

Determinants of Chinese FDI in Africa:

An econometric analysis

by

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Abstract

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Supervisors: Rune Jansen Hagen (University of Bergen) and Ivar Kolstad (CMI)

The aim of this thesis is to examine the determinants of Chinese FDI in Africa over the period from 2003 to 2011. The investigation is based on a sample of panel data from 49 African countries, using aggregate Chinese outward FDI as the dependent variable.

China's outward FDI to Africa has in recent years increased exponentially. In 2005 Chinese FDI in Africa reached 1.6 billion US dollars, and by the end of 2011 this had increased to 16 billion US dollars. This has caused a great debate of the motives behind the increased Chinese presence on the continent, and the host country determinants of Chinese FDI.

According to the main results found in the econometric analysis Chinese FDI in Africa is attracted to countries with large markets and natural resources. The main finding of the thesis is that there is found no evidence that Chinese outward FDI is more attracted to natural resources in countries with poor institutions and high political risk. The results rather indicate that good institutions in interaction with natural resources are a determinant of Chinese FDI in Africa.

I have also looked at the question of whether the Chinese invest differently in Africa than other investors. Here, the main results are that investors in general are attracted to countries with larger markets, and more natural resource export. The result suggests that Chinese investors in Africa are not so different than other investors in Africa, when it comes to market-seeking and natural resources-seeking. However, the main difference is that institutions are not a significant determinant when the dependent variable is total inflow of FDI, whereas for Chinese FDI it is significant.

In addition, I have also looked at the question of whether Chinese investments in Africa are different than Chinese investments elsewhere. The result from this analysis suggests that

GDP, or market size, and trade openness, in addition to natural resources has significant association with Chinese FDI globally, and thus, the Chinese FDI globally is market-seeking in addition to natural resource-seeking.

All calculations and estimations are conducted using STATA version 12.0.

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1 Introduction

China and Africa have a long history of economic and political ties, which have increased exponentially in recent years. Both bilateral trade between China and many African countries, and Chinese FDI in Africa have grown rapidly during the last decade, accompanied by a major inflow of Chinese enterprises and workers on the African continent (Foster et al., 2009). Trade between Africa and China increased from US \$10.6 billion in 2000 to US \$166 billion in 2011. China currently ranks as Africa's largest trading partner. Over 2000 Chinese enterprises do business in more than 50 African countries, covering a wide range of areas, such as oil production, mining, construction, and agricultural production. Africa's exports to China consist mainly of oil, minerals, and other natural resources such as timber and copper. These are commodities needed to fuel the extreme growth in China's manufacturing sector. China's exports to Africa consist mainly of manufactured goods, such as textiles and clothing, electronic devices and machines (Foster et al., 2009).

Chinese foreign direct investment (FDI) to the continent has also increased enormously in recent years. In 2003, China's total outward FDI to Africa stood at US\$ 74.8 million. In 2005 it reached \$1.6 billion (UNCTAD, 2007). By the end of 2011 this had increased to \$16 billion (UNCTAD, 2013a).

The growth in commercial activity between China and Africa has been accompanied by a significant expansion of Chinese official economic assistance to the region, on infrastructure projects and construction projects such as building public buildings, like hospitals, schools and clinics. The official economic assistance is normally channelled through The Export-Import Bank of China. There are, however no official statistics on the overall value of this economic assistance (Foster et al., 2009).

China is still a small actor relative to major ones such as the United States, the United Kingdom and France (Alden and Alves, 2009), nonetheless the rapid expansion of the Chinese presence has attracted considerable attention and has caused a great debate about China's motivation for its increased presence on the continent.

While the expansion of investment and trade between China and Africa has been generally welcomed, concerns have been expressed about how China's growing presence might affect African development. Some studies suggests that the need to secure energy sources and

natural resources is the driving force behind China's investment policy towards Africa, and that the increasing Chinese presence has intensified the scramble for African resources, in addition to the fact that Chinese manufacturing goods crowd out local manufacturing, in states as diverse as Lesotho and Kenya, where the dispute over import of Chinese manufactured textiles has caused scrutinizing and critic of the Chinese in the media, and in the civil society (Alden and Davies, 2006). The use of national labour by Chinese MNEs involved in construction and infrastructure projects have also been criticized. Other studies emphasize the opportunities the increasing Chinese presence represents for Africa, by offering an expanding export market in China for exports from African countries, by improving the infrastructure in many African countries, and increasing the inflow of investment and development assistance to the continent.

There have been some empirical investigations on the determinants of Chinese outward FDI the last years. However, there are still gaps in the research. This paper aims at providing a new contribution to the empirical literature by using a fixed effects panel data estimation to analyse the determinants of Chinese foreign direct investments in Africa.

Previous studies of Chinese outward FDI globally suggest that the Chinese investments are attracted to countries with abundant reserves of natural resources, to countries that have high political risk or an unstable institutional environment. Market seeking and trade opportunities have also been recognized as potential motives for the Chinese investments. In contribution to the research on determinants of Chinese FDI in Africa, my research question is as follows:

What determines Chinese outward FDI in Africa?

I will build my answer on theoretical assessment of the relevant information and studies. With this background I will perform an empirical analysis of the determinants of Chinese FDI in Africa, using data on aggregate Chinese outward FDI to 49 African countries in the period 2003-2011.

The objectives of this thesis are to identify the determinants of Chinese outward FDI in Africa, in addition to the strategies of the Chinese firms that go abroad and how these are influenced by domestic institutions in China and the Chinese governments shaping of Chinese outward FDI. The answers to these questions may help us to find out more about the implications of China's growing presence on the African continent.

The paper is structured as follows. The first section gives a historical overview of China's development since the founding of the People's Republic of China in 1949. Section 2 provides an overview of the main theoretical research on the motivations for foreign direct investment, a theoretical view of location determinants of FDI and theoretical effects of FDI on the host economies. In section 3 I will look at empirical research on determinants of foreign direct investments. The overview is not exhaustive, but meant to give a brief introduction into previous findings of FDI determinants in various types of countries. Section 4 provides a descriptive overview of outward Chinese FDI, unique features of Chinese FDI that may make Chinese FDI different than FDI from other FDI source countries, as well as motives for the Chinese outward FDI. In section 5 I provide a descriptive overview of the relations between China and Africa, both in a historical perspective and today. Section 6 provides a descriptive overview of Chinese FDI in Africa. In section 7 I look at empirical studies on Chinese outward FDI, both in general, and to Africa in particular, and propose four hypotheses that suggest the potential determinants of Chinese outward FDI in Africa that I will test empirically. Lastly I will go through the econometric framework and present the results of the empirical analysis.

1.1 China's development

To understand China's growing global presence and its presence in Africa especially, it is important to look at the development of the country's economic performance and foreign policy since the founding of The People's Republic of China in 1949.

1.1.1 Chinas foreign policy

The Chinese state as we know it today; The People's Republic of China was founded in 1949. After the founding, China and the Soviet Union were close allies against the United States. China also followed the Soviet development model. However, during the second half of the 1950s and the early 1960s, strains in the alliance gradually began to emerge over questions of ideology, security and economic development. The ties between the two allies were broken in 1966, the same year that the Chinese government initiated the Cultural Revolution.

During the Cultural Revolution, the Chinese government concentrated on domestic issues. The country had an inward focus, and the foreign policy suffered. The Cultural Revolution ended with chairman Mao's death in 1976 and in 1978 China got a new leader in Deng Xiaoping and with him a new foreign policy. The new foreign policy included opening up the Chinese economy and establishing closer relations to the West.

In 1989 a new event would change China's foreign policy. The extensive use of military force by the Chinese government against an unarmed student demonstration resulted in international condemnation and Western imposed sanctions against the country. At the same time, the rapid economic growth over the past decade made sure that the certainties of self-sufficiency, which had been a ground pillar of the Chinese policy since 1949, could no longer be maintained (Alden, 2007). The country had to rely on import and the importance of trading partners became eminent for the Chinese government.

The incidents on Tiananmen Square in 1989 instigated a debate within the Communist Party as to the direction the country should take. The situation was resolved with Deng Xiaoping's trip to Southern China in the early 1990s. On this trip Deng recommitted to transform the economy, in addition to announcing the new approach to foreign policy: "Observe calmly, secure our position. Hide our capabilities and bide our time. Be good at maintaining a low profile, never claim leadership" (Alden, 2007).

During the 1990s and during the 2000s China has become more involved in global policy and in the global economy. The country is now a member of the UN Security Council, the World Bank and the World Trade Organization.

1.1.2 Economic growth

Prior to 1979, China had a centrally planned economy. A large share of the economy was directed and controlled by the government, which set production goals, controlled prices and allocated resources. To support rapid industrialization the government undertook large-scale investments in physical and human capital during the 1960s and 1970s (Morrison, 2008). At the same time all the profit from the agricultural sector went to building up the industry sector. A central goal of the Chinese government was that the country should be self-sufficient. Foreign trade was generally limited to obtaining only the goods that could not be made or obtained in China.

In December 1978 the Chinese government decided to break with the economic policies it had been following since the 1950s by gradually reforming the economy and opening up for trade and investment with the rest of the world. The reforms included giving price and ownership advantages for farmers and providing more autonomy to enterprises. In addition, the government established four special economic zones¹ to attract foreign direct investments and

¹ These are Shenzhen, Zhuhai and Shantou in the Guangdong Province, and Xiamen in Fujian (Stoltenberg, 1984).

to import technology to China (Morrison, 2013). In 1992, the Communist Party agreed that the market should be the main mean of allocating resources (Morrison, 2013), and China adopted what Deng Xiaoping called “a socialist market economy with Chinese characteristics”.

Since reforming and opening up the economy in the late 1970s the country has experienced extraordinary economic growth, with an average annual GDP growth of approximately 10 per cent.

China’s high economic growth over the last 30 years has been closely related to the country’s increasing opening to the outside world and integration with the world economy. China’s cost advantages and its status as the world’s most populous country with around 1.3 billion inhabitants have caused it to be dubbed “the world’s factory” or “the biggest potential market in the world” (Quer et al., 2008). The country has become the world largest manufacturer, merchandise exporter, and holder of foreign exchange reserves. Currently, the Chinese economy is the second largest in the world.

2 Foreign direct investment

According to United Nations Conference on Trade and Development (UNCTAD), foreign direct investment (FDI) is defined as an investment involving a long-term relationship and reflecting a lasting interest and control of a resident entity in one economy (namely, foreign direct investor or parent enterprise) in an economy other than that of the foreign direct investor (FDI enterprise or affiliate enterprise or foreign affiliate) (UNCTAD, 2009). FDI implies that the investor exerts a significant degree of influence and management of the enterprise resident in the other economy. FDI include three components: equity capital, reinvested earnings and intra-company loans (UNCTAD, 2007a).

Equity capital is the purchase of normally more than 10 per cent of the share of an enterprise in a country other than the home country of the acquirer. The internationally recommended threshold figure for the classification is in some countries higher, such as in Germany where it is 20 per cent (OECD, 1996). Reinvested earnings of the foreign affiliate are earnings of the affiliate that are not paid out as dividends or otherwise remitted to the parent company (Voss, 2011). Intra-company loans are loans from the parent company to the foreign affiliate (UNCTAD, 2007a).

The term “foreign direct investment” is generally associated with investment into a foreign country that secures the control over a local operation (Voss, 2011). FDI is therefore often synonymously used for the more precise “inbound foreign direct investment”. Both inward and outward FDI can be described in terms of flows and stocks.

FDI flow is the capital provided by the investing enterprise to the foreign invested companies, or capital provided by the foreign invested company to the investing enterprise in a given period of time (UNCTAD, 2009). FDI stock is the accumulation of yearly FDI minus the investments that is sold the same year. Hence, the “FDI stock is the value of the share of the capital and reserves attributable to investing enterprises, plus the net indebtedness of affiliated to the parent enterprise” (UNCTAD, 2009).

