layout to other corners of the world. Especially in recent years, with the intimate development of cooperation between China and other developing countries, such as "The Silk Road Economic Belt and the 21st-century Maritime Silk Road", referred to as "The Belt and Road" (abbreviation: B&R), China's overseas investment has also developed rapidly, ranking first among developing countries.

Many commentators believe that the surge in China's ODI in recent years is attributable to the government coordination policy to promote overseas investment. In particular, China's foreign direct investment policy has indeed been enlarged, and has been carrying out "Go global" strategy activities since 2000. This proves that the government has indeed played an indelible leadership role in the macro-control of foreign investment. The fact that a glut amount of Chinese ODI is carried out by state-owned enterprises rather than private ones is also considered as the course of action to strengthen the centralized control of the government. For more than ten years, analysts have been trying to acknowledge whether China's investment model is the same as the investment strategic followed by other developed countries, especially the United States, and trying to find the reasons for the formation of the strategic basis contained in China's foreign investment model (Dong, Li and Zhang, 2011; Ramasamy, Yeung and Laforet, 2012).

The prosperity and development of U.S. FDI is inseparable from the role of the U.S. government in capital exports. The policies and measures adopted by the US government to encourage foreign investment are mainly divided into four categories: legal protection of foreign investment, fiscal and financial support, tax incentives, and information technology assistance. In addition, the location selection experience of the United States in the initial period of foreign direct investment follows the "proximity principle" and the "regional gradual principle" and considers location advantages in accordance with the needs of industrial development. At the same time, the United States focused on investment in developed countries and regions, to clarify the main direction of trade attack and distinguish the strategic levels and positions of different regions. Finally, they shift investment from the region to the world, and implement the diversification of the investment market. Judging from the successful experience of U.S. ODI industry selection, the key selection of ODI industry is a dynamic development process.

Until now, there is no widely accepted set of explanatory variables that can be regarded as the "real" determinants of FDI, but it is undeniable that, in line with the literature, indicators of good economic perspective and foreign investors' confidence in the countries receiving investments are significant determinants of inward FDI, while Udomkerdmongkol, Morrissey and Görg, 2009 alluded that these factors mentioned above has scarcely been considered as significant determinants of US FDI, with its very little evidence.

2.1 FDI determinants

The following is a list of the most important factors that affect FDI at present in 2 main categories, one is economic factors determine the FDI level in and out from the country, the other is determinants on political role that drive firm to produce abroad.

☐   Institutional environment

Regarding the internal mechanism of the growth of foreign direct investment in emerging economies, institutional environment is one of the most frequently mentioned factors. The economy of a country is determined to a large extent by its political, institutional, and legal environment, and the host country's institutional environment has a significant impact on the risk management of companies' foreign investment. Peng, Wang and Jiang, 2008; Luo, Xue and Han, 2010 believed that corporate internationalization strategies, especially corporate FDI behavior, are greatly affected by the host country's institutional environment. The institutional environment in developing countries is inadequate due to various of reasons, however as previously stated, informal institutional effects such as bilateral political relationships can be used to compensate.

Related research results are still insufficient regarding the interactive effects between bilateral political relations and the host country's institutional environment. However, it is undeniable bilateral political relations are of great significance for promoting political mutual trust and reaching a consensus on cooperation, thereby reducing the possibility of corporate assets being seized or confiscated (Li and Vashchilko, 2010). Therefore, bilateral politics have a certain degree of impact on the host country's institutional environment. Remarkably, according to (Miao *et al.*, 2020), friendly bilateral political relations have a certain optimization effect, supplementary effect and complementary effect on the host country's institutional environment and can promote FDI to a certain extent, vice versa. More importantly, when facing an undesirable institutional environment from a host country, the complementary and optimization effects of the bilateral political relations are more significant.

Furthermore, the amount of growth potential and efficiency for the invested project, as well as the degree of comprehensive governing competence, are reflected in the assessment criteria of a host country's investment climate (Mengistu and Adams, 2007). As a result, a government's ability to create a stable investment environment

for foreign entrepreneurs, as well as auxiliary activities like investment evaluation and legal system, will secure higher levels of FDI inflows.

☐ Taxes

The tax situation of the host country covers the corporate income tax rate, total tax rate, and tax avoidance. The impact of taxation on foreign direct investment may vary greatly depending on the type of taxation, the measurement of foreign direct investment activities, and the tax treatment of the host country and the home country. If the tax rate of the host country is high, the cost of foreign-funded operations will increase, which will reduce investment profits. Therefore, it is generally believed that high tax burden has a negative effect on FDI location selection. On the contrary, tax havens can attract FDI due to their low tax rates.

A lot of research on the location choice of FDI or ODI also pays attention to taxation factors. (Hanson, Mataloni and Slaughter, 2005; Clausing, 2013) reviewed the research on international taxation and found that enterprises will move their headquarters to avoid the high tax rate in their home country. Therefore, we expect that Chinese and American companies are more likely to invest in low-tax countries and regions. Countries can also attract inward investment through competition. Taxes may also play a major role in companies when deciding where to declare profits. In fact, anecdotal evidence shows that multinational companies spend sizeable resources on transfer pricing and other tax planning techniques involving cross-border transactions to minimize the tax burden.

☐ Market size

FDI can be subdivided into several categories, market-oriented, resource-oriented, efficiency-seeking and strategic asset-seeking (Dunning, 1980, 1988; Lundan and Dunning, 2008). based on the distinct motivations of firms for foreign direct investment. The purpose of resource-oriented investment is to obtain resources in the host country, such as human resources and natural resources, FDI attracted by developing countries usually falls into this group. Because most of this form of investment is to export these resources and use them to produce products that are sold back to the home nation or exported to a third country, the size of the host country's market has minimal impact on it.

Market-oriented investment refers to a company's abroad investment with the primary goal of expanding and occupying new markets. This kind accounts for the majority of investment between developed countries and investment by developed countries in emerging regions. Market-oriented investments are typically long-term investments that pay little regard to short-term operating expenditures, which are the same for other rivals entering the market. Market potential is the most crucial criterion to consider in most market-oriented investments. When it comes to market size, the question of whether to focus on growing or larger markets arises. The size of a market is typically expressed in terms of gross domestic product (GDP) or GDP per

capita, which can also represent population size. The host country's size shows the host country's potential market capacity. This deciding element is crucial, as the empirical analysis of Fung, Iizaka and Parker, 2002; BILLINGTON, 1999 has demonstrated.

Meanwhile, other economists argue that, when compared to GDP, GDG (growth rate of gross domestic product) is a far more accurate predictor of market size, which have positively impact on FDI inflows as well. Root and Ahmed, 1979 proved this point based on their analysis and indicate that GDP is a fairly poor indicator of market potential since this indicator emphasize the number of populations instead of the incoming. In addition, Moosa, 2009 employed the EBA analysis with GDG as the free variable because the test demonstrates that growing markets have a greater effect on attracting FDI inflows than larger markets.

☐ Distance

There is a question: Will improvements in the transportation network attract more investment and consequently promote economic growth? The answer is yes. The transportation network can pave the way for increasing investment and accelerating GDP growth by shortening the overall travel time and reducing transportation costs. However, the magnitude of its impact will vary significantly between different source and destination countries.

For horizontal FDI, the farther the geographic location between the exporting country and the importing country, the higher the transportation cost. Therefore, the geographic proximity becomes an important factor affecting FDI. Brainard, 1997 studied both developed and developing countries and discovered that, in certain circumstances, scale economies, for example, the greater distance will boost FDI and then replace export commerce, resulting in a positive impact on FDI. At the same time, the reduction of transportation costs can promote GDP growth. The increase in FDI brought about by lower transportation costs may have a positive effect on GDP, trade, and employment growth, especially for countries with lower incomes. Conversely, (Tsai, 1994; Abumustafa, 2007) proved that the GDP growth rate can positively affect FDI. As for vertical FDI, companies typically locate each step of production in the country where it can be done at the lowest cost, or to get a better control of their supply chain, therefore higher transportation costs caused by longer distances would undoubtedly hinder vertical FDI (Dong, Li and Zhang, 2011).

China's "One Belt, One Road" project is a good example, this transportation network can shorten travel time by 3.2%, equal to 0.69 days. The shortening of time has reduced transportation costs, which can lead to a 4.97% increase in total FDI inflows from participating countries in the "Belt and Road" initiative. The positive effect of shortening transportation time and reducing transportation costs on FDI may have a particularly significant positive effect on FDI (5.75%) for those countries that didn't anticipate "One Belt, One Road" as well, such as sub-Saharan Africa (7.47%), East Asia Pacific (6.25%) and South Asia (5.19%) and other destination countries. If this strategy

combined with the improvement of the business regulatory environment, the effect may be further amplified.

☐   Infrastructure

As an important factor affecting foreign direct investment, appropriate infrastructure conditions can stimulate various kind of FDI. The quality of infrastructure may be one of the main factors affecting developing economies, while professional support services are more important for industrial economies. (Tsai, 1994) analyzed panel data from 60 low-income and low-middle-income countries by empirically demonstrate the relationship between economic growth and FDI, the author found out that countries have high GDP growth rate, equipped with modern infrastructure and modern communication facilities (such as Internet) are obviously able to attract more abundant ODI.

However, this rule does not seem to be so applicable to China's FDI activities. China and Africa have been cooperating more closely in recent years, as most of African countries are in the situation of lack of infrastructure particularly outside urban area, the collaborating in the field of infrastructure construction has been advancing rapidly. In addition to traditional infrastructure such as roads, railways, ports, and industrial parks, China is also vigorously promoting "new infrastructure" such as communication base stations in Africa. In some countries, China's cumulative investment in infrastructure has exceeded that of the US. From a micro level, these infrastructure projects are engaged by Chinese companies and funds, which means they are participating in the African market through a market-oriented way. From a macro perspective, investment in infrastructure projects in Africa is part of China and Africa's adherence to the principle of extensive consultation, joint contribution and shared benefits, and the promotion of the "Belt and Road" construction. Infrastructure construction has 'multiplier effect', that is, it has the potential to increase overall societal demand and national income by multiple times the amount invested, thereby promoting African economic development and this is a perfect match for the "Belt and Road" mission.

☐   Government support/ Ownership

The analysis of this factor is to compare the investment strategies of China and the United States more directly. As we all know, the current legal system and administrative management system of the capitalist countries headed by the United States does not have the concept and unified definition of "state-owned enterprises". Governments at all levels have less intervention in commercial activities and are highly dependent on the market-based system. Thence, most of the outward FDI from the United States is controlled by private companies.

Instead, as a typical socialist country, China's main economic and political strategies are formulated and implemented by the state (Cui and Jiang, 2012), so most of its outward foreign direct investment is controlled by state-owned enterprises. Using

Africa as an example, we studied 368 projects invested in the African continent from 2003 to 2017, of which only 142 projects were invested by private companies, 187 projects were invested by state-owned enterprises, and the remaining 39 project was invested by a state-owned and private mixed enterprise and paid a large amount of tax to the central government. It is clear that the state controls a significant portion of China's capital, and it always responds to the state's policy directives.

In addition, China's unique characteristics (Wang *et al.*, 2012), such as state control and inefficient banking institutions, could have an impact on capital markets. State-owned or state-controlled businesses may be able to obtain capital at below-market rates, moreover, the home country support can reduce the importance of prior entry experience (Lu, Liu and Filatotchev, 2014), enhancing their ownership advantages and allowing them to invest abroad. In line with the above-mentioned "Go Global policy," government control over the banking system provides Chinese MNEs with lighter budget limits, making the withdrawal of inefficient enterprises less likely while also increasing the advantages and possibilities to invest abroad. Therefore, as mentioned above, America prefers to investing those countries where have more sound legal system.

☐   Resource endowment

In the literature investigate on FDI, natural resources are usually regarded as one of the most important motives. Many ODIs, especially the companies investing in developing countries are usually adopting development strategies based on natural resources. They will be aimed at seeking host countries that have abundant endowed natural resources, such as South America, with its plentiful minerals, forest and water, and in Africa, with its minerals, oil, and natural gas resources, etc. They often take advantage of the market failure to generate high return rates, thereby maintaining a comparative advantage (Conner, 1991). Not surprisingly, countries with large reserves of resources will take the initiative action to attract FDI by using this strong point as well, thus, it can be called a win-win. (Mariya, Aleksynska and Havrylchyk, 2012) provided empirical evidence to prove that in countries with sufficient natural resources, the inflow will increase relatively. For countries in the process of industrialization but relatively scarce natural resources, such as China, the driving role of natural resources may be more important. Thence, we expect that the host country's reserves of natural resources will have a positive effect on China's location selection, but for the United States, which is rich in natural resources and has a complete range, this factor does not seem to have a particularly obvious effect.

☐   Labor costs

The effect of labor costs can be controversial. The development of human capital resources is a major advantage of FDI, lower labor costs are usually a determinant factor in attracting inward FDI. As a country with population advantage, China has attracted many foreign direct investments depends on its massive labor stock in the

early stage of its development. Low-cost labor not only brings benefits to the home country, but the host country also benefits. The parent country company always conducts labor training in the FDI local area. In general, the host country can obtain advanced manufacturing and scientific knowledge, what is more, obtains quite advanced management knowledge. These skills have improved the overall education and human capital of the receiving countries.

Meanwhile, Frey and Schneider, 1985 demonstrated that the average educational level of destination country to be a less significant determinants when compared with other political and economic influences, Narula and Driffield, 2012 shows that there is no considerable connection between these factors as well. While Mohanty and Sethi, 2019 proved that there is a bidirectional relationship between outward FDI and human capital, indicating that if there were an improvement in the quality of skilled labor through education, which can be shown in the data of school enrollment, it would facilitate to raise the outward investment. This perplexing finding may be attributable to the fact that, from the 1960s to the 1970s, FDI in developing countries was focused on market seeking and resource extraction, at that period, low-end manufacturing, cheap labor, and abundant natural resources were more important, resulting in a lower demand for higher educated labor.

☐ Co-location

By 2020, China's total FDI in Africa's overall industry will amount to $2.96 billion. Chinese companies have made new investments in 47 African countries, with 19 countries have seen an increase of more than 10% (Forum on China-Africa Cooperation). Chinese companies have increased their interest in East and North Africa from a regional standpoint. Six countries, Angola, Congo, Ethiopia, Nigeria, Zambia, and South Africa, contribute to half of all Chinese OFDI flows to Africa. China's investment in Congo has increased from 0.24 million in 2003 (a small percentage of total Chinese investment in Africa) to 12.6 percent in 2019, following the general trend in Africa.

We're interested in the interaction between new investments and past investments, which are both located in the same host country and made by the same company. This type of investment is known as co-location, and it leads us to economies agglomeration. We introduced the country-of-origin agglomeration and industry agglomeration based on this specific situation of Chinese FDI activity and co-location characteristics, and we are trying to study if those two types of agglomeration mentioned above could affect Chinese FDI decision, and how the investment decision could be affected. Firms in a country-of-origin agglomeration form a variety of inter-firm relationships, whereas those in an industry agglomeration are usually competitors or strategically cooperative, and they generate different kinds of benefits (Tan and Meyer, 2011). According to a recent study, foreign trade and foreign direct investment are closely related to industry agglomeration in China (Ge, 2009).

In the 368 Chinese projects invested in the African continent from 2003 to 2017. From the company's perspective, there are 19 companies that invest in two or more two

projects in the same host country within the same year, also, three companies duplicate this investment in more than one country. From the country's viewpoint, 16 African countries received the co-location projects and the most favored destinations for investors are Egypt, Nigeria, and South Africa, while as a popular destination of co-location, Egypt only counts for a small portion of Chinese FDI inflows.

□ Trade

The theory of reciprocal substitution, the theory of mutual complementation, and the theory of contingency, which states that the relationship between FDI and trade relies on specific conditions, are the three primary forms of relationship between FDI and trade volume. Direct investment and trading between China and Africa are highly complementary. China's demand for African resources has surely influenced Africa's growing part of China's import share. According to the General Administration of Customs of China, China's overall imports and exports to Africa were 101.86 billion US dollars in the first half of 2019, an increase of 2.9% year compared with the last year. According to the Ministry of Commerce of the People's Republic of China, Egypt and Morocco were the only African countries have trading links with China in the early days of New China's establishment. Now, China already has formal trade agreements in place with 64 African countries and regions. Among Chinese corporations operating in Africa, large state-owned enterprises participate mostly in the local energy sector, which is resource-seeking projects, African countries with strong oil trade relations with China are frequently host countries for Chinese infrastructure investment. In Africa, on the other hand, a small number of state-owned firms and a considerable share of small and medium-sized enterprises engaged in manufacturing and other service sectors as market-seeking investments. Through a parallel growth of trade and investment connections, China-Africa cooperation provides a channel whereby the benefits of Asian economic success can be transmitted to the African continent (Foster et al., 2009).

While China is rapidly strengthening trade links with Africa, economic and trade cooperation between the US and Africa has dwindled. The trade relationship between the United States and Africa is unbalanced. petroleum has long been the primary product that the United States imports from Africa, accounting for 90 percent of overall imports from the continent. However, as new energy sources have been implemented, the United States' oil imports from Africa have continued to diminish, which is the primary reason for the continuous decline in bilateral trade. In addition, the degree of trade openness has become an important factor influencing the competitive advantages of American enterprises' foreign investment and their location choices. The entire trade volume between Africa and the United States in 2017 was only 39 billion dollars, according to figures provided by the United States Agency for International Development, making it Africa's third-largest trading partner after China and the European Union. The economic slowdown, however, is not only limited to the United States. Between 2010 and 2017, trade between Africa and most European countries decreased.

2.2 Hypothesis

The conclusions in the sample for the United States are quite consistent, but there are numerous discrepancies in the research of the Chinese group. Variations in United States FDI can be largely attributed to basic economic and social factors, it concerns more to the soft environment of the investment area, such as legal and financial supporting systems. In addition, the cultural gap between the source and host countries of FDI will have a significant impact on the smooth integration of multinational corporations into the host country, and this can be attributed to the soft environment. Meanwhile, due to the fact that FDI is mainly supported by the state, the effect of legal support is considered less important to Chinese companies, and the large proportion of investment activities made by China are focused on infrastructure, so the effects of development status in the receiving countries for China are on contrary regard to America.

HP1: The institutional environment has a greater positive effect on the United States than China.

HP2: The degree of infrastructure has a positive effect on the United States and a negative effect on China.

Considering the reality of a large number of resource-seeking activities from China, the host country's resource has been added into the analysis as a variable. Due to avoiding fierce market competition with developed countries, the market capacity of the host country is inversely related to China's FDI flow. American industry developed earlier than China, and its domestic consumption of oil and other energy is even greater than China's. However, due to its abundant reserves of natural resources, America pays little attention to the reserves of natural resources in recipient countries when investing abroad.

HP3: The resource endowment has a greater positive effect on China than the United States.