2.1 Theoretical foundations of foreign direct investment

This section reviews and discusses theories that have the potential to explain the volume and distribution of Chinese outward FDI. Theories on FDI are traditionally derived from research on multinational enterprises (MNE) from developed countries, as these were the first to

internationalise on a large scale (Voss, 2011). The main theoretical research on the motivations for foreign direct investment are the Production Cycle theory, the Internationalisation theory and the Eclectic paradigm developed by respectively Raymond Vernon, Stephen Hymer and John Dunning (Denisia, 2010).

Product Life-Cycle theory developed by Raymond Vernon in 1966 describes how a new multinational company develops a new product and then engages in foreign direct investment. It was used to explain why US manufacturer shifted from exporting to FDI in the years after World War II (Denisia, 2010). The model suggests that there are four stages in the production cycle: innovation, growth, maturity and decline. This theory managed to explain certain types of investments in Western Europe made by US companies between 1950 and 1970. However, it fails to describe the actions of existing MNEs with substantial FDI that may skip steps in the model (Shenkar and Luo, 2008)

The internalisation theory is the core theory of FDI (Voss, 2011). The general principles of internalisation is that firms internalise missing or imperfect external markets across borders until the cost of further internalisation outweigh the benefits and, while doing so, firms choose locations for their activities along the value-chain that minimise the overall costs of their operations (Voss, 2011).

The internalisation theory seeks to explain the growth of transnational companies and their motivation for achieving foreign direct investment (Denisia, 2010). Internalisation is the activity in which a MNE internalizes its globally dispersed foreign operations through a unified governance structure and common ownership (Shenkar and Luo, 2008). Hymer explains that multinational companies indulge in FDI only if they possess some advantages or have an edge over local firms, which arises from intangible assets such as a well-known brand name, patent protected technology, managerial skills, and other firm specific factors (Khachoo and Khan, 2012).

The theory was in 1976 launched in an international context by Hymer. He identified two major determinants of FDI. These were removal of competition and the advantages which some firms possess in a specific activity (Denisia, 2010). According to Shenkar and Luo (2008) there are several internalisation advantages; to avoid search and negotiating costs; to avoid costs of moral hazard; to avoid government intervention, such as quotas, tariffs and price control; and to control supplies and conditions of sale of inputs. The Internalisation theory emphasises that firms carry out FDI because of the imperfections in product and factor

markets and as a result of companies trying to replace market transactions with internal transactions (Khachoo and Khan, 2012).

The most widely used FDI theory was developed by John Dunning (1977, 1993). It is called the eclectic paradigm or the OLI framework, and offers a general framework for explaining international production. Dunning identifies four FDI determinants based on three possible types of competitive advantages. The first is ownership-specific advantages, such as human or physical capital, technology and management. These advantages are firm specific. The second is location-specific advantages. These are advantages that make a country or location attractive for foreign direct investment. They include access to protected markets, favourable tax treatments, and lower production and transport costs. The last advantage is internalisation advantages. Internalisation advantages influences how a company decides to operate in a foreign county, trading off the savings in transactions costs of a fully owned subsidiary against the advantages of other entry modes such as export, licensing or a joint venture.

These, in turn, lead to three motives for investing abroad. The first motive is market seeking. Market seeking means that foreign investors are attracted by the size of the host country market, the market growth and/or the investment climate. It is undertaken by companies to strengthen existing markets, which is a defensive strategy, or to develop and explore new markets, which is an offensive strategy (Voss, 2011). FDI that is motivated by defensive market-seeking objectives often follows trade and tend to occur when a country imposes or threatens to impose tariff and non-tariff trade barriers to import. Offensive market-seeking tend to take place when firms supply products and services to new markets. This is because proximity to markets provides advantages with respect to transport, information flows, and product adaption. By investing in a foreign market, a firm can also increase control over brands and distribution channels for example (Voss, 2011).

The second motive for FDI is resource-seeking. This can be divided into three subcomponents, namely natural resource-seeking, strategic asset-seeking and technology-seeking (Voss, 2011). The natural resource-seeking motive refers to investments in the exploitation of natural resource endowments such as oil, minerals and other raw materials (Voss, 2011). The natural resource-seeking motive comes from the fact that a country's natural resources is attractive for the multinational company that decides to invest abroad. The second motive for resource-seeking FDI is strategic asset-seeking. These assets can be internationally recognized brand names, better access to local distribution systems, market

intelligence, technological know-how or management expertise and can be obtained by tapping into or developing strategic resources in a foreign market. The last motive for resource-seeking FDI is technology-seeking, which are conducted in areas such as research and development, and design, when firms seek to tap into existing knowledge stocks or expertise (Voss, 2011).

The last motive for foreign direct investment is efficiency-seeking. This arises when outward investors seek lower-cost locations for their operations and production, such as production, labour and administrative costs. It can also occur when MNEs seek to achieve large scale production and economies of large scale.

2.2 Vertical and horizontal investments

There are two main types of investments when it comes to foreign direct investments. These are vertical and horizontal investments.

2.2.1 Vertical foreign direct investment

Vertical foreign direct investments are investments made by multinational enterprises that fragment their production process geographically. The multinational enterprise separates the production chain by outsourcing some of the production stages to a foreign country. The production process of a firm generally consists of multiple stages with different input requirements and if input prices vary across countries, it becomes profitable for the firm to split the production chain, and to set up business in different countries (Protsenko, 2004).

2.2.2 Horizontal foreign direct investment

Horizontal foreign direct investments refers to a multinational enterprise starting up manufacturing of products and services abroad that is approximately similar to those they produce in their home country. That is, the multinational company duplicates the same activities in different countries. The horizontal foreign direct investments may arise because it is too costly to serve the foreign market by exports due to transportation costs or trade barriers or because the company wants access to new markets or technology (Protsenko, 2004).

According to Navaretti and Venables (2004), empirical evidence shows that both horizontal and vertical foreign direct investments are important components of investment flows. They also find the theoretical predictions of FDI to generally be supported by empirical evidence.

2.3 The effect of FDI

The effects of FDI on host countries and home countries are transmitted through different channels that can be arranged into three groups: product market effects, factor market effects and ‘spillover’ effects. The importance of these effects depends on the form of the investment – if it is horizontal or vertical – and the characteristics of the host countries (Navaretti and Venables, 2004).

2.3.1 Product market effects

When a company undertakes a FDI project, the project causes the firm to change the quantities of goods it sells and buys in the host and home country market. An example of this is horizontal FDI, which is meant to replace imports by local production in order to better supply the host country market. This can crowd out local supply if there were already a producer of close substitutes or the same product in the market. It can also affect real income either positive or negative (Navaretti and Venables, 2004).

2.3.2 Factor market effects

Factor market effects can arise in both capital and labour markets. In the capital market, FDI generally increases the supply of capital in the host country market. In the labour market, however, FDI can cause several issues. The first is demand for labour; FDI can cause increased demand for labour in the host country. The second is the skill composition of the demand for labour, the presence of MNEs can cause the skill composition in labour demand to change (Navaretti and Venables, 2004).

2.3.3 Spillover effects

Navaretti and Venables (2004) suggest that spillover effects are the most important benefits from FDI. These effects can be divided into technological and pecuniary externalities.

Technology externalities arise when FDI imposes costs or benefits that are not directly transmitted through markets. Technological externalities include technology transfer, acquisition of labour skills and learning about markets.

One source of pecuniary externalities arises when both national companies and multinationals use intermediate products from a local industry. There may then be complementarities between the multinational and the local companies, as the MNE strengthens local supplier industries, thereby benefiting other local firms that uses these products (Navaretti and Venables, 2004).

3 Empirical research on FDI determinants

There have been conducted various empirical studies on the determinants of foreign direct investment, and the literature on FDI determinants have examined a large number of variables that have been set forth to explain FDI. However, these determinants vary from study to study, and from country to country. I will in this review look at some of these studies. This overview is not exhaustive, but meant to give a brief introduction into previous findings in the field of FDI determinants.

Morisset (2000) utilises an econometric analysis for 29 Sub-Saharan African countries over the period 1990-1997. The author makes the point that African countries can be successful in attracting FDI that is not based on natural resources or aimed at the local market by implementing policy reforms. The paper finds that GDP growth and trade openness can be used to improve the investment environment, and to attract FDI.

Asiedu (2002) uses a dataset of 71 developing countries, about half of which are in Sub-Saharan Africa², over the period from 1988 to 1997 to analyse whether factors that affect FDI in developing countries affect countries in Sub-Saharan Africa differently. The results of the analysis indicate that the factors that drive FDI to developing countries have a different impact on FDI to SSA. Infrastructure development and a higher return on investment have a positive effect on FDI to non-SSA countries but not to SSA; trade openness promotes FDI in SSA and non-SSA countries, but the marginal effect of openness is lower for SSA countries.

Golberman and Shapiro (2002) analyses the effect of governance infrastructure on both FDI inflow and outflow for 144 developed and developing countries over the period 1995-1997, using OLS estimation. They also control for GDP, openness, labour costs, tax rate and exchange rate instability. They find that governance infrastructure is an important determinant of both FDI inflows and outflows.

² Sub-Saharan Africa (SSA) refers to the following 47 countries: Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo, Democratic Republic of the Congo, Côte d'Ivoire, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, Sudan, South Africa, Swaziland, Tanzania, Togo, Uganda, Zambia, Zimbabwe.

Bevan and Estrin (2004) uses panel data random effects estimation to study the determinants of FDI from Western countries, mainly in the European Union, to Central and Eastern European countries. They employ data on bilateral FDI flows from 18 market economies to 11 transition economies, in the period 1994-2000. They find that the most important determinants are unit labour costs, market size, and proximity. They find no significant effect of host country risk.

Bende-Nabende (2002) provides an empirical assessment of the factors that influence long-run FDI inflows to SSA. The paper finds empirical evidence that suggests that the most dominant long-run determinants of FDI in Sub-Saharan Africa are market growth, export oriented policies and FDI liberalization. These are followed by real exchange rates and market size.

A study of total FDI to 22 African countries over the period 1984-2000 by Asiedu (2006) aims to investigate the influence of natural resources and market size vis-à-vis government policy, host country institutions and political instability in directing FDI to the region. The results of the study suggest that investors generally are attracted by resources and good institutions. Corruption and political instability on the other side have deterring effects on the foreign direct investment flow to the continent.

Agiomirgianakis et al. (2006) use a panel data analysis for a sample of 20 countries that are members of the Organisation for Economic Co-operation and Development (OECD) in the period 1975-1997 to assess the determining factors of FDI. They find that human capital, a liberal trade regime, as well as, the density of infrastructure is significant determining factors of FDI.

Vijayakumar et al. (2010) examines the determining factors of FDI inflow to BRICS countries – Brazil, Russia, India, China and South-Africa – using panel data analysis on data from the period 1975 to 2007. They find that market size, labour costs, infrastructure, gross capital formation, and currency value are significant determinants of FDI inflow to the BRICS countries.

Ekanayake and Kornecki (2011) investigate factors affecting the inward foreign direct investment (FDI) flows among fifty states of the United States, by using annual data from the period from 1997-2000. Their result show that real per capita income, real per capita

expenditure on education, FDI related employment, real research and development expenditure, and capital expenditure are have significant and positive impact on FDI inflows.

Anyanwu (2012) analyses factors that influences FDI inflows to African countries. They use a cross-country regression for 53 African countries over the period 1996-2008. The paper finds that market size, openness to trade, rule of law, foreign aid, natural resources and past FDI inflows have a positive effect on FDI inflows.

Tintin (2013) have investigated the determinants of FDI inflow in six Central and Eastern European countries, over the period 1996-2009, by using panel OLS method with fixed effects. The paper finds that GDP size, trade openness, EU membership, and institutions has a positive and significant effect on FDI inflows.