Another significant determinant is distant, this factor is negatively related to the FDI decisions for both China and America (Vertical FDI). According to the observation, that investors prefer countries with shorter distances because a large portion of Chinese FDI has flow to neighboring countries, and a large amount of American investment has flowed to Mexico and Canada. While with the development of China's FDI and the implementation of "One Belt and One Road" policy, the influence of geographic distance has gradually weakened, and it is no longer a bottleneck factor restricting China's FDI.

HP4: The distance/transportation costs have a negative effect on both China and the United States.

3. Data and Methodology

The FDI made by China and the United States from 2003 to 2020 will be reviewed and compared in this section.

3.1 Data

This analysis used data from 53 African countries for the period 2003–2020. The data are collected from various sources, for example, the data on FDI inflows have taken from the UNCTAD's World Investment Report, the data of World Development Indicators (WDI) and World Governance Indicators (WGI) of the sample countries have taken from the World Bank, the data on the human capital index has acquired from the Penn World Table published by University of Groningen, Cepii database provides the data about distances. In addition, the raw data of investment freedom index is obtained from The Heritage. Table 1 shows the 10 variables been used in the estimation exercise. The binary variable *Choice* of investment is the dependent variable, If the variable equals 1, the investment is performed in a certain African country, otherwise, it equals 0.

The independent variables are related to the determinants listed above, which will be represented by various indicator to continuous the empirical examination. (i). The political stability and Absence of Violence index from the World Bank Institute Governance Indicators will be used to describe the institutional environment, (ii). Taxes are approximated using data from the UNCTAD TRAINS database on bilateral weighted tariffs on imports and exports, or signify as the taxes on income, profits and capital gains as percentage of revenue. Unfortunately, tariff and taxes data only cover a limited portion of the sample in terms of years and origin countries, therefore these variables are only used in the main results' robustness tests, (iii). GDP growth rate as annual growth percentage of GDP from the World Development Indicators is then used to symbolize market size, (iv). Cepii's weighted distance (pop-wt, km) are used to denote the distance. (v). Mobile cellular subscriptions (Mobile phone) index which is the total number of phones and mobile phone users (per 100 people) will be used to represent the development of the infrastructure (TEL) and expecting a positive correlation between FDI stocks and developing infrastructure, (vi). the government effectiveness index from the World Bank Institute Governance Indicator will be used to signify the Government ownership, (vii). The sum up of ores and metals exports, fuel exports and agricultural exports of every year is the proxy for the availability of natural resources, (viii). The human capital index from the Penn World Tables denotes labor costs, (ix). The company's Co-location activity, as well as the economies agglomeration, is proxied by the fdi stock, and it is calculated from the beginning of the study period. (x). The trade index (% of GDP) will be used to indicate the trade variable.

Table 1: Variables, Measurement and Data Source

Variable(s) notation in regression Measurement	Symbol	Measurement	Source
		Dependent Variable (DV)	
Choice	$Choice_{niot}$	If an investment n from country o hold in a certain African country i.	-
		Independent Variables (IV)	
Political Stability and Absence of Violence	pol_sta	Score political stability in negative and positive, from year i	WGI
Taxes	tariff taxes	Tariff rate, applied, simple mean, all products (%) from year i	UNCTAD
Market Size	gdp_growth pop	Annual percentage of GDP growth from year I to represent the growth rate of market size	WDI
Distance	distwces	Weighted distance (pop-wt, km) CES distances with theta=-1	Cepii
Infrastructure	mobile phones	Mobile cellular subscriptions (mobile phone) index which is the total number of phones and mobile phone users (per 100 people)	WDI
Government ownership	gov_ effectiveness	Score government effectiveness in negative and positive, from year i	WGI
Natural resources	nat_res_rents	The sum up of ores and metals exports, fuel exports and agricultural exports for total natural resources rents as percentage of GDP	WDI

Labor costs	hc	Human capital index, based on years of schooling and returns to education; see Human capital in PWT10.0	PWT
Co-location	fdi_stock fdi_stock2	The number of investments made in the same host country by the same company in the same year	UNCTAD
Trade	trade_sh	Annual percentage of trade regards to GDP in year i	WDI

3.2 Variables and Methods

This section mainly discussed the differences in investment activity and strategy between China and the United States when it comes to the African continent. To this purpose, the conditional logit model was used to examine the impact of trade between China and Africa and trade between United States and Africa, as well as comparing their preferences across all variables. The following part briefly describes the functional specification of the empirical models that are used to assess the similarity and discrepancies between China and the United States when it comes to investing in Africa. In order to study the factors that increase the probability that investments locate in a particular African country, we implement the following empirical model:

To begin, we assume that the investors will select the destination country with the maximum utility, and utility is calculated as a linear function, varying by destination country or investment-destination country.

$$U_{niot} = \alpha' x_{it} + \beta' y_{oit} + \gamma' z_{nit} + \varepsilon_{niot}$$

(1)

In the model above, the utility is the dependent variable, and it represents an investment n located in one specific African country i made by origin country o at year t. The independent variables are the vector x_{it}, y_{oit} and z_{nit}. Among them, x_{it} stands for destination country elements, which are used to check for general elements that affect the utility of potential investment location, in this paper, the determinants market size, infrastructure, government effectiveness, natural resources and labor costs are included in this category; y_{oit}, which comprises distance, trade and country-of-origin agglomeration, indicates the bilateral origin-destination regressor, such as geography and past bilateral FDI flows; z_{nit} refers investment-destination regressor, and industry agglomeration is included in this group. α, β and γ are the parameter vectors, which suggest how does a given location factor affect the probability of locating in a specific country. Finally, ε_{niot} is the error term, IID extreme value. Therefore, we use V_{niot} to imply the deterministic component of utility $V_{niot} = \alpha' x_{it} + \beta' y_{oit} + \gamma' z_{nit}$. The probability of an investment n from an origin country o locates in a specific African country i at a specific year t is the probability that the utility yield by locating in that country (i) exceeds the utility of locating in all other African countries (j, a set of African countries, superset of i), $P_{niot} = Prob(\varepsilon_{njot} - \varepsilon_{niot} < V_{niot} - V_{njot} \forall j \neq i)$. Then, it leads us to the conditional logit model:

$$P_{niot} = P\ (Choice_{niot} = 1|x,\ y) = {}_e V niot/ \sum_j {}_e V niot$$

$$(2)$$

These models are predicated on the presumption of different variables would affect

the investment decision. The dependent variable $Choice$ is equal to one if a particular

investment in country i was made in fact, and it equals to zero if it locates in other

African countries j.

Then, the dummy of China and the US was constructed to compare which variable has which unique effect on OFDI decision-making, in line with conditional logit, the investment made by China is signified by 1 and the United States' investment is indicated by 0.

In our model, we discovered that the political stability variable is negative and not significant in any case after performing the first trail of tests, therefore we decided to leave it out of the formal equation. Also, taxes and tariff are removed from equation and leaved only for robustness test. Furthermore, we converted fdi stock, fdi stock2, mobile phones, hc, distances, and pop to natural logarithms to reduce significant standard deviation across the different variables. Meanwhile, according to economic theory and variable data characteristics, the function form and curve with a higher degree of fit can be determined by adding the square of variables to the model, in this case, we added ores_exports_stock, fuel_exports_stock, and fdi_stock into square root. Finally, the dummy of South Africa and Egypt are added as two of the biggest FDI inward country in Africa.

4. Empirical Results

4.1 Descriptive analysis

In this part, the basic descriptive analysis is presented, including numbers of observations, mean, number of digits, standard deviation, minimum and maximum as figure below:

Table 2

variable	N	mean	p50	sd	min	max
fdi_stock	47265.000	4970.412	1146.948	8831.476	−279.522	35884.954
fuel_exports	47265.000	16.890	2.335	27.901	0.000	98.397
ores_exports	47265.000	13.188	4.104	18.172	0.003	81.212
tariff	47265.000	11.747	12.160	4.421	1.210	40.910
mobile_pho~s	47265.000	1.691e+07	7.747e+06	2.566e+07	45974.000	1.543e+08
gov_effect~s	47265.000	−0.509	−0.586	0.566	−1.553	1.057
nat_resour~s	47265.000	35.858	27.759	28.325	0.634	99.946
hc	47265.000	1.886	1.790	0.450	1.128	2.912
distwces	47265.000	11344.919	11516.923	2373.849	7231.590	16357.830
trade_sh	47265.000	67.864	61.519	25.448	20.723	175.798
cum_activity	47265.000	24.373	5.000	54.573	0.000	573.000
cum_bilate~l	47265.000	16.487	3.000	43.357	0.000	395.000
coloc_parent	47265.000	0.045	0.000	0.208	0.000	1.000
cum_inv	47265.000	0.055	0.000	0.398	0.000	10.000
pop	47265.000	2.508e+07	1.551e+07	3.055e+07	1.019e+06	1.860e+08
gdp_growth	47265.000	4.442	4.500	3.391	−16.995	19.675
zaf	47265.000	0.040	0.000	0.195	0.000	1.000
egy	47265.000	0.040	0.000	0.195	0.000	1.000
chn	47265.000	0.259	0.000	0.438	0.000	1.000