4 Chinese FDI – a descriptive overview

China has had remarkable success in attracting foreign direct investment since the country opened up its economy to the rest of the world. Since 1978 China has received over \$500 billion in Foreign Direct Investment. In 1993 for the first time, it became the largest recipient of FDI among developing countries (Cheng and Ma, 2010), and in 2003 China for the first time became the world's largest recipient of FDI, overtaking the United States.

During the last decades China has gone from being not only a large recipient of FDI but also a large source of outward foreign direct investments (OFDI). The country started to invest abroad after economic reforms and the Open-door policy was initiated in the late 1970s. However, the first years the amount of capital was limited, the Chinese firms lacked experience and the investments abroad was dominated by state-owned enterprises (SOEs) (Wu and Chen, 2001). By the late 1980s the government had opened the country up further to FDI, and begun to encourage Chinese firms to invest overseas. The objective of allowing a certain amount of controlled Chinese outward FDI in this period was to ensure that it became an integrated part of the Chinese economy and contributed to social welfare (Voss et al., 2008).

The liberalization associated with Deng Xiaoping's grand tour of Southern China in 1992 sped up economic reforms and further opened the economy (Van Dijk, 2009). This landmark journey marked a departure from the restrictive and constraining policies that had characterised the Chinese policies in the aftermath of the Tiananmen Square incident in 1989. As a consequence, Chinese outward FDI became part of China's national economic development plan (Voss et al., 2008). This boosted Chinese outward foreign direct investments (Kolstad and Wiig, 2010).

During the 1990s in addition to state-owned companies, more private Chinese enterprises started to invest abroad, with a more trade-related motivation. Their main desire was to develop new markets, increase exports, and obtain resources or commercial benefits (Wu and Chen, 2001).

China's annual outflow of foreign direct investment increased from \$35 million in 1980 to \$134 million in 1984 (Cai, 1999). From the mid-1980s the FDI outflows made a jump, in 1985 it reached \$628 million and by 1990 it had increased to \$830 million (Cai, 1999).

From 1979 to 1993, almost two thirds of China’s foreign direct investments went to Asia, including 61 per cent to Hong Kong and Macau. The other regions were North America (15 per cent), Oceania (8 per cent), Europe (7 per cent), Africa (2 per cent) and Latin America (2 per cent) (Cai, 1999).

In 1999 the Chinese government initiated the “Go global” strategy. The policy provided a strong, public endorsement for an institutional environment that fostered outward investments (Voss et al., 2008). The strategy became formal policy by its incorporation in the 10th Five-Year Plan in 2001 (Child and Rodrigues, 2005). The “Go global” strategy sought to encourage and support Chinese companies to become more globally competitive and invest overseas through tax incentives and loans (Deng, 2007). As figure 1 show, the Chinese outward FDI has increased considerably since the Go global strategy was put in to effect.

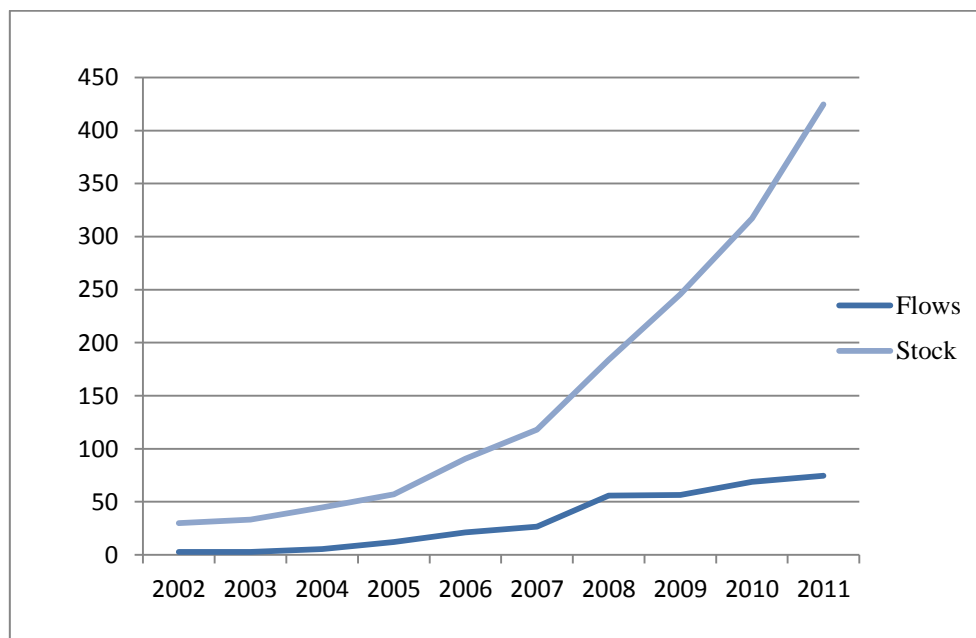


Figure 1: Chinese outward FDI, USD billion (Source: MOFCOM, 2011).

During the last decade the Chinese outward FDI has been growing extremely rapidly. In 2005, China accounted for 1.3 per cent of global outward FDI flows. The country ranked 27th among all the outward investors and 4th among developing countries, excluding offshore financial centres (Cheung and Qian, 2009).

According to the 2011 Statistical Bulletin of China’s Outward Foreign Direct Investment, China’s outward FDI net flows reached US \$74.65 billion, increasing by 8.5 per cent compared to 2010. Of this US \$6.07 billion was financial outward FDI and US \$68.58 billion was non-financial outward FDI. Among the outflow, US \$31.38 billion was incremental

equity investment, US \$24.46 billion was reinvested earnings and US \$18.81 billion were other investments, accounting for 42 per cent, 32.8 per cent and 25.2 per cent of the total respectively.

In 2012, the Chinese share of global outward FDI had reached 6.7 per cent of the world's outward FDI, according to the Economist Intelligence Unit's estimate. Annual investment outflows from China have grown at an average rate of 35 per cent per year since 2005, reaching US \$115 billion in 2012 (The Economist Intelligence Unit, 2013). The country has gone up from 16th place in 2011 to 3rd place in 2012, after the United States and Japan, excluding tax havens, on the global outward FDI rankings (The Economist Intelligence Unit, 2013).

Table 1: Largest host countries of Chinese outward FDI, 2003-2010 flows, current USD millions.

Country	2003	2004	2005	2006	2007	2008	2009	2010	Total 03-10
Hong Kong, China	1148,9	2628,3	3419,7	6930,9	13732,3	38640,3	35600,5	38505,2	140606,4
Cayman Islands	806,61	1286,1	5162,7	7832,7	2601,59	1524,01	5366,30	3496,13	28076,24
British Virgin Islands	209,68	385,52	1226,0	538,11	1876,14	2104,33	1612,05	6119,76	14071,67
Australia	30,39	124,95	193,07	87,60	531,59	1892,15	2436,43	1701,70	6997,88
South Africa	8,86	17,81	47,47	40,74	454,41	4807,86	41,59	411,17	5829,91
Singapore	-3,21	47,98	20,33	132,15	397,73	1550,95	1414,25	1118,50	4678,68
United States	65,05	119,93	231,82	198,34	195,73	462,03	908,74	1308,29	3489,93
Canada	-7,30	5,12	32,44	34,77	1032,57	7,03	613,13	1142,29	2860,05
Russian Federation	30,62	77,31	203,33	452,11	477,61	395,23	348,22	576,72	2561,15
Myanmar		4,09	11,54	12,64	92,31	232,53	376,70	875,61	1605,42
Pakistan	9,63	1,42	4,34	-62,07	910,63	265,37	76,75	331,35	1537,42
Sweden	0,17	2,64	1,00	5,30	68,06	10,66	8,10	1367,23	1463,16
Germany	25,06	27,50	128,74	76,72	238,66	183,41	179,21	412,35	1271,65
Macao, China	31,71	26,58	8,34	-42,51	47,31	643,38	456,34	96,04	1267,19
United Kingdom	2,11	29,39	24,78	35,12	556,54	16,71	192,17	330,33	1187,15
Nigeria	24,40	45,52	53,30	67,79	390,35	162,56	171,86	184,89	1100,67
Mongolia	4,43	40,16	52,34	82,39	196,27	238,61	276,54	193,86	1084,60
Kazakhstan	2,94	2,31	94,93	46,00	279,92	496,43	66,81	36,06	1025,40
Cambodia	21,95	29,52	5,15	9,81	64,45	204,64	215,83	466,51	1017,86

Table 1 includes the 20 largest recipient countries of Chinese. The countries listed in table are countries from all over the world, this reflects the fact that the range of countries now hosting Chinese outward FDI has broadened, which may reflect increasingly diverse motives to invest abroad for Chinese investors. By the end of 2011 more than 13500 Chinese investing entities

had established about 18000 overseas enterprises, spreading in 177 countries and regions globally, according to the 2011 Statistical Bulletin of China's Outward Foreign Direct Investment.

Table 2: Regional shares of Chinese outward FDI flows, 2004-2010, current USD millions.

Region	2004	2005	2006	2007	2008	2009	2010	Total 04-10
Asia	3013,99	4484,17	7663,25	16593,15	43547,50	40407,59	44890,46	160600,11
Africa	317,43	391,68	519,86	1574,31	5490,55	1438,87	2111,99	11844,69
Europe	2046,77	2166,65	597,71	1540,43	875,79	3352,72	6760,19	17340,26
Latin America	1762,72	6466,16	8468,74	4902,41	3677,25	7327,90	10538,27	43143,45
North America	126,49	320,84	258,05	1125,71	364,21	1521,93	2621,44	6338,67
Oceania	120,15	202,83	126,36	770,08	1951,87	2479,98	1888,96	7540,23

Table 2 show the regional shares of Chinese outward FDI flows in the period 2004-2010. Africa is currently the second largest destination, after Asia.

In 2006 Asia and Latin America accounted for 91 per cent of China's non-financial outward FDI. In Asia, Hong Kong attracted 88 percent of China's non-financial outward FDI in the region, indicating Hong Kong's very important role as a bridge for Chinese firms investing abroad (Yeung and Liu, 2008). In Latin America, British Virgin Island and Cayman Island attracted 96 per cent of China's non-financial OFDI in the region. Together, these three onshore and offshore financial centres accounted for 81.6 per cent of China's non-financial OFDI stock globally, in 2006 (Yeung and Liu, 2008). As these financial centres have a common characteristic, that is, a low-tax or tax-free business environment, they have become very attractive locations for many mainland Chinese firms to register in and subsequently invest back into China in order to obtain preferential treatment for inward FDI, in addition to functioning as bridges for investments abroad. This is known as "round tripping" the investments, and is still an important phenomenon regarding Chinese outward FDI. I will look closer at the term round tripping in the next section.

4.1 Round tripping of investments

FDI inflows to China surged in the 1990s, boosted by the acceleration of market reforms and the introduction of incentives for FDI, including concessions on tax, leasing of land and property, government guarantees for investments, and special arrangements regarding retention and repatriation of foreign exchange. Preferences for foreign capital are believed to have encouraged Chinese investors to move money offshore and then bring it back to China again, disguised as foreign investment (World Bank, 2002). This is known as "Round

tripping” of investments. The term “round tripping” is defined as the channelling by direct investors of local funds to Special Purpose Entity’s (SPEs) abroad and the subsequent return of the funds to the local economy in the form of direct investment (Census and Statistics Department Hong Kong, China, 2004).

As table 3 shows, much of China’s outward FDI goes to offshore financial centres such as the British Virgin Islands and the Cayman Island, and to Hong Kong. These countries provide confidentiality to foreign investors, and so are commonly used by multinational firms to store wealth beyond the purview of tax authorities (Morck et al., 2008). FDI into these countries by Chinese firms might also be designed to hide wealth from tax authorities, other authorities, or even public shareholders. Moreover, Chinese subsidiaries in these countries might serve as holding companies for investment elsewhere; or even back into China (Morck et al., 2008).