4.2 Cross tabulation

Below, we report a total of one table and three figures. The first is a table of the summary of capital investment and job creation, organized by the original countries (shown below), which illustrates how many investments China and the United States made separately and in total.
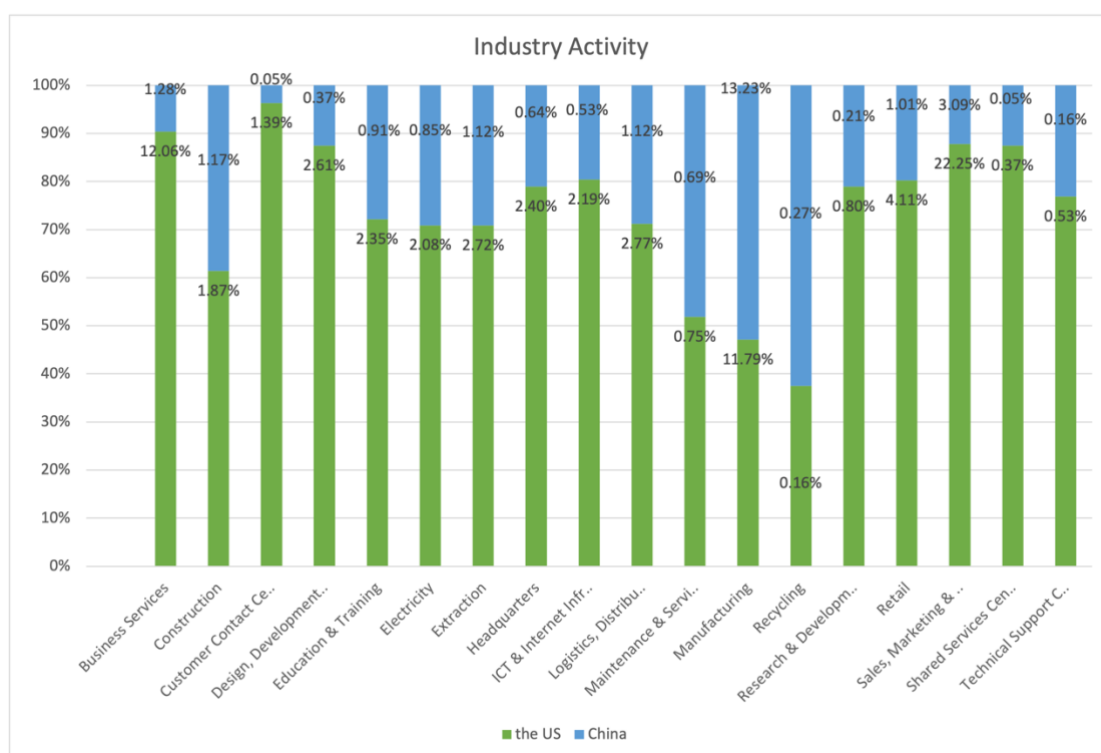
Table 3

iso_origin	N	mean	p50	sd	min	max
CHN	502.000	223.477	30.350	1024.281	0.020	20000.000
	502.000	499.022	156.500	873.144	0.000	7500.000
USA	1372.000	78.301	11.000	291.400	0.107	4000.000
	1372.000	145.012	40.000	313.668	0.000	3500.000
Total	1874.000	117.190	12.500	589.002	0.020	20000.000
	1874.000	239.843	61.000	548.211	0.000	7500.000

The investment distribution for industry activity is the first figure. There are 19 different types of industry activities from which to choose. The blue column represents China, and green column represents the United States.

The US obviously prioritizes activities connected to business services, manufacturing, and sales, marketing & support, which are ranked in the top three investment activities, based on the numbers allocated to various activities and the weighted ratio. China's preference also includes manufacturing, and sales, marketing & support, remarkably, even though China's total numbers of investment in Africa is less than half that of the United States, its investment in manufacturing activities exceeds that of the United States, accounting for nearly half of China's total investment in Africa. In contrast, the United States places a greater emphasis on sales and marketing, which accounted for 30.39 percent of total investment and ranked first on the list. As for business services, it ranked second in terms of investment in the United States, accounting for 16.47 percent. Chinese investment, on the other hand, clearly does not place a high value on this activity, accounting for less than 5%.

The remaining activities are evenly distributed in the interval from one percent to 5 percent. Recycling, shared service centers, and technical support centers are the least important activities, accounting for only 29 investment activities in 1847, less than 2% of the total. In conclusion, sales, marketing & support and manufacturing makes about half of the total investment activities, and they are highly valued in China and the United States' investment activities in Africa.

Table 4

Second figure presents investment made in different industry sector by China and the US. Bule column represents China, whereas green column represents the United States, as in the table above.

The three largest segments of investment, accounting for 33.5 percent, are clearly business services, communications, and software and IT services. Among the above-mentioned sections, except for China's communications investment, which accounts for half of all investment, the other two sectors are virtually monopolized by American investment. China's investment in Africa is dominated by communication, which accounts for 20% of total investment, followed by metals and automotive OEM. Metal and Automotive OEM investments volume each accounted for approximately to 5% of overall investment volume due to China's concentration. Coal, oil, & natural resources, as well as financial services, are also worthy of attention. These two segments accounted for 5.18 and 4.11 percent of the total, respectively, and the US is the greatest investor in these two industries, with three-quarters of the total compared to China.

The remaining fifty-odd sectors make up less than 3.5 percent of the respectively and are more evenly dispersed.

Table 5
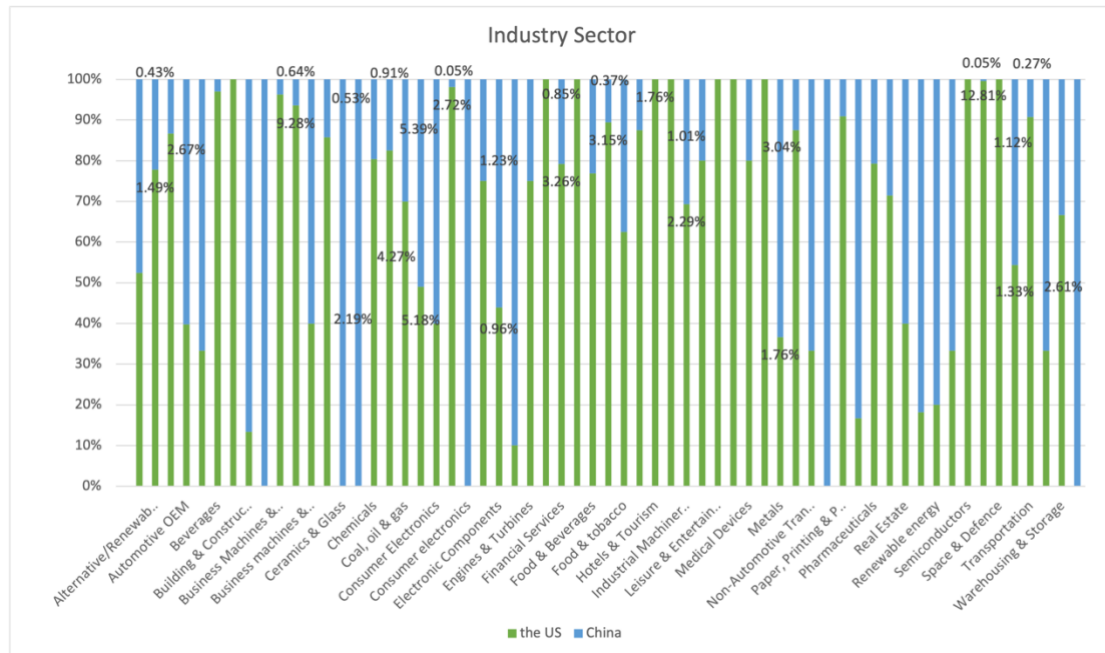
The country distribution is the subject of the final figure. Bule column represents China, and green column represents the United States as well. South Africa and Egypt are 2 of the most favored investment destinations in Africa according to the table, these two countries are also widely regarded as Africa's two most developed countries.

Investment inflows into South Africa represent for 27.43 percent of total, which is one-quarter of the total investment inflows. There were 423 US investment transactions in South Africa, accounting for 30.83 percent of US investment in the continent. China's entire investment transaction in South Africa is 91, accounting for 18.12 percent of China's total investment in Africa. In terms of quantity and weighted average, it is clear that the United States prioritizes investment in South Africa over China.

Kenya, Nigeria, and Morocco are other prominent investment destinations, as shown in the graph below. The share of investment in Kenya and Nigeria between China and the US is roughly equal, however the proportion of investment in Morocco made by the US is double that of China.