Table 3: The three largest host countries of Chinese outward FDI, 2003-2010 flows, current USD millions.

Country	2003	2004	2005	2006	2007	2008	2009	2010	Total 03-10
Hong Kong, China	1148,98	2628,39	3419,7	6930,96	13732,35	38640,3	35600,57	38505,21	140606,5
Cayman Islands	806,61	1286,13	5162,75	7832,72	2601,59	1524,01	5366,3	3496,13	28076,24
British Virgin Islands	209,68	385,52	1226,08	538,11	1876,14	2104,33	1612,05	6119,76	14071,67

Given the large share of the accumulated Chinese FDI is concentrated in three tax havens, it becomes difficult to know for certain the true geographical distribution of Chinese FDI (Quer et al., 2008). In addition, round tripping of Chinese outward FDI can lead to discrepancies between what is reported, and what is going on in reality. Round tripping makes it difficult to know where Chinese FDI actually ends up. Additionally, estimates of this “round tripping” of Chinese FDI are hard to come by (Yeung and Liu, 2008).

Since data on explanatory variables is not available for these locations, they are excluded from the econometric analysis in this thesis. In addition, the data on Chinese FDI in Africa might be underestimated because of the fact that the actual Chinese investments to the continent goes through these tax havens before they reach the final destination. However, this is not possible to correct, as data on investments in these tax havens is unavailable.

4.2 Is China different?

- Unique features of China’s outward FDI

As we have seen, several studies suggest that Chinese investors may respond differently to host country characteristics than other investors (Kolstad and Wiig, 2010). Several studies have also questioned whether traditional FDI theories can explain Chinese outward FDI because of this (Buckley et al., 2007). There are several theoretical arguments why outward foreign direct investments from Chinese companies may be different than foreign direct investments from other investors. In this section I will provide a framework that may help to explain these differences.

4.2.1 The government's role in shaping the structure of Chinese OFDI

One of the most significant and distinct feature of Chinese outward FDI is the role of the Chinese government (Deng, 2007). Although the motivation of the Chinese outward FDI can be explained in terms of the same strategic factors that apply to companies from Western countries, the decisions that they make about investing abroad will be informed by established mind-sets and existing practice, reinforced by institutional norms (Child and Rodrigues, 2005). One can therefore say that the Chinese government in its role in shaping the regulatory framework, and as owner of the large state-owned enterprises that are investing abroad, has to a large extent shaped Chinese outward foreign direct investment behaviour.

Since the 1980s the goals of the government has been to achieve advanced technology transfer, foreign exchange earnings, and export expansion, through overseas subsidiaries. It has also used overseas investment to help strengthen its relationships with other economies, such as those in Africa (Deng, 2004).

The Chinese government's 'visible hands' approach toward domestic economic issues has supported the creation of domestic market imperfections (Voss, 2011). However, government intervention in China is not only restricted to the domestic realm, it is also directed towards the international business activities of Chinese firms (Voss, 2011). Deng (2007) suggests that the essential role the Chinese government has played in Chinese outward FDI can largely be explained by the country's political and economic systems. China has a heavy politicized economy characterized by active governmental involvement in business, both through ownership and through regulations.

The Chinese governments shaping of the institutional framework is therefore likely to have determined, to a considerable degree, the ability and intention of domestic firms investing abroad. On the one hand, a restrictive foreign exchange policy and outward investment approval procedures may have restricted or even prevented OFDI from happening. On the

other hand, the institutional framework may have had a positive effect on some firms, as the institutional framework of the home country can contribute to some companies' ownership advantages. These advantages can be experience in how to deal with restrictions and how to internalise small changes and opportunities provided by the system, and they can be applied in foreign countries with similar institutional setting and market environment. Companies may even be more comfortable with investing in a country with similar institutional settings.

In contrast to companies from developed countries, Chinese companies are experienced in “navigating complex and difficult business environments” (Morck et al., 2008), and what Chinese firms experience at home may provide them with an advantage over firms from developed countries when investing in countries with a weak institutional environment. (Drogendijk and Blomkvist, 2013).

One recent measure made by the Chinese government directly linked to the Chinese outward FDI is the implementation of the ‘Go global’ policy in the 10th Five-Year Plan in 2001. With the Go global policy, the Chinese government has made a strong public commitment to foster outbound investment, and in the context of the Go global policy, the Chinese government promulgated a series of regulations and circulars in order to improve Chinese companies' competitive positions and secure an international business presence (Deng, 2007).

Since the implementation of the Go global policy and several economic reforms in the early 2000s, the Chinese government has substituted OFDI restricting measures and indirect economic policies for support and promotion of Chinese OFDI. With this, the Chinese government's role in Chinese outward FDI seem to have evolved into a more strategic one, giving encouragement and support for key firms to globalize within the rationales of their own needs and policies (Child and Rodrigues, 2005).

These measures include a greater availability of commercial loans and funding from Chinese state-owned banks, such as the Export-Import Bank of China and the China Investment Corporation. They also include corporate income tax exemptions to qualified firms and projects, overseas investment insurance, and provision of human resources (Voss, 2011).

Although China's policies regarding FDI have changed and become more open over the years, the institutional frame is still very much regulated by the Chinese state. Typically, the government is still the main operational decision-maker at a variety of levels regarding

approval of investment projects, and thus Chinese OFDI cannot be understood without reference to the Chinese Government and its policies (Drogendjik and Blomkvist, 2013).

In addition to the fact that the Chinese government has imposed the legal, regulatory, and financial components that regulate the Chinese outward foreign direct investments, the Chinese government is also the ultimate owner of the Chinese state-owned enterprises that have conducted the lion's share of the Chinese outward FDI.

4.2.2 State-owned enterprises

The Chinese companies that invest abroad are predominantly state-owned enterprises. This may suggest that they focus not entirely on economic objectives, but also on policy support for the government, especially in terms of the governments long term development plans. Because of this their investment decisions may often reflect political objectives that are not necessarily consistent with profit-maximising strategies followed by private-owned companies (Amighini et al., 2011). Their investment decisions can be regarded as part of the Chinese government's development strategy and reflect political objectives. Such objectives may be to secure supplies of key natural resources, penetrate new markets, acquire new technology or seek strategic assets (Deng, 2004).

4.2.3 China's institutional environment

The institutional setting of a country is likely to have profound effect on a country's FDI activity (Buckley et al., 2007). In contrast to their Western counterparts, firms in emerging markets are constrained by an institutional context characterized by state interference with lower environmental munificence, piecemeal economic liberalization, and gradual institutional evolution (Alon, 2010).

Although China's policies regarding FDI have changed and become more open over the years, the institutional frame is still very much regulated by the Chinese state. Typically, the government is still the main operational decision-maker at a variety of levels regarding approval of investment projects, and thus Chinese OFDI cannot be understood without reference to the Chinese Government and its policies (Drogendjik and Blomkvist, 2013).

Kolstad and Wiig (2010) points to the fact that the institutional environment in China is different than the institutional environment in the major source countries of FDI from the developed world, when explaining the fact that China may be different than other FDI source countries. First, the level of corruption in China is much higher than in the level of corruption

in other countries that are major sources of FDI. In addition, the stock market in China, where the most of the companies investing abroad are listed, are much less regulated than stock markets in other countries that are large sources of FDI.

4.2.4 Capital market imperfections

According to Buckley et al. (2007) the domestic capital market imperfections in China can create ownership advantages for some companies. Capital market distortions are common in emerging economies where financial systems are usually underdeveloped and inexperienced (Alon, 2010), this often leads to an inefficient allocation of capital (Voss, 2011).

One imperfection is soft-budget constraints for state-owned companies. This means that State-owned and state-associated firms may have capital made available at below market rates or receive capital at market rate but are not forced to pay it back (Voss, 2011). As we have seen, a key OFDI-promoting measure by the Chinese government include a larger availability of commercial loans and funding, and preferential agreements concerning foreign exchange and tax exemptions to qualifying firms and investment projects. The capital is often made available at below market rate for a considerable period of time. This creates a disequilibrium in the capital market, and constitutes soft budget constraints (Voss, 2011), which can turn into ownership advantages for Chinese companies and provide the companies with excess capital which they can use to invest internationally on a trial-and-error basis, to outbid competitors or to enable firms to invest in the first place (Buckley et al., 2007).

In addition to soft-budget constraints to state-owned companies, there are according to Buckley et al. (2007) three capital market imperfections, namely inefficient banking systems, intra-firm cross-subsiding, and social financial network. The imperfections are interrelated and may cause ownership advantages for companies investing abroad.

Inefficient banking systems may make soft loans available to potential outward investors either as policy to support the companies, or through internal inefficiencies such as negligence of risk assessment (Voss, 2011). An emerging economy may lack a comprehensive and independent banking system but instead may be dominated by state-owned banks (Voss, 2011). This is true for China where the ‘Big Four’ state controlled banks largely dominate the financial sector. These are the Bank of China (BOC), Industrial and Commercial Bank of China (ICBC), China Construction Bank (CCB), and Agricultural Bank of China (ABC) – together they are responsible for about three quarters of all commercial loans and just over half of total banking assets as of the end of 2005 (Morck et al., 2008). This can make capital

available to the state-owned companies without the necessary inspections, and thus create soft budget constraints for the state-owned companies.

One evidence of this is the fact that Chinese state-owned enterprises have consistently had significant lower returns on capital than domestic or foreign-owned private firms, which signifies that China's banking system is indeed misallocating resources to state firms with limited investment opportunities to fuel inefficient but highly visible FDI (Dollar and Wei, 2007). These soft budget constraints are exemplified by the fact that over-bidding and huge foreign acquisitions have become normal modes of market entry for many Chinese SOEs (Alon, 2010).

According to Kaplinsky and Morris (2009) Chinese state-owned firms, with access to cheap long-term capital, operate with distinctive long-term time-horizons and are less risk-averse than investors from other countries.

Intra- firm cross-subsidising can occur when business groups operate an internal capital market to fund operations across the organisations. In addition, family owned firms may have access to cheap capital from family members, friends, peers and their wider network (Voss, 2011).

4.3 Motivations for Chinese outward FDI

Following the description of China's outward FDI, we now turn to the motivations behind it and the arguments that have been put forward to explain the increased outward FDI from Chinese multinational enterprises.

As we have seen, market characteristics, natural resource endowment and comparative advantage of host countries are considered as significant factors for Chinese outward FDI (Wei and Alon, 2010). First, for the market seeking FDI, host country market size is considered as a significant determinant in several studies (Buckley et al., 2007; Cheung and Qian, 2009; Cheng and Ma, 2007). Second, natural resource endowment of a host country is also found to be a significant determinant of Chinese FDI (Buckley et al., 2007; Cheung and Qian, 2009; Cheng and Ma, 2007). Third, as far as asset-seeking FDI is concerned, Deng (2007) found that a quest for strategic resources, branding, marketing know-how, and managerial competences, is the primary motivation behind Chinese firms' investment activities in industrial countries. The efficiency seeking motive, in terms of cost minimization is not regarded as a major motivation for Chinese companies to invest abroad. This is because

there seem to be little incentives for Chinese firms to seek efficiency abroad, mainly because China itself has an ample supply of low-cost labour and inexpensive land.

Apart from the above common drivers, there is an additional driver of economic diplomacy or a political aspect to the Chinese outward FDI that may be highly relevant to the analysis of OFDI from China. As we have seen, in addition to the Chinese government's role in shaping the Chinese OFDI framework, many MNEs are state-owned that are often directed to venture abroad as part of the state's economic diplomacy. Most Chinese OFDI activities in Africa are believed to be following government leads rather than being simply economically strong projects (Yeung and Liu, 2008). However, this may be hard to separate from resource-seeking, as the Chinese government policies have explicitly identified natural resources acquisition as a key strategic objective. This is discussed in section 5.3.4.