Table 6
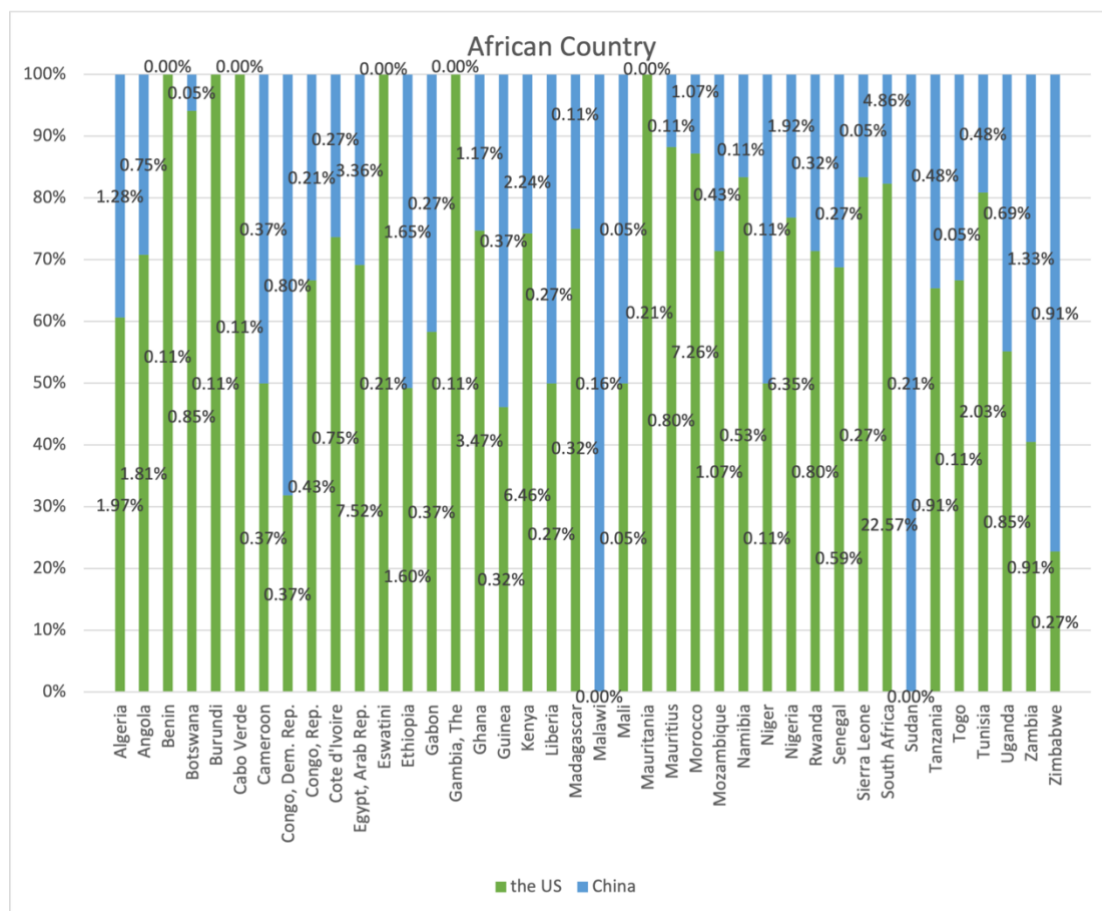
4.3 Correlation Matrix

Before proceeding to empirical estimation, the correlation analysis has also been carried out. The table below presents the correlation matrix of the considered variables. The preliminary results indicate the positive correlation between FDI stock (IFDI) with institutional environment (0.212) and resource endowment (0.212), while distance (-0.044) has a negative but not significant effect on FDI inflow, which is essentially in line with the hypothesis, but the degree of effect will not be revealed until model investigation. Meanwhile, the infrastructure (0.743) shows a significant positive relationship with IFDI.

Table 7

	choice	fdi_st~k	fuel_e~s	ores_e~s	tariff	mobile~s	gov_ef~s	nat_r~es	hc	distwces	trade_sh	cum_ac~y	cum_bi~l	coloc_~t	cum_inv	pop	gdp_gr~h	zaf	egy	chn
choice	1.000																			
fdi_stock	0.290***	1.000																		
fuel_exports	0.025***	0.292***	1.000																	
ores_exports	0.016***	-0.015***	-0.252***	1.000																
tariff	-0.048***	-0.116***	0.242***	-0.066***	1.000															
mobile_pho~s	0.209***	0.743***	0.317***	-0.121***	-0.140***	1.000														
gov_effect~s	0.113***	0.212***	-0.306***	-0.014***	-0.421***	0.005	1.000													
nat_resour~s	0.019***	0.212***	0.769***	0.332***	0.266***	0.189***	-0.364***	1.000												
hc	0.137***	0.350***	-0.047***	-0.010**	-0.313***	0.285***	0.552***	-0.115***	1.000											
distwces	0.016***	-0.044***	-0.201***	0.193***	-0.325***	-0.129***	0.198***	-0.109***	0.222***	1.000										
trade_sh	-0.053***	-0.129***	-0.018***	-0.008*	-0.239***	-0.337***	0.258***	-0.087***	0.314***	0.170***	1.000									
cum_activity	0.212***	0.596***	0.082***	0.006	-0.224***	0.595***	0.207***	0.036***	0.343***	-0.004	-0.093***	1.000								
cum_bilate~l	0.264***	0.677***	0.069***	0.026***	-0.221***	0.625***	0.234***	0.043***	0.369***	0.066***	-0.104***	0.682***	1.000							
coloc_parent	0.127***	0.266***	0.089***	-0.026***	-0.073***	0.284***	0.065***	0.048***	0.142***	-0.029***	-0.065***	0.201***	0.293***	1.000						
cum_inv	0.123***	0.234***	0.052***	-0.010**	-0.069***	0.242***	0.056***	0.030***	0.121***	-0.000	-0.059***	0.160***	0.252***	0.627***	1.000					
pop	0.166***	0.670***	0.419***	-0.143***	0.043***	0.853***	-0.134***	0.282***	0.072***	-0.116***	-0.449***	0.371***	0.390***	0.215***	0.172***	1.000				
gdp_growth	-0.017***	-0.104***	-0.107***	0.160***	0.111***	-0.032***	0.013***	0.008*	-0.065***	0.046***	-0.114***	-0.102***	-0.117***	-0.032***	-0.040***	0.093***	1.000			
zaf	0.285***	0.711***	-0.046***	0.135***	-0.208***	0.368***	0.331***	0.016***	0.308***	0.195***	-0.062***	0.523***	0.661***	0.185***	0.196***	0.183***	-0.120***	1.000		
egy	0.091***	0.371***	0.098***	-0.097***	0.013***	0.425***	-0.022***	0.012**	0.237***	-0.147***	-0.164***	0.203***	0.202***	0.125***	0.100***	0.407***	-0.013***	-0.041***	1.000	
chn	-0.005	0.006	-0.012**	-0.008*	-0.072***	0.064***	0.010**	-0.022***	0.048***	-0.151***	-0.019***	0.063***	-0.137***	-0.004	0.019***	0.021***	-0.027***	0.004	0.004	1.000

4.4 Main Results

4.4.1. Model One – Standard Result

The table below shows the empirical finding (table 8). The first model just includes the standard location factors of China and America's investments, as well as a dummy for Egypt and South Africa.

It is apparent that the government effectiveness $(p<0.01)$ has a considerable and beneficial impact on FDI inflow. The endowment of resources, as assessed by ores exports stock $(p<0.01)$, which significantly and positively increase FDI stock. Instead, fuel export has a negative and neglectable impact on IFDI. The effect of infrastructure is positive but also insignificant. Meanwhile, it's worth emphasizing that Log human capital $(p<0.01)$ is very important and has a significant positive impact on IFDI; similarly, the Log population $(p<0.01)$ has a positive and significant impact on IFDI. In line with the prediction, distance $(p<0.1)$ has a not significant and negative influence on FDI inflows, gdp growth $(p<0.1)$ has a not significant and positive impact to inward FDI, and finally, the share of trade $(p<0.05)$ has a significant and positive effect. The effect of the dummy for South Africa is weak and not significant, and the dummy for Egypt $(p<0.05)$ is a bit stronger and more significant, while we cannot conclude that Egypt has a stronger influence on IFDI than South Africa based on this result, it is possible that China and the US have a strong preference for either South Africa or Egypt, or that they are indifferent to both of Africa's most developing countries and turn to others.

4.4.2. Model Two – cum_activity and cum_bilateral

The second model took into account the cumulated number of industry activities as well as bilateral relations. The outcome differed slightly from the first, although it largely followed the same pattern. Even if the effect of Log human capital $(p<0.01)$ and Log population $(p<0.01)$ is smaller than in model 1, it should be highlighted that they are still quite large and crucial. The significance of distance and trade share $(p<0.1)$ has clearly decreased, whilst the impact of the gdp_growth $(p<0.05)$ rate has risen and become more significant. Although the effect of those two factors is not as remarkable, the outcome of cumulated industrial activity is not as significant as cumulated bilateral relations $(p<0.01)$. This could suggest that investors valued the co-locational investments more than the specific activity in one industry. Furthermore, it may help to demonstrate past experience, reliable information sources, and powerful social networks, prompting the home country to continuous to invest in the same host country.

4.4.3. Model Three – coloc_parent

Model 3 included the cumulated industry activity, cumulated bilateral relations and parent companies which made colocation decisions as a variable, as well as the cumulated number of colocation decisions made by those companies. Except for the dummy for South Africa *(p<0.01)*, where the negative influence becomes more significant, those variables stay fairly steady, the importance of human capital *(p<0.01)*, population *(p<0.01)*, and government effectiveness *(p<0.01)* is comfirmed.

4.4.4. Model Four- Main Result

The fourth model is used to discuss the major issue, it also contains the total quantity of investments made by China and America based on model 2 variables, as well as the interaction effect with a China dummy. In the left column, we report the main effect, hence the effect of location factors when the China dummy is equal to zero, which correspond to the case that the investor is the US. In the right column, we report the interaction effects, which measure the differential effect of being Chinese on location factors. In comparison to the previous model, that considered location factors for both origin countries, the results of the United States have altered somewhat, whereas the outcome of China has shown a noticeable difference.

i.   The case of U.S.A
In the case of the US, the variable Log fdi_stock *(p<0.1)* becomes slightly more significant than in the preceding one, although it remains negligible. When China is excluded from the analysis, government effectiveness *(p<0.01)* becomes even more important and resulting a greater influence, in other words, it demonstrates that when investing abroad, American investors will pay more attention to the host country's legal system, social stability, and government law enforcement efficiency. The situation with ores exports *(p<0.05)* remained mostly unchanged from the previous, while the effect curve of fuel exports altered from a U-shaped curve to an inverted U curve (or Environm ental Kuznets Curve), it remained insignificant. Given that the Log mobile phone indication *(p<0.01)*, which measures infrastructure, has undergone a substantial change, the degree of infrastructure has had a considerable impact on IFDI decision and be shown to be highly significant, it could be related to the type of U.S. foreign investment in Africa, which is primarily in the service sector, and the quality of physical infrastructure, like the numbers of mobile phone, which can be seen as ease of communications, do have a positively relationship with FDI inflows. As aforementioned, the effects of Log human capital *(p<0.01)* and Log population *(p<0.01)* are indelible and have a key role in investment decisions, and this finding is consistent with a number of known literatures that claim that because the labor force has a greater degree of education, technology transfer will be faster, resulting in lower transaction costs. Then, the United States' Log Distances variable *(p<0.05)* for Africa is

positive and substantial, this contradicts the expectation that distance is an objective element in FDI inflow restriction, and it may because America's investments to Africa are mostly horizontal FDI. The trade share *(p<0.01)* grows in significance, although it still does not play a substantial role, similarly, gdp_growth now has less clout, and its significance has dwindled dramatically.