4.3.1 Natural resource-seeking

It is argued that the main driver of Chinese OFDI in Africa is natural resource-seeking investment. Natural resource-seeking has been a major consideration for China's outward FDI projects since China started to invest abroad. Access to natural resources on which the country depends can provide the benefits of long-term supply security (OECD, 2008). China has had remarkable economic growth the past decades. The economic growth has been very resource-intensive, demanding of land, forest, water and oil and the country requires enormous levels of energy to sustain its high economic growth, and has caused a large, rapidly expanding domestic demand for natural resources. Although China is well endowed with natural resources, its per capita basis is very low. Government policies have explicitly identified natural resources acquisition as a key strategic objective of internalization and even offer direct state aid toward this end (Alon, 2010).

Oil is seen as the main resource which China is in need for. Over the past two decades, China has moved from being a large oil exporter to becoming a large importer of oil. In 1993 China became net importer of oil and in 2009 the country became the second largest net importer of oil, after the United States (EIA, 2012). Despite featuring among the major oil producers, China is able to provide for less than half of its domestic oil needs (Alden, 2012). At the same time, there has also been a large growth in demand for aluminium, copper, nickel, iron ore, timber, and other commodities (OECD, 2008).

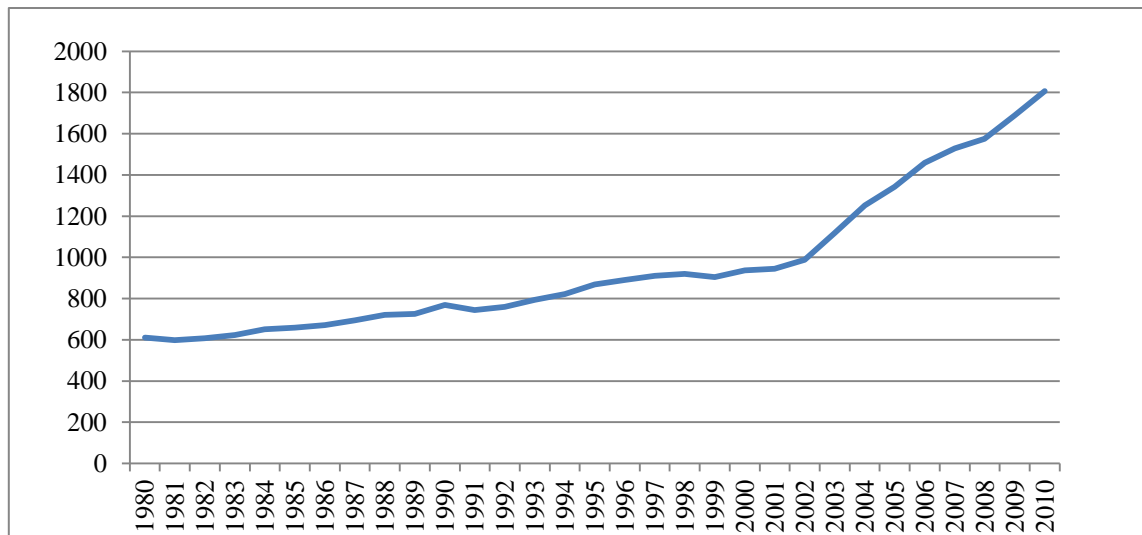


Figure 2: China's Energy Use, kg of oil equivalent per capita. (Source: World Bank Development Indicators, 2012).

Figure 2 shows that China's energy use has increased exponentially in recent years. This is projected to continue in the coming years. According to the U.S. Energy Information Administration, in 2010, China's oil consumption was 9.3 million barrels a day. In 2040 they project this to have increased to 19.8 million barrels a day. According to the International Energy Agency's World Energy Outlook of 2013 China becomes the largest consumer of oil already by 2030 (EIA, 2012).

Africa has assumed a critical role in China's search for resource security. The African continent possesses a large endowment of natural resources, in world-regional terms Africa possesses an estimated 7.8 per cent of known global oil reserves, as of 2012 (BP, 2013). China now receives an estimated one third of its oil imports from Africa. Its largest African suppliers of oil are Angola, Sudan, the Republic of Congo, and Nigeria (Alessi and Hanson, 2012).

In addition to oil, China has also become externally dependent on other sectors of the extractive industry, further explaining the growing interaction with the African continent in recent years. Over the past decade, China surpassed the United States to become the world's leading consumer of most base metals, and China is now the world's largest consumer and producer of aluminium, iron ore, lead and zinc (Alden and Alves, 2009).

As figure 3 shows, Africa's endowment in non-fuel minerals, as share of the world's reserves, are large. There are many mineral rich African countries, among other countries that possess significant reserves of minerals that have attracted Chinese interests in recent years are Gabon

(manganese), Zambia (copper and iron ore), Zimbabwe (platinum) and Angola (diamonds, copper and iron ore). However, South Africa has the largest endowments of minerals. Among other minerals, South Africa is the leading producer of platinum, and manganese, and the world's second largest gold producer (Alden and Alves, 2009).

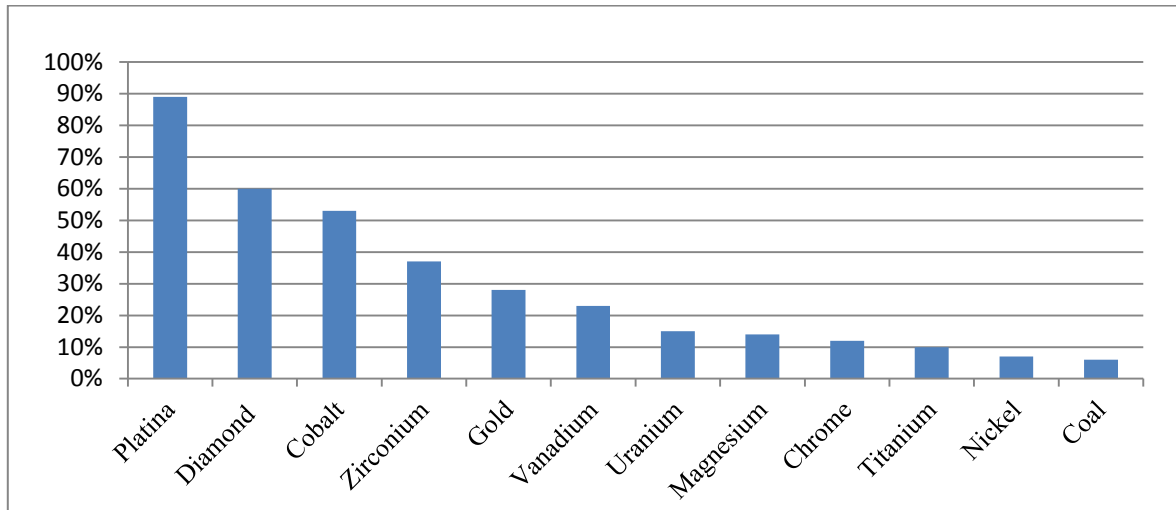


Figure 3: Africa's Share of World Mineral Reserves (Source: Rocha, 2007).

In absolute terms, China's imports of non-fuel mining products increased from \$286 million in 2000 to \$2.6 billion in 2006, and in 2006 diamonds imports occupied the largest share (27%), followed by platinum (17%), copper (15%), cobalt and manganese (11% each) (Alden and Alves, 2009).

China's position within Africa's resource sector has surged during the last decades, from a marginal player to a holder of significant interests in oil leases from Angola to Sudan and mining concessions from the Democratic Republic of the Congo to South Africa (Alden, 2012).

4.3.1 Market-seeking

Although resource security has been at the forefront of the contemporary Chinese engagement in Africa, with China's energy sector state-owned enterprises taking the lead, the desire to benefit from commercial opportunities by expanding trade into African markets do also play an important role for the Chinese investors (Alden, 2012).

During the 1980s and the early 1990s, the markets-seeking motivation is argued to have been dominated by a support function of Chinese domestic enterprises. FDI was designed to help Chinese firms familiarise themselves with international market behaviour and requirements,

and to help them facilitate exports of Chinese domestic firms to increase their hard currency earnings (Voss, 2011).

Today, market-seeking motives has become important for those Chinese companies that aim to expand business overseas by relying on their comparative advantage already established in domestic and foreign markets; or those which intend to find new markets overseas, pushed by the intense competition in the domestic market in China (OECD, 2008).

There are several reasons why the Chinese MNEs may seek to develop and exploit new markets in both developing and developed countries. First, some Chinese firms may not possess sufficient firm-specific competitive advantages such as branding, marketing know-how, and managerial competences to have great success with foreign direct investments in developed countries in North-America and Western Europe (Yeung and Liu, 2008). Expansion into other emerging markets becomes a compelling business solution to overcome the growing competition in their home market because of the influx of FDI into China (Yeung and Liu, 2008).

Second, for larger MNEs (“National Champions”), their expansion into foreign markets is neither necessarily due to their domestic market limitation or saturation, nor market-defence strategy. Rather, their OFDI activity reflects their maturing organizational capability and competitive advantages. They are also investing in developed countries in order to gain access to advanced technology, cutting-edge manufacturing capability, and global brands and management expertise (Yeung and Liu, 2008).

African markets are promising ones for Chinese firms. The African continent has in recent years experienced high economic growth rates. This has caused as a growing market of African consumers. According to Buckley et al. (2007) the market growth hypothesis holds that rapidly growing economies present more opportunities for generating profits than those that are growing more slowly or not at all. The African continent has had high economic growth rates the over the past decade.

Chinese FDI will not be drawn strictly to large foreign markets. Chinese manufacturing is largely characterized by its cost competitiveness, relying on labour-intensive production techniques yielding undifferentiated, low value-added goods. Despite their cost advantage, these firms often lack competitive advantages, such as branding, marketing, managerial skills, and international experience, making it difficult for them to compete in highly competitive

developed markets, such as the US and Western Europe (Yeung and Liu, 2008). These relative disadvantages make entering large modern economies expensive and difficult for most Chinese firms. However, as we have seen, these firms may possess advantages in operating in emerging markets. Chinese firms' domestic experience has provided them with expertise in managing complex, developing markets characterised by high volatility, bureaucratic intervention, and low-income consumer markets (Alon, 2010).

4.3.2 Efficiency seeking

The FDI made by Chinese companies is not regarded to be motivated by the quest for efficiency through cost reduction, since they have their cost advantages in China, and even relocate to the interior of the country should the costs increase in the coastal areas (Quer et al., 2008).

4.3.3 Strategic asset-seeking

Over the last years, some Chinese companies, rather than exploit an existing competitive advantage, have sought to gain a greater edge through acquisition of strategic assets, such as branding, marketing know-how, and managerial competences. On the one hand, they are looking to access advanced technology and managerial and productive know-how in developed countries. On the other hand, they invest in developed markets seeking internationally recognised trademarks (Quer et al., 2008).

I will not go into the strategic asset-seeking and efficiency seeking motive in the empirical investigation, as these motives it not regarded as important motives for the Chinese FDI in Africa, in the literature.

4.3.4 The political aspect

In addition to the neoclassic investment motives, that is discussed above, one further intention is argued to have driven Chinese OFDI since the 1980s, namely political concerns.

In addition to strengthening investment and trade relations with Africa, China has also over the last three decades implemented an international outreach campaign designed to build lasting ties to African political parties and organizations. In the 1960s and 1970s, these efforts were intended to spread revolutionary ideology; in the 1980s, they were altered to oppose the hegemony; and as of 2008 they support development objectives.

Political considerations always play an important role in any analysis of Chinese outward FDI (Cai, 1999). As the Chinese government has played a crucial role in shaping the structures of

China's outward FDI the government has used overseas investment to help strengthen its relationship with other economies, such as those in Africa (Deng, 2004). In addition, since a large part of Chinese outward FDI comes from state-owned multinational companies, Yeung and Liu (2008) suggests that this FDI represents a form of development assistance and regional solidarity. This applies particularly to infrastructure projects and resource extraction industries, and most often in developing countries. Most Chinese OFDI activities in Africa are believed to be following governmental leads rather than being economically strong projects. There are several reasons for Africa's importance to Chinese diplomacy. The first is that it is the largest single regional grouping of states, and its tendency towards "block voting" in multilateral settings such as the United Nations. African governments have proved to be a reliable source of support for the Chinese government.

However, the political aspect may not necessarily be possible to assess without looking at the resource exploration of Chinese firms in Africa, because of the Chinese effort to secure the supply of raw materials and energy for its domestic economy, known in the literature as "resource diplomacy" (Cheng and Ma, 2010), which according to Zweig (2006) is defined as "*diplomatic activity designed to enhance a nation's access to resources and its energy security*". According to Zweig (2006:) enhancing resource security is a core component of China's foreign policy, as continued economic growth stabilizes China, insures the role of the Chinese Communist Party (CCP), and increases national power. In addition, China's increased overseas purchase of resources makes other countries dependent on China's economy for their own growth, thereby expanding China's global influence (Zweig, 2006).

5 China-Africa relations

China's relationship with Africa has deepened and strengthened since the founding of the People's Republic of China in 1949. The relationship has evolved from ideologically-driven interactions during the 1960s and the 1970s to a pragmatic economic and political relationship today.

5.1 China's engagement in Africa: A Historical Perspective

Historically, China-Africa trade and economic relations is not a new phenomenon. China established trade relations with Africa already in the 15th century (Alden et al., 2008). Modern China-Africa relations dates back to the Bandung Conference held in Indonesia in 1955 (Cheung, et al., 2011). This was the first large scale Asia-Africa Conference held, and its goal was *“to promote Afro-Asian economic and cultural cooperation and to oppose colonialism or neo-colonialism by the United States, the Soviet Union, or any other imperialistic nation”* (Ayenagbo et al., 2012). On May 30, 1956, China established the first formal diplomatic relationship in Africa, with Egypt (Cheung et al., 2011).

Between 1960 and 1965, China entered into relations with 14 newly independent states in Africa. China's interest in Africa at this time was ideological rather than economic (Ayenagbo et al., 2012). The goal was to cultivate and maintain ties with their “third world” African friends by spreading revolutionary ideology and offering economic and military support (Cheung et al., 2011). This relation building and the backing of independence movements in Africa in the 1950s and 60s probably contributed to the African backing of China's effort to obtain a permanent seat on the United Nations Security Council in 1971 (Renard, 2011).

China-African relations were maintained in the 1960s, but not with the same strength. The Cultural Revolution that started in 1966 caused a period of self-inflicted isolation, and it severely damaged China's relations in Africa (Alden, 2007). China, however, kept up some effort on the continent. In the 1970s China built a number of highly-visible, prestige projects, such as hospitals, stadiums, and the railway line between Zambia and Tanzania.

The Cultural Revolution ended with Mao's death in 1976, and in 1978 the country got a new leader, and with him, a new policy. The new leader, Deng Xiaoping set China on a road of capitalist-oriented development (Alden, 2007). His policy changes included opening up the economy through market reforms. China's relations to Africa changed after the Chinese

economy opened up. Relations were no longer dominated by ideological concerns, instead economic concerns was the priority of the Chinese government (Renard, 2011).

During the 1980s, Africa became less important for the Chinese government. As the Chinese modernization project demanded foreign direct investment, technical assistance, and trade with the West, trade between China and Africa stagnated and Africa was marginalized in Chinese foreign policy (Taylor, 1998). This changed in 1989, when the events on Tiananmen Square June 4 resulted in a large crisis in China's relations with the West, and Western condemnation of the Chinese government. The African leaders were far more muted, and the events did not affect their relationship with China (Taylor, 1998). Africa therefore became a natural place to turn to, and China started a diplomatic offensive towards the continent, with offering of aid and financial support as main means (Taylor, 1998).

During the 1990s the relationship between Africa and China was dominated by trade and economic affairs. Between 1989 and 1997 trade between China and Africa increased by 431 per cent (Taylor, 1998). In 1990 the total amount of trade between China and Africa was \$ 1.6 million; in 1997 it had increased to over \$ 5 million (Taylor, 1998). Southern Africa was the most important region for trade in the 1990s.

Today China has relations with almost all of the African countries and Africa has once again become a major focus of Chinese policy. Officially the renewed relationship is based on "the three pillars of political, economic, and educational cooperation". The political aspect is stated first: China promises to support the African states internationally and in the United Nations – although Africa does not have homogeneous interests – while expecting African support against China's own challengers (Waldron, 2009).

According to Alden et al. (2008) the main driver for the renewed relationship has been the Chinese government's strategic pursuit for resources and efforts to ensure the raw material supplies for the growing energy needs within China. In addition, a further driver is Africa's status as a market with strong commercial potential for Chinese business, as Africa is regarded by many Chinese as a continent of economic potential with a growing consumer market (Alden et al., 2008). At last, there are political factors.

These drivers reflect the motivations for the Chinese FDI, discussed in chapter 4.3.

5.2 Forum on China-Africa Cooperation

The Forum on China-Africa Cooperation (FOCAC) was formally established on the first Ministerial Conference in Beijing in 2000. The aim of the Forum is “*to further strengthen the friendly cooperation between China and Africa, and to jointly meet the challenge of globalization and promote common development*” (Ministry of Foreign Affairs, the People's Republic of China, 2004).

The first FOCAC was held in Beijing in 2000. It focused on two major areas. The first was how to promote and establish a just and equitable new international order. The second was how to further strengthen co-operation between China and Africa on economic and social development (Alden et al, 2008).

The second FOCAC was held in Addis Ababa in January 2003. This was the first time the meeting was held in Africa. The meeting concretized ideas about strengthening of co-operation, such as China's granting some African countries tariff-free treatment for their exports to China, and increased assistance and channelling of more resources into the African Human Resource Development Fund (Alden et al., 2008).

The third forum held in 2006 approved a three-year action plan to forge a “new type of strategic partnership”. The plan included pledges that China would double aid to Africa by 2009, set up a US \$5 billion China-Africa development fund to encourage Chinese firms to invest in Africa, and further open China's markets to export from Africa's less developed countries by increasing the zero-tariff treatment on a number of products (Taylor, 2009). In addition, China pledged to double the number of Chinese government scholarships given annually to Africans to 4000 and to send 100 senior agricultural experts and 300 youth volunteers to Africa (Taylor, 2009). In January 2006 the Chinese government also published a paper on the China Africa Policy. It states, among other things, that the Chinese government encourages and supports Chinese companies' investment and business in Africa.

Today, trade, foreign direct investment, and aid represent the main channels in the China-Africa relationship. Each of these channels are inter-related. The close integration between the channels suggests that we need to look beyond the differences in investment flows only to look at assess the full impact of China's involvement on the African continent. But due to the scope and limitations of this paper, I will only assess the FDI dimension of China's engagement. I will only give a short briefing of the other channels to get a perspective on the relations between the African states and China.

5.2.1 Aid

China has in the past several years emerged as a significant aid donor in Africa. China's development aid to Africa has grown rapidly, and the aid programme is closely linked to trade and investment policies. However, China is not a new aid donor in Africa. The country extended aid to Algeria and Egypt in the 1950s, and as Sub-Saharan African countries became independent in the 1960s, China established aid programmes in several of these countries. During the last three decades China has established aid programs as well as diplomatic relations with almost all African countries (Brautigam, 2008).

Most of China's aid has, and still does, come in the form of small and medium-sized projects such as building public buildings, like hospitals, schools, clinics, roads and bridges. Today, medical teams, training and scholarships, humanitarian aid, debt relief, budget support, infrastructure projects, and technical assistance are some of the types of Chinese aid in Africa (Brautigam, 2009).

China provides their development aid through three instruments, namely grants, zero-interest loans and concessional loans with subsidized interest rates (Brautigam, 2011). China's aid is coordinated by its Ministry of Commerce and state-backed "policy banks" – including the Exim Bank of China and China Development Bank – to promote the Chinese government's interests in Africa. In addition to providing non-concessional finance for infrastructure projects, the Exim Bank also offers concessional loans with discounted interest rates and a long repayment period (Africa Research Institute, 2012).

According to Brautigam (2008) China gives aid for a variety of reasons: as a political tool of foreign policy and to support its own economic interests. The aid can also act to smooth the way for other economic transactions, such as exports, investment and construction contracts.

The magnitude of the Chinese aid is hard to capture as the aid is given in several different forms. The fact that the Chinese government do not give any official figures for annual aid to Africa makes it even more difficult. In 2011 the Chinese government published a white paper on foreign aid. This is the first time the Chinese government is transparent about its aid figures. The white paper stated that by the end of 2009, China had provided a total of 256.29 billion Yuan (US \$37.7 billion) in aid to foreign countries. In 2009 45.7 per cent of Chinese aid was committed to Africa (State Council, 2011).

As China is emerging as a major aid provider and lender to developing countries, some issues emerge. The country does not work in accordance with the way other international lenders operate in Africa. It has a principle of not interfering with country's domestic affairs. This undermines the effort of the other lenders, especially from Western countries, to foster good governance in Africa, and it can cause some African leaders to avoid the loan conditions of the World Bank and the International Monetary Fund (Van Dijk, 2009).

One interesting aspect of China's aid scheme is that it supports the receiving country by offering it a significant loan at lower-than-market interest rates. In line with the typical practice of export-import banks, support is partly tied to participation in the project by Chinese contractors. China's official aid strategy therefore not only helps the host country. It also supplies Chinese companies with international contracts which help them to establish an overseas market (Voss, 2011). This is known as the "Angola Mode" of financing. This is a method of financing preferred by the Chinese government, where Chinese funding for infrastructural development in African countries are secured by using natural resources as collateral (Corkin, 2011). Because the Chinese contractors involved do not risk equity capital nor gain control over any foreign affiliate, the loans do not qualify as FDI (Foster et al., 2009).

Angola is known for poor governance and a lack of transparency. China, considers Angola a vital strategic partner and the country is currently China's largest trading partner on the African continent. China has since the beginning of the 2000s offered the country multiple package deals in exchange for oil exploration and extraction contracts in recent years (Corkin, 2011). After the civil war ended in 2002, the Angolan government was desperate to access funding to rebuild the country. The International Monetary Fund (IMF), while prepared to offer loans, was insistent on increased transparency and a macroeconomic stabilisation policy, aimed at reducing inflation by cutting public expenditure. These conditions were not acceptable to the Angolan elites however, thus President Dos Santos appealed to China. Negotiations began in 2003 and the first loan agreement with the China Exim Bank came into effect on 21 March 2004. In the period 2004-2007, China's Exim Bank extended a total of \$4.5 billion in oil-backed credit lines to Angolan government. In July 2010 an additional China Exim Bank credit line of US\$ 6 billion was announced (Corkin, 2011).

The loans extended by China Exim Bank are targeted specifically towards facilitating public investment in Angola. According to the terms of the loans, Chinese companies are largely

contracted to undertake required projects and are paid directly by China Exim Bank. The loans are repayable at an interest rate of 1.5 per cent over 17 years (Corkin, 2011). Tied to the China Exim Bank loan is the agreement that the public tenders, for the construction and civil engineering contracts tabled for Angola's reconstruction, will be awarded primarily (70%) to Chinese enterprises approved by Beijing.

The Exim Bank's lending policy is to structure a loan so that there is a revenue stream that will be able to support the debt payment. Consequently, the recipient country can use exports of natural resources to China to repay the loan, as in the case of Angola, or part of the infrastructure financing will be used to develop natural resource extraction for collateral, as in the case of the Democratic Republic of Congo (Corkin, 2011).