Moreover, the influence of South Africa dummy *(p<0.01)* negatively increased a lot, compared with the tiny decrease of Egypt *(p<0.01)*, and both of them have considerably significance. The negative results of two dummies suggest that the presence of those 2 dummies in affecting FDI, compared with the absence of dummy variables, may be greater than anticipated, particularly in the case of South Africa, which is considerably more effective and more extreme than the result of Egypt. In the end, the numerical values of cumulated industry activity *(p<0.1)* and cumulated bilateral relations remain small and insignificant, the consequence is the same as with the other three models.

ii.   *The case of China*
The right column in model 4 measures the differential effect of location determinants for China compared with the US. The Log fdi_stock *(p<0.01)* turns to has a tremendous effect and is substantially more significant than in the US, where the curve was altered to an inverted U curve from a U-shaped curve as well.

Another major difference is that government effectiveness *(p<0.01)* is relatively less important for Chinese investors. Accordingly, the coefficient of the interaction effect is negative and significant. Natural resources, fuel exports stock and ores exports stock *(p<0.1)* are more appealing to them than they are to American investors, but the difference is weakly significant. As expected, the interaction effects of the dummy China with the Log mobile phones *(p<0.01)* is as negative, significant and quite large in magnitude, suggesting that the effect of infrastructure is overall negative for China. This result is not surprising in light of Chinese investors' efforts to build infrastructure in Africa. In addition, at least 35 African countries are negotiating infrastructure finance deals with China, with Nigeria, Angola, Ethiopia, and Sudan being the top recipients (Foster *et al.*, 2009). This explains why complete infrastructures will limit Chinese investment. The relationship between foreign investments and the availability of human capital *(p<0.01)* and Log population *(p<0.01)* is even stronger for China than for the US. The interaction effect of Log distance *(p<0.01)* with the dummy for China is significant and negative, indicating an overall negative effect of distance on Chinese investors' location choice. A possible explanation is that the FDI is vertical and investors prefer countries with shorter distance, long distance investments will be discouraged by the high transactional costs. This conclusion seems fair, given the concentration of Chinese investments in the manufacturing industry, and the Chinese government's enthusiasm for the Belt and Road Initiative strategy could reflect that the Chinese government aims to cut transactional costs by reducing transportation time, as well as limit the negative effects of distance. The link between trade share

(p<0.05) and FDI inflows is negative and significant, but the impact is relatively minor. Despite the fact that both bilateral commerce and FDI in Africa rose enormously, accompanied by a massive influx of Chinese firms and employees, the share of trade is negative and entirely offsets the positive effect it has for the US. From the perspective of gdp_growth *(p<0.05)*, its effect is more positive and significant for Chinese investments than for US ones.   Another significant determinant is cumulated bilateral investments *(p<0.01)*, this factor is negatively associated to the FDI decision, which shows that Chinese investors rely less on the economies arising from country-of-origin agglomeration than US investors. Cumulated industry activity *(p<0.1)* and cumulated investments doesn't play an important role as well, the former one has a little more effect than in United States, but the impact of latter decreased compared with United States.

4.4.5. Model Five - Tariff

This model includes all of the variables mentioned above, as well as standard variables, two African country dummies, a Chinese dummy, cumulated industry activity, bilateral relations, cumulated investments, and, most importantly, the tariff, in order to make a comprehensive comparison with the main result in the fourth model.

The Log fdi_stock *(p<0.05)*, government effectiveness *(p<0.05)*, ores exports stock, gdp_growth *(p<0.01)* results about China didn't change much, the significance decreased slightly, and the curve shape remained the same. The increase in significance only applied to the fuel exports stock *(p<0.1)*, and the effect increased as well, but these influences are still minor overall. The smaller effects of infrastructure, measured by Log mobile phones *(p<0.01)*, Log distances *(p<0.01)*, and trade share *(p<0.05)* for Chinese investors are confirmed, and the effect of distance grows even stronger. What worth to mention is the significance for both Log human capital *(p<0.1)* and Log population *(p<0.05)* decreased to a certain extent. More critically, the impact of Log human capital has shrunk, yet it remains positive and significant.

As shown by the results above, the determinants that are statistically significant and more positive compared with the human capital and population. To increase the quality of human capital in Africa, the Chinese government has been closely integrating China-Africa economic and trade development to cultivate talents and boost the industrial development of African countries. The first is to promote bilateral and multilateral cooperation with international organizations, regional organizations, and non-governmental organizations to develop African human resources in accordance with local conditions; the second is to increase investment in China-Africa vocational education cooperation projects, and to increase technical skills through the establishment of multinational cooperative education funds and intensity of talent training; the third is to encourage Chinese vocational colleges to run independently in

Africa or cooperate with African vocational training centers to provide talent support for the development of the country and region.

The results of government effectiveness are largely consistent with hypothesis 1, with the expectation of a significantly smaller association between institutional environment and Chinese investments that what observed for the US.
At the same time, China's OFDI prioritizes nations and regions where the institutional environment differs significantly from that of China or where the institutional environment is poor. Furthermore, according to (Miao *et al.*, 2020), the effect of Chinese OFDI to African countries' institutional quality is highly positive since institutional complementarities may lead to an incremental effect, this may explain why, when making investment decisions, Chinese businessmen pay little heed to the legal systems of African countries.

The second hypothesis concerns infrastructure, and the outcome closely resembles the hypothesis. In Africa, China is a major proponent of digital transformation, which is a very important part in infrastructure. Huawei has developed 70% of Africa's 4G networks, allowing some of the continent's most rural and underserved communities to connect to the website. China's high-tech imports to Africa totaled 16.7 billion US dollars in 2015, with information and communication technology products accounting for 11.176 billion US dollars. The Chinese government's nearly 10,000 projects have provided digital television to underprivileged places in Africa. In order for locals in remote places to be able to access TV networks. Some Chinese investors have also turned their attention to Africa's Internet economy, particularly in the hardware and software development fields. Following trade and investment, digital collaboration has become an expanding field in China-Africa ties.

The findings of resources endowment indicate that China is still more concerned about resources than the US, especially the ore resources. Africa, as we all know, is rich in mineral resources and offers excellent long-term investment opportunities. Its overall resource value accounts for 23% of global total value, but its output value accounts for just 9% of global total value. As a result, Africa has the greatest mineral resource potential in the world. At the same time, Africa is the most popular destination for Chinese mining FDI. Beijing's priority on loans and investment in Africa has shifted, according to Chinese Foreign Minister Wang Yi's earlier visit to the Congo (DRC). Angola has received the majority of China's African loans over the last two decades. Despite the fact that China is the world's largest oil consumer, the Middle East's crude oil production has reduced China's reliance on African sources. China, on the other hand, still requires copper, cobalt, and other rare minerals from Africa. According to Forum of China-Africa cooperation, in 2021, the 8th anniversary of the "Belt and Road" initiative, a large number of Chinese mining companies such as Huagang Mining and Kaipeng Mining, have rapidly risen in the mining landscape of the Congo (DRC). Moreover, a substantial chunk of the Congo (DRC) mining industry is already in China's

hands, according to the REDD report, thanks to USD 5.6 billion deals from 2000 to 2019.

The last hypothesis is half supported and half not; the distance indicates a strong negative association with Chinese OFDI, but a moderately favorable link with American OFDI. Although geographical distance is an objective element in limiting FDI entry, the FDI flow from the United States to Europe is primarily driven by market occupation, the same theory might also be applied when it comes to Africa. China's foreign direct investment increased dramatically when the "going out" plan was implemented, although it was primarily centered in Southeast Asian countries that are geographically close to China. From a cost standpoint, high transportation and management costs continue to be a significant barrier to China's foreign direct investment into Africa; from a geographical standpoint, African countries and China are not in the same climate, food, culture, or language, and market understanding is far less than that of neighboring countries and regions, due to the relatively remote geographical location, and It could be the major reason why Chinese investment is so constrained by distance. In fact, as China's FDI has grown, the flow of FDI has taken on new characteristics in recent years. On the basis of maintaining the continued growth of investment in Asia, China's investment in Oceania, Latin America and Africa has continued to develop rapidly, gradually breaking the constraints of geographical location and cultural differences.