5.2.2 Trade

As figure 2 shows, trade between China and Africa have increased immensely the last decade. China is now Africa's largest trade partner. Trade between the two includes primary commodities such as oil and minerals, manufacturing goods and agricultural products.

In 1996, the value of China's official trade with Africa was \$4 billion; by 2004, this had grown to \$29.6 billion, and in 2006 it reached \$55.5 billion (Taylor, 2009, In China in Africa).

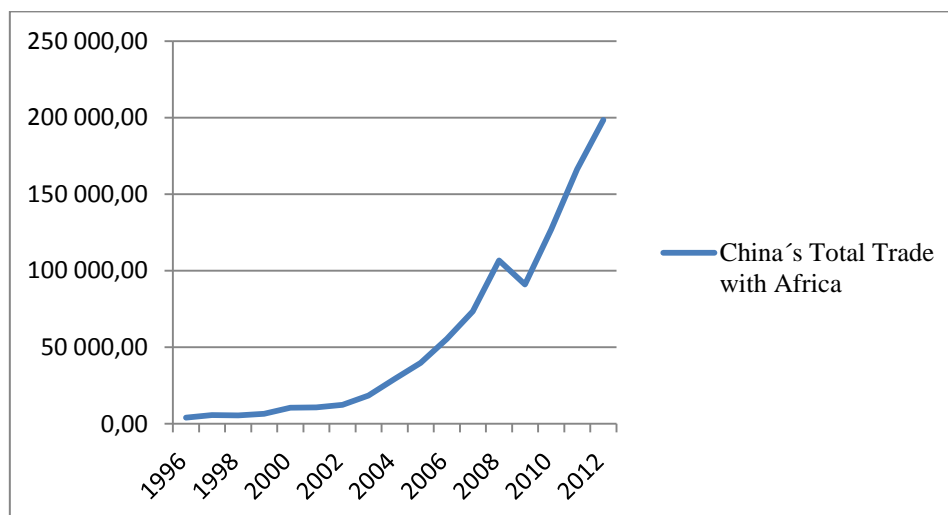


Figure 4: China's total trade with Africa (Source: Global Trade Atlas).

According to the white paper on China-Africa Trade and Economic Cooperation, published by the Chinese government in 2013, the total volume of China-Africa trade reached US \$198.49 billion in 2012. Of this, as figure 3 shows, US \$85.319 billion consist of Chinese

exports to Africa, and US \$113.171 billion was contributed by China's imports from Africa (State Council, 2013).

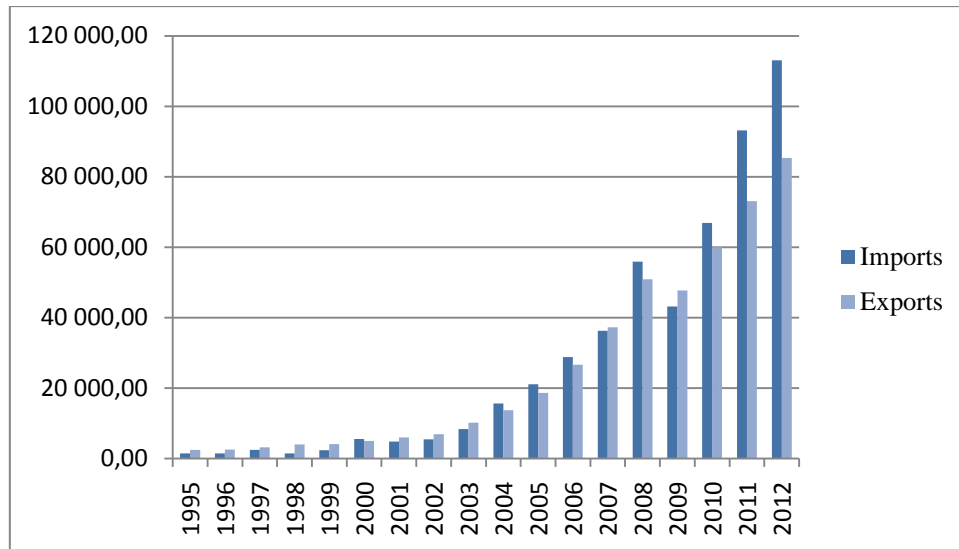


Figure 5: China's total trade with Africa, imports and exports (Source: Global Trade Atlas).

China's import from Africa is dominated by oil and other primary commodities. Angola is China's second largest oil provider, after Saudi Arabia. African imports from China are dominated by manufacturing goods. China offers low-price export goods such as textiles and clothing, electronic devices and machines, which are subject to growing demand from an expanding consumer market.

On measure by the Chinese government to strengthen trade and cooperation between the Chinese and Africa is the building of several special economic zones on the African continent. In 2006, the Chinese government announced its intention to develop several special economic zones or "overseas China economic and trade zones" (Cheng and Ma, 2010) within Africa, in order to encourage Chinese firms to invest in the African continent (Corkin, 2008). These zones are perceived to serve several purposes. First, the zones are supposed to expand exports from China to Africa. The second purpose is to develop Chinese firms and to build Chinese brands in the global market. The third purpose is to provide employment in host countries, thus contributing to the host economies and bilateral trade relations (Cheng and Ma, 2010).

Today Chinese developers in cooperation with the Chinese government and African governments have built seven Economic and Trade Cooperation Zones in Africa to facilitate further investments on the continent. These zones – as the Special Economic Zones in China – are intended to generate economic growth and greater collaboration between Chinese firms in

Africa (Van Dijk, 2009). The zones are similar to China's own Special Economic Zones, but not identical (Brautigam, 2009).

6 Chinese FDI in Africa – a descriptive overview

FDI inflows to Africa increased to \$50 billion in 2012, a rise of 5 per cent over the previous year. Investments in exploration and exploitation of natural resources, as well as high FDI flows from China have both contributed to this growth in FDI inflow to the continent (UNCTAD, 2013b). China is the third largest developing-country source of FDI in Africa, after Malaysia and South Africa (UNCTAD, 2013b).

China's outward foreign direct investment to Africa has increased exponentially in recent years. From 1997 to 2001, Africa, with a share of 24.1 per cent became the second largest regional destination of Chinese outward FDI, after Asia (Cheng and Ma, 2010). In 2003, China's total outward FDI in Africa stood at US\$ 74.8 million. In 2005 it reached \$1.6 billion (UNCTAD, 2007). By the end of 2011 this had increased to \$16 billion (UNCTAD, 2013a).

Chinese FDI has historically been concentrated in relatively few countries. In the period 2003-2007, five countries, namely South Africa, Nigeria, Sudan, Algeria and Zambia, accounted for more than 70 per cent of China's outward FDI to the continent. While these countries remain important recipients, others such as Angola, the Democratic Republic of Congo, Ghana and Ethiopia have joined the list in recent years. South Africa was in 2011 the largest recipient of Chinese FDI, followed by Sudan, Nigeria, Zambia and Algeria (UNCTAD, 2013a).

Table 4 Largest host countries of Chinese outward FDI in Africa, 2003-2010 flows, current USD millions.

Country	2003	2004	2005	2006	2007	2008	2009	2010	Total 03-10
South Africa	8,86	17,81	47,47	40,74	454,41	4807,86	41,59	411,17	5829,91
Nigeria	24,40	45,52	53,30	67,79	390,35	162,56	171,86	184,89	1100,67
Algeria	2,47	11,21	84,87	98,93	145,92	42,25	228,76	186,00	800,41
Zambia	5,53	2,23	10,09	87,44	119,34	213,97	111,80	75,05	625,45
Congo DR	0,06	11,91	5,07	36,73	57,27	23,99	227,16	236,19	598,38
Niger		1,53	5,76	7,94	100,83	-0,01	39,87	196,25	352,17
Sudan		146,70	91,13	50,79	65,40	-63,14	19,30	30,96	341,14
Egypt	2,10	5,72	13,31	8,85	24,98	14,57	133,86	51,56	254,95
Ethiopia	0,98	0,43	4,93	23,95	13,28	9,71	74,29	58,53	186,10
Kenya	0,74	2,68	2,05	0,18	8,90	23,23	28,12	101,22	167,12
Madagascar	0,68	13,64	0,14	1,17	13,24	61,16	42,56	33,58	166,17
Angola	0,19	0,18	0,47	22,39	41,19	-9,57	8,31	101,11	164,27
Ghana	2,89	0,34	2,57	0,50	1,85	10,99	49,35	55,98	124,47
Mauritius	10,27	0,44	2,04	16,59	15,58	34,44	14,12	22,01	115,49
Congo		0,51	8,11	13,24	2,50	9,79	28,07	34,38	96,60

Table 4 presents an overview of the fifteen African countries that received the most Chinese outward FDI between 2003 and 2010. We see that most of the top recipients are resource-rich countries in terms of petroleum, minerals, or agriculture produce. This suggests that securing access to natural resources is an important motive for Chinese investments. Some of these countries are also among the worst governed in the world. This suggests that a poor institutional environment may be associated with a higher level of Chinese investments (Kolstad and Wiig, 2011).

However, the largest recipient country is South Africa. South Africa is not known for having poor institutions, rather the country has fairly good institutions (0.08 on the rule of law index, which runs from -2.5 to 2.5, with higher numbers signifying better institutions, in 2012). In addition, South Africa has a higher GDP and a higher income level than its neighbouring countries. Kolstad and Wiig (2011) find that the Chinese market seeking on the African continent is not significant when South Africa is excluded from the sample, suggesting that Chinese FDI has different objectives in South Africa than in the rest of Africa.

7 Empirical research on Chinese outward FDI

As we have seen, the most widely used framework for assessing the motivations and drivers of FDI is the eclectic theory of foreign investment developed over years by Dunning (1977, 1993). The typology of Dunning's eclectic paradigm has been adopted in some of the empirical studies on the host country determinants of Chinese FDI (Buckley et al, 2007; Cheng and Ma, 2007; Cheung and Qian, 2009; Kolstad and Wiig, 2010). They have mainly focused on the three first motives for FDI, as efficiency seeking in terms of cost minimization is not regarded as a major motivation for Chinese companies to invest abroad. This is because there seem to be little incentives for Chinese firms to seek efficiency abroad, mainly because China itself has an ample supply of low-cost labour and inexpensive land.

There have been done several empirical studies on Chinese outward FDI in the past years. However, few of these studies look at foreign direct investment from China to Africa.

Buckley et al. (2007) investigates the determinants of foreign direct investment by Chinese multinational enterprises. They use panel data on approved Chinese FDI to 49 countries, for the period 1984-2001. They find that Chinese FDI tended to be attracted to countries with high political risk in the period 1984-2001, and natural resources in the period 1992-2001. In addition, Buckley et al. (2007) find that Chinese FDI is attracted to countries with large GDP, high inflation, high exports and imports, and cultural proximity to China. Patents, exchange rates, distance from China and total FDI as a share of GDP was found to be insignificant.

Cheung and Qian (2009) perform a fixed effects analysis on data on approved Chinese FDI flows to 31 countries over the period 1991-2005. They find only limited evidence that natural resources attract an extra amount of FDI from China. They find no significant effect of institutions.

Cheng and Ma (2010) performs a gravity model analysis where they analyse determinants of China's outward FDI flows and stocks in the period 2003 to 2005, using data provided by China's Ministry of Commerce. They use a sample of 90-98 recipient countries for flows and a sample of 12-150 recipient countries for stocks. They find that the host economies' GDP had a positive impact on the Chinese FDI, whereas their respective distances from China had a negative impact. The host countries' real per capita GDP had no impact on FDI flows, but a

negative impact on FDI stocks. They do not include institutions or natural resources as explanatory variables in their analysis.