Table 8 - 1

	(1)	(2)	(3)	(4)		(5)	
	c1	c2	c3	c4		c5	
choice				United States	Interaction	United States	Interaction
lfdi_stock	-0.0381	0.0159	0.0346	-0.501*	1.539***	-0.235	1.408**
	(0.222)	(0.224)	(0.225)	(0.261)	(0.499)	(0.302)	(0.582)
lfdi_stock2	0.00961	0.00397	0.00259	0.0380**	-0.0976***	0.0198	-0.0858**
	(0.0141)	(0.0143)	(0.0144)	(0.0168)	(0.0323)	(0.0198)	(0.0387)
gov_effectiveness	0.999***	0.983***	0.975***	1.238***	-0.676***	1.320***	-0.603**
	(0.115)	(0.115)	(0.116)	(0.143)	(0.249)	(0.160)	(0.304)
ores_exports_stock	0.0251***	0.0208**	0.0209**	0.0288**	0.0482*	0.0357***	0.0425
	(0.00931)	(0.00936)	(0.00936)	(0.0116)	(0.0274)	(0.0133)	(0.0305)
ores_exports_stock2	-0.000302**	-0.000229*	-0.000227*	-0.000408**	-0.000421	-0.000500***	-0.000269
	(0.000127)	(0.000128)	(0.000128)	(0.000164)	(0.000355)	(0.000188)	(0.000402)
fuel_exports_stock	-0.00103	-0.00163	-0.00174	0.000642	0.0145	0.0190*	0.0363*
	(0.00751)	(0.00752)	(0.00755)	(0.00981)	(0.0157)	(0.0109)	(0.0187)
fuel_exports_stock2	-0.0000153	-0.00000738	-0.00000732	-0.0000289	-0.0000542	-0.000203*	-0.000281
	(0.0000751)	(0.0000751)	(0.0000753)	(0.0000971)	(0.000157)	(0.000109)	(0.000187)
lmobile_phones	0.00137	0.123	0.130	0.330***	-1.038***	0.266**	-1.037***
	(0.0752)	(0.0800)	(0.0801)	(0.101)	(0.216)	(0.109)	(0.236)
lhc	3.272***	2.969***	2.870***	2.451***	2.532***	2.939***	1.585*
	(0.341)	(0.351)	(0.351)	(0.430)	(0.801)	(0.505)	(0.945)
ldistances	-0.291*	-0.261	-0.205	0.623**	-2.576***	0.472*	-2.886***
	(0.177)	(0.176)	(0.176)	(0.251)	(0.872)	(0.284)	(0.993)
trade_sh	0.00529**	0.00440*	0.00429*	0.0115***	-0.0132**	0.0114***	-0.0158**
	(0.00254)	(0.00256)	(0.00257)	(0.00303)	(0.00566)	(0.00344)	(0.00661)
lpop	1.112***	0.975***	0.947***	0.950***	0.678***	1.034***	0.626**
	(0.0895)	(0.0943)	(0.0944)	(0.117)	(0.251)	(0.131)	(0.293)

Table 8 - 2

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
gdp_growth	0.0194*	0.0256**	0.0258**	0.00469	0.0593**	0.0137	0.0534*
	(0.0110)	(0.0111)	(0.0112)	(0.0135)	(0.0251)	(0.0160)	(0.0316)
0.zaf	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)
1.zaf	-0.329	-0.544**	-0.565***	-1.358***	2.199***	-1.413***	2.192***
	(0.210)	(0.214)	(0.214)	(0.312)	(0.544)	(0.353)	(0.616)
0.egy	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)
1.egy	-0.457**	-0.431**	-0.436**	-0.676***	-0.0572	-1.022***	-0.537
	(0.204)	(0.204)	(0.205)	(0.261)	(0.573)	(0.297)	(0.654)
cum_activity		0.000297	0.000371	0.000893*	0.00209*	0.000671	0.00251**
		(0.000429)	(0.000431)	(0.000524)	(0.00114)	(0.000557)	(0.00123)
cum_bilateral		0.00226***	0.00173***	0.000978	-0.0253***	0.000875	-0.0298***
		(0.000545)	(0.000551)	(0.000761)	(0.00575)	(0.000834)	(0.00622)
coloc_parent			0.709***				
			(0.0914)				
cum_inv				0.198***	0.107	0.172***	0.0693
				(0.0475)	(0.0878)	(0.0514)	(0.0925)
0.chn				0		0	
				(.)		(.)	
ltariff						-0.136	
						(0.130)	
1.chn#c.ltariff							-0.0700
							(0.298)
N	52571	52571	52571	52571	52571	38036	38036

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

4.5 Robustness Check

The purpose of this section is to assess the robustness our results concerning the differential drivers of China's investment activities. We split China's FDI in Africa into two groups, state-owned enterprise investment and private company investment, The model specifications remain the same used in the empirical study, and observation relating to private firm investments are eliminated from all of it, leaving only state-owned enterprise investments. The results of the robustness tests are listed in the table below.

The findings of first three models largely mirrored the empirical study's trend, with some minor differences in significances and impacts. The only two points worth to mentioned is that the outcome related to Log distance and Log fdi_stock, and they only changed in second and third test. On the other hand, because the proportions in the United States are the same, the change effect might be seen as a distinction between Chinese state-owned enterprises and private businesses.

Turning to the results in Model 4, the results in the left column are identical because they are both about American investments, but there are obvious differences in the right column. The Log fdi_stock went from positive to negative in the robustness test. With high statistical significance, the result of Log human capital took up an ever larger size, makes human resources the most crucial impression factor in attracting FDI from Chinees state-owned enterprises. From China's investment attributes in Africa, as well as the features of all industries, indicate that China intends to develop the manufacturing industry in Africa. The reason why China focused on manufacturing is that the expansion of manufacturing industry is a crucial driver of long-term development, China learns it from its own experience. Also, according to the UN Industrial Development Organization's most recent study, manufacturing growth plays an essential role in increasing economic and social well-being. Meanwhile, manufacturing industry is closely related to human resources. African labors will continue to increase in number, and they may play a pivotal role in global consumption and production. However, the educational attainment of African nationals is very limited. As a result, local skilled workers are in short supply, and most workers must receive on-the-job training and on-site training before being hired. Management skills are even in more limited supply, requiring a combination of deploying people from other countries to Africa and training them there. China has developed a diverse talent training strategy, such as joint school operating, targeted training, and student exchanges in the local area, to address the problem of the labor force's low level of education. This strategy not only allows employees to fully utilize the foreign language training environment and interact with local practice, but it also allows them to quickly integrate with international practice with the help of excellent foreign educational resources.

The variable Log distances has a more noticeable negative effect on FDI, indicating that Chinese state-owned enterprises invest in the more proximate countries. On the other hand, combined with the fact that Chinese investment to Africa is largely manufacturing activity, this indicates that OFDI from China to Africa may be vertical. The trade structure of both sides reveals that China's exports to Africa are primarily manufactured goods, whereas the preponderance of commodities imported from Africa are primary goods, the expansion of this business structure will not last long, because it leading to high transportation costs. In addition to this, with a few slight changes in significance and impact, other findings essentially reflected the empirical analysis pattern.

The main difference that emerges between Table 9 and 8 is in terms of the role of colocation. Indeed, no significant differences emerged with respect to this variable when comparing US firms to the full set of Chinese investors. Instead, when the sample is restricted to Chinese SOE, the role of colocation appears significantly more important. To shed light on the underlying mechanism, we now present the investment strategy of two SOE and two privately owned Chinese firms.
The investment decisions made by the corporations with the highest values would be analyzed from both an SOE and non-SOE perspective, and the analysis mainly focused on co-location investments, which indicates that one companies deployed more than one investment activity in one specific African country.

As a state-owned enterprise, ZTE made four co-location investments in Angola in 2005, obtained a contract worth 38 million dollars with Mundo Startel. In the following two years, ZTE created a fixed telephone network that will cover the entire territory of Angola, according to the contract. In a public bidding process in 2004, ZTE beat out four other businesses, including Siemens, Ericsson, and Alcatel, to win the contract. Another company made great amount of co-location investments is China Nonferrous Metals Mining (CNMC), it was the first Chinese company to adopt a "going out" strategy and achieve the best outcomes in overseas operations. CNMC consolidated a large-scale copper and cobalt resource strategic base in Central and Southern Africa, and form a large-scale mining industry cluster covering the entire upstream and downstream industrial chain, using the China-Africa Economic and Trade Cooperation Zone as a platform. CNMC is dedicated to the mining of copper (cobalt) and other metals, and Zambia and Congo, which located on the central and south central of Africa, own 83 percent of Africa's total copper deposits. Therefore, in 2009, CNMC and the Zambian government signed an equity transfer agreement in Luanxia Copper Mine for 400 million US dollars and purchased 80 percent stocks of Luanxia Copper Mine for 50 million US dollars, completing the acquisition of Luanxia Copper Mine. In the same year, development and acquisition were resumed. In parallel, the Panda Tailings 10,000-ton cathode copper hydrometallurgy project was begun in 2016 by a new team of CNMN and China National Congo Corporation. The project is worth 2 billion dollars and consists of five separate initiatives. The end product is spectacular. Exceed the scope of the project's concept.

In comparison to the previous two groups' investments, this company's investment appears to be more strategic. Since the launch of the "China-Africa Regional Aviation Cooperation Plan" in 2014, China-Africa regional aviation cooperation has yielded positive outcomes. The Chinese enterprises' joint venture airlines and aircraft export initiatives with African governments have gone smoothly. In the same year, the Aviation Industry Corporation of China, a centrally managed state-owned super large corporation, opened a domestic-made civil aircraft technical support center in Tanzania and trained more than 300 aviation officials and technical people in Africa. After that, AVIC gradually established customer service support including airline technical support, spare parts support, flight simulation training, and aircraft maintenance. Additionally, in 2015, the AVIC completed an extension project at Kenyatta International Airport, significantly improving Kenya's aviation prospects and increasing passenger volume. The first direct flight between Kenya and China was launched the same year. Unfortunatelly, neither from their annual report nor other websites can find their investment specific information, however, it is undeniably a strategic move.

Private investment is mostly focused on manufacturing and service industries. Huawei and the MTN Group inked a five-year management service contract in 2014 for the Cameroon subnet. Network operation center, on-site maintenance, network optimization, and parts management are all included in the service scope. Then, in 2016, Huawei announced the launch of the "Seeds for the Future" project in South Africa and announced that it will provide training for 10,000 African ICT talents in the next five years. Nearly 5 million US dollars was spent on the project. The technology center will show Africa cutting-edge communication technology by utilizing cloud computing technology to push the world's most cutting-edge information and communication technologies and practices to Africa in real-time, including 5G, virtual reality, the Internet of Things, and smart homes. Moreover, the facility will serve as a technology incubation platform for local SMEs as well as open laboratories for numerous South African colleges.

In 2017, Huawei was training local Internet talents to help develop the local network economy and develop marketing support in Algeria. In the research and technology park, Huawei has established an analog data room as well as a modern network application experience center. While in Egypt, Huawei launches North Africa Open Lab for talent development and testing new released services.

Except for the high-tech services Huawei provided, Powerway Renewable Energy officially packed and shipped the first production line to South Africa in 2012, establishing the groundwork for Powerway South Africa's planned localized production. Moreover, BYD and the Moroccan government reached a deal in 2017 to build a facility to manufacture batteries, big electric cars, and monorail electric trains. According to reports, BYD's factory in Morocco will span 50 hectares and employ 2,500

people. The plant, which spans 2,000 hectares and includes aviation, autos, e-commerce, the environment, and rail transportation, is the largest in the world.

From the cases above, we can see that the investment preference between SOE and non-SOE are quite different, private enterprise's role in Africa is to not only bring back certain mature items from the past, but also to actually do the work of 'teaching people to fish' by sticking to the notion of shared development with all. State-owned firms in Africa are more likely to gather resources from local areas and to conduct infrastructure projects to help private enterprises complete their projects more efficiently, and their behavior is also largely influenced by national policies.

Table 9 - 1

	(1)	(2)	(3)	(4)	
	a1	a2	a3	a4	
choice				United States	Interaction
lfdi_stock	-0.222	-0.170	-0.151	-0.501*	1.493**
	(0.238)	(0.241)	(0.242)	(0.261)	(0.649)
lfdi_stock2	0.0221	0.0166	0.0153	0.0380**	-0.0890**
	(0.0152)	(0.0154)	(0.0154)	(0.0168)	(0.0417)
gov_effectiveness	1.056***	1.048***	1.042***	1.238***	-0.906***
	(0.125)	(0.126)	(0.126)	(0.143)	(0.312)
ores_exports_stock	0.0245**	0.0205**	0.0205**	0.0288**	0.0656*
	(0.0102)	(0.0102)	(0.0102)	(0.0116)	(0.0393)
ores_exports_stock2	-0.000301**	-0.000227	-0.000226	-0.000408**	-0.000608
	(0.000139)	(0.000140)	(0.000141)	(0.000164)	(0.000499)
fuel_exports_stock	-0.00116	-0.00138	-0.00120	0.000642	0.0181
	(0.00838)	(0.00838)	(0.00841)	(0.00981)	(0.0201)
fuel_exports_stock2	-0.0000128	-0.00000810	-0.0000114	-0.0000289	-0.0000592
	(0.0000832)	(0.0000832)	(0.0000835)	(0.0000971)	(0.000199)
lmobile_phones	0.0113	0.137	0.140	0.330***	-1.343***
	(0.0796)	(0.0860)	(0.0861)	(0.101)	(0.280)
lhc	3.210***	2.875***	2.790***	2.451***	3.268***
	(0.372)	(0.386)	(0.386)	(0.430)	(1.099)
ldistances	-0.0499	0.0184	0.0596	0.623**	-4.088***
	(0.200)	(0.200)	(0.200)	(0.251)	(1.310)
trade_sh	0.00804***	0.00722***	0.00710**	0.0115***	-0.0117
	(0.00273)	(0.00276)	(0.00276)	(0.00303)	(0.00729)

Table 9 - 2

lpop	1.142***	1.004***	0.982***	0.950***	0.830**
	(0.0960)	(0.102)	(0.102)	(0.117)	(0.330)
gdp_growth	0.00508	0.0109	0.0113	0.00469	0.0252
	(0.0117)	(0.0119)	(0.0119)	(0.0135)	(0.0293)
0.zaf	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)
1.zaf	-0.528**	-0.759***	-0.770***	-1.358***	2.264***
	(0.238)	(0.244)	(0.245)	(0.312)	(0.715)
0.egy	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)
1.egy	-0.578**	-0.555**	-0.562**	-0.676***	-0.941
	(0.225)	(0.225)	(0.225)	(0.261)	(0.798)
cum_activity		0.000396	0.000471	0.000893*	0.00230
		(0.000467)	(0.000469)	(0.000524)	(0.00164)
cum_bilateral		0.00191***	0.00136**	0.000978	-0.0231***
		(0.000609)	(0.000615)	(0.000761)	(0.00838)
coloc_parent			0.693***		
			(0.0964)		
cum_inv				0.198***	0.393*
				(0.0475)	(0.217)
0.soe				0	
				(.)	
N	45516	45516	45516	45516	45516

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

5.Conclusions

The present work is aimed at empirically assessing the impact of economic and political determinants had in FDI outflows in Chinese companies, especially the state-owned ones, with the comparison of determinants affected American investments. This page compiles data on Chinese and American investments in Africa between 2003 and 2021. By using conditional logic models and classifies the main determinants on FDI location choice into two categories, we find considerable discrepancies in strategic decisions between China and the United States when making foreign direct investment.

The most important elements influencing Chinese companies' decisions to make foreign direct investment in Africa are the stock of FDI, human capital, distance, and infrastructure, and they are all economic determinants. When the investment data of United States is excluded from the model, the interaction effects of fdi stock increase considerably, while infrastructure and distances decline sharply, and become more significant than in earlier models. These findings may indicate that the level of FDI stock in Africa and the availability of human resources, have a greater impact on Chinese investments than in the United States, and that longer distances, as well as improved infrastructure have a stronger negative impact on China. Based on the impact of the fdi stock level, the fact that Chinese investment was primarily concentrated on manufacturing and resource extraction illustrates the important impact of industry agglomeration, while in terms of investment distribution, Chinese investors rely less on country-of-origin agglomeration. Furthermore, although not comparable to the previous factors, population size and government effectiveness has a considerable and significant impact on overall outcomes, and both of them have a supportive impact on United States' FDI, while have a beneficial and unfavorable impact for China's FDI respectively, this could indicate that Chinese investors pay insufficient attention to country risks. This misunderstanding could result in future losses on their investment. After adding tariff factors, the data basically remained stable, with only slightly changes in numerical values, but the function of human resources was reduced, and the role of the dummy variable Egypt in restraining US investment was further increased.

The dummy variables for South Africa and Egypt are also introduced to the model simultaneously. The findings show that South Africa has a strong promotion effect in attracting Chinese foreign direct investment, and this effect is even stronger for state-owned firms. Moreover, China and South Africa's political, diplomatic, economic, and trade connections have progressed. At the same time, South Africa is a vital player in the "Belt and Road" capacity-building initiative. For the ninth year in a row, China has become South Africa's greatest trading partner and primary supplier of investment and tourism. In addition, South Africa is the most popular site for Chinese investment in Africa.

Finally, the political influence of the Chinese government is examined further in the robustness test through the difference of US and Chinese state-owned firms. The impact of human capital and distance on state-owned firms has been deeper explored, demonstrating that human capital is a key component in attracting state-owned capital inflows, and the distance between the host country and the home country will greatly decrease state-owned firms' willingness to make foreign direct investment. The fdi stock and infrastructure trends follow the main empirical test, with minor variations. The beneficial effect of population grew slightly, while the negative impact of infrastructure grew as well.

The above research suggests that determinants of China's FDI outflows are slightly different from the US, China's focus on FDI is in the secondary industry, which exactly fits the country's growth circumstances, whereas the US is more concentrated on high and new technology industries, and this distinction divided them from investment preferences.

The massive investment by Chinese companies in African infrastructure and workforce development projects is also an example of technology "localization" in Africa, which supports Africa's industrialization, transformation, and upgrading, and has become a common spontaneous option for many Chinese companies investing in Africa, regardless of whether they are state-owned or privately held businesses.

If China-Africa cooperation used to be primarily based on state aid and government cooperation, it is now transitioning to more market-based approaches, with Chinese enterprises gaining market share by investing and operating domestically in Africa. According to statistics, private enterprises account for more than 70% of the number and value of China's investment in Africa. They have increasingly developed industry clusters and have become the driving force behind investment and cooperation with Africa. Private ventures and state-owned firm projects are vastly different in terms of investment fields. Manufacturing (36%) and service industries (36%) account for the majority of private investment projects (22%). Construction (35%) and resource extraction (35%) are the two industries with the most state-owned investment projects (accounting for 25%).

Despite the fact that the epidemic is still spreading internationally, different nations' levels of economic recovery and development are differed, and climate, environment, energy, and security challenges persist, cooperation remains the global trend. Faced with the future, Chinese businesses, particularly private businesses, will aggressively engage in high-quality China-Africa economic and trade investment cooperation, as well as promote China-Africa manufacturing, industrial parks, and other forms of industrial collaboration. China-Africa collaboration is expected to begin a new phase of development.

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