Quer et al. (2011) investigates how political risk and cultural distance affect the location choice of Chinese multinational corporations. They use data on FDI made by 29 mainland Chinese firms listed on the Fortune Global 500 in 52 countries, over the period 2002 to 2009. They find that host country political risk is not associated with the location of Chinese outward FDI and that cultural distance does not have a strong negative influence on the location decisions. They also find three other variables to have positive effects on the location decision. These are, the volume of Chinese exports to the host country, belonging to a mining-quarrying industry, and firm size.

Kolstad and Wiig (2010) analyse Chinese outward FDI flows, by performing OLS estimation where they use the average of Chinese outward FDI to the host countries for the period 2003-2006. They use a sample of 104 recipient countries. They find that Chinese outward FDI is attracted to large markets and countries with an abundance of natural resources and poor institutions. They find that China displays different types of investment behaviour across developed and developing countries. They find that the market seeking FDI is related to advanced markets in OECD countries, and that resource-seeking FDI is the case for non-OECD countries. Kolstad and Wiig's (2010) analysis also finds that Chinese investors are attracted to poorly governed countries that are natural resource rich, that is, the weaker the institutions in a country is, the more is Chinese outward FDI attracted by natural resources. They claim that these determinants likely reflect characteristics of the Chinese economy, such as predominant state-ownership of multinational firms and the institutional environment in China.

Kolstad and Wiig (2011) do an analysis of the host country determinants of Chinese FDI in Africa, by employing OLS estimation, using average Chinese FDI inflows to each country in the period 2003-2006 as dependent variable. Their main estimation includes 29 African countries. Their main result is that Chinese FDI is attracted to natural resource-rich countries, in particular petroleum rich countries, with poor institutions.

Cheung et al. (2011) study the empirical determinants of China's investment activity in Africa. They use both data on official approved OFDI and the OFDI data reported according to the OECD-IMF standard. They find that the corruption risk and law and order risk factors are found to "encourage" Chinese investment, while other risk factors tend to discourage

investment. In addition, they find that natural resource seeking is a motivation behind China's foreign direct investment in Africa. However, they find that this motive only shows up in the 2000s. The motive is apparent in the 2003-2007 OFDI data, but it is only a significant factor for the officially approved data after adopting the "Go Global" strategy in 2002.

Ramasamy et al. (2012) investigates location determinants of China's OFDI. They use data from 63 publicly listed Chinese firms over the period 2006 to 2008. They find that Chinese state-controlled firms are attracted to natural rich countries and to countries that are politically risky, and that countries which are less desirable by Western investors have become an important destination for resource seeking Chinese companies. Private firms on the other hand, are more market seekers. They find no significant effect of political risk and natural resource endowment. This means that they do not find evidence to show that Chinese investments are attracted to risky countries to tap their natural resources.

Drogendjik and Blomkvist (2013) use standard ordinary least squares regression analysis on outward FDI by Chinese firms into 174 host countries between 2003 and 2009. Their results show that, when they control for the main theoretical explanations, all else being equal, African countries are more likely to receive Chinese investments than other markets and regions in the world. They suggest that this is because of the importance of south-south cooperation for the Chinese firms, and the fact that MNEs from developing countries in recent years have started playing a larger role in the global economy. This may suggest that economic diplomacy is in fact a consideration of the Chinese companies investing abroad. Their findings further suggest that when analyses include all Chinese investments, from large and small firms, private and state-owned, and in all countries and regions in Africa, classic theories of FDI are supported. This suggests that full explanations of Chinese OFDI should build on established theories complemented with explanatory variables particular to the specific context of emerging markets outward or inward FDI. They also find that political risk negatively impacts investments from abroad and thus African countries that have lower degrees of political risk have a higher likelihood to attracting Chinese investments.

Several studies suggest that there are different reasons that can explain these findings. Since the country is a relatively new outward investor in natural resources, it may not be easy for China to set up business in established and conventional locations (Cheung and Qian, 2009). A possible reason why Chinese firms are investing in countries with a poor institutional

environment is that these countries are the only ones who are available for a latecomer such as China (Kolstad and Wiig, 2011).

7.1 Hypotheses

I now introduce four hypotheses to test the variables derived from the FDI theories and the literature on FDI determinants that is based on the motivations discussed in chapter 4.3 and the unique features of Chinese OFDI discussed in chapter 4.2. I will in this thesis investigate four hypotheses empirically.

Host country market size is generally recognised as a significant determinant of FDI flows. As markets increase in size, so do opportunities for the efficient utilisation of resources and the exploitation of economies of scale and scope via FDI. Countries with larger domestic markets are likely to attract more FDI. One can therefore expect a positive link between the size of the domestic market and FDI. I therefore derive the following hypothesis:

H1. Chinese outward FDI is market-seeking.

Natural resources are one of the location advantages in the OLI framework of Dunning. However, the impact of natural resources has not been much examined in empirical studies, until the recent years. Asiedu (2006) finds natural resources significant for total FDI inflow to Africa. Kolstad & Wiig (2010) finds that natural resources are significant determinant of Chinese FDI globally, and in Africa particularly (Kolstad and Wiig, 2011).

It is also evident that China lacks natural resources to support its remarkable economic growth. The high growth rates that China has had over the past decades require large abundances of natural resources. Based on China's need for natural resources and their investments in resource rich countries such as Sudan and Angola, it seems like Chinese investments in Africa are resource seeking. I therefore derive the second hypothesis:

H2. Chinese outward FDI is attracted to countries with abundant reserves of natural resources.

Related to the issue of natural resources is the question whether Chinese firms are attracted to countries that are politically risky and have poor institutions.

Theoretical studies argue that good host country institutions will reduce risk and costs of doing business and increase productivity (Bloning), and the conventional wisdom suggest that higher political risk will be negatively related to FDI, given that multinational companies will

be more reluctant to invest in countries that have high political risk or have an unstable institutional environment (Quer et al, 2011).. This is confirmed by a number of empirical studies (Asiedu, 2006; Wei, 2000; Golberman and Shapiro, 2002 and Gani, 2007).

However, there is empirical evidence suggesting that political risk in the host country does not affect Chinese investors in the conventional way (Buckley et al, 2007; Kolstad and Wiig, 2010). As a result of this I propose the hypothesis:

H3. Chinese outward FDI is attracted to countries with poor institutions and high political risk.

Kolstad and Wiig (2010) suggest that the fact that many of the Chinese companies that invest abroad are state-owned enterprises as well as the poor institutional environment in China, as discussed in section 4.2, have implications for the relation of Chinese FDI to host country institutions and natural resources, and the interaction between the two. In addition, Kolstad and Wiig (2011) finds that Chinese investments are more attracted to countries with natural resources, the worse the institutional environment in the country is. Although Buckley et al. (2007) did not include an interaction term in their analysis, they find that Chinese FDI is attracted to countries with high political risk and natural resources. I therefore include the last hypothesis, to test whether Chinese investments are more attracted to natural resources in countries with poor institutions and political risk.

H4. In countries with poor institutions and political risk, Chinese outward FDI is more attracted to natural resources.

8 Econometric framework and data

8.1 The model

Consistent with the theory and hypotheses formulated above, my main specification includes GDP, trade openness, inflation, institutions and natural resources, as well as an interaction term between institutions and natural resource. More precisely, the main estimated equation of Chinese outward FDI in Africa is:

$$\begin{aligned} \log(FDI_{i,t}) = & \alpha + \beta_1 GDP_{i,t-1} + \beta_2 Trade_{i,t-1} + \beta_3 Inflation_{i,t-1} + \beta_4 Institutions_{i,t-1} \\ & + \beta_5 Natural Resources_{i,t-1} \\ & + \beta_5 (Institutions_{i,t-1} * Natural Resources_{i,t-1}) + \varepsilon_{i,t-1} \end{aligned}$$

Where i denotes the recipient country and t denotes time. Since the explanatory variables are lagged with one period the time denotation is $t-1$.

8.1 Data

The data used in this analysis is gathered from several databases.

8.1.1 The dependent variable; Chinese FDI

The dependent variable in my analysis is the annual aggregated Chinese outward FDI flows to African countries. I use data on Chinese outward FDI flows to 49 African countries for the period 2003-2011. Data on this variable is taken from the United Nations Conference on Trade and Development (UNCTAD) database. UNCTAD is the United Nations body responsible for dealing with development issues. This data is combined with data from *The Statistical Bulletin of China's Outward Foreign Direct Investment* published by China's Ministry of Commerce.

As of 2002 data in UNCTAD's Foreign Direct Investment Database are based on the statistics published through the *Statistical Bulletin of China's Outward Foreign Direct Investment*. I therefore use data from UNCTAD in 2003 and data from China's Ministry of Commerce (MOFCOM) in the period 2004-2011. Up until 2003, the statistics for Chinese FDI provided by the former MOFTEC (Ministry of Foreign Trade and Economic Cooperation) were underestimated, since they did not include projects that had not been reviewed and approved by government agencies, nor any investment made after the initial approval for projects. However, since the creation of MOFCOM (which replaced MOFTEC), the statistics for

Chinese FDI have been collected using a methodology in accordance with OECD and IMF guidelines (Quer et al., 2008). MOFCOM have since 2003 provided data on a balance-of-payments (BOP) basis (UNCTAD, 2007).

The data for the dependent variable is in millions of current USD.

8.1.2 Independent variables

The selection of independent variables to a large extent mirrors Kolstad and Wiig (2010, 2011), and are common in the literature on determinants of Chinese outward foreign direct investment. The proxies used for the main independent variables, and the sources of data are presented in Table 5.

Table 5: Main variables.

Variables	Proxy	Source
Chinese Outward FDI	Annual inflow of Chinese FDI	UNCTAD, China's Ministry of Commerce
GDP	Host country GDP	World Bank World Development Indicators
GDP per Capita	Host country GDP per capita	World Bank World Development Indicators
GDP Growth	Host country GDP growth	World Bank World Development Indicators
Trade	Total imports and exports as share of GDP	World Bank World Development Indicators
Inflation	Inflation rate	World Bank World Development Indicators
Institutions	Rule of law	World Bank Institute Governance Indicators, from Quality of Government Institute
Political risk	Political stability and absence of violence/terrorism	World Bank Institute Governance Indicators, from Quality of Government Institute
Democracy	Democracy	Polity IV Project
Natural resources	Fuel, ore and metal exports as share of GDP	World Bank World Development Indicators

Size of host country domestic market

Host country market size is generally recognized as a significant determinant of FDI flows. Three variables are proposed as a proxy for the market-seeking behaviour of Chinese MNEs: GDP, GDP per capita and GDP annual percentage growth.

While per-capita GDP has served as proxy for the market size in most empirical works on the determinants of FDI and has been widely accepted as having a significantly positive impact on FDI, some studies have used absolute GDP as a measure. However, it has been pointed out that absolute GDP is a relatively poor indicator of market potential for the products of foreign investors, especially in developing countries, since it reflects the size of the population rather than income. On the other hand, the use of per-capita data may introduce a bias in that it

places the high-population countries in a less-attractive category. In line with these issues and the understanding that per-capita GDP and absolute GDP reflects two very different aspects of market-size, in that per-capita GDP reflects the income level while absolute GDP reflects the size of the whole economy, it is necessary to use the two as alternative proxies for market size (Chakrabarti, 2001). In addition, as the market growth hypothesis suggests that rapidly growing economies present more profitable opportunities than those growing slowly or not growing at all (Alon, 2010), and the fact that as markets increase in size, so do investment opportunities (Buckley et al, 2007), I have also included GDP growth in the analysis.

Data for all three proxies were taken from the *World Development Indicators* database of the World Bank. GDP and GDP per capita are measured in current US\$, and GDP growth is measured in annual percentage growth.

Trade openness

The effect of trade openness on FDI inflows depends on the type of FDI. When the FDI is market seeking, i.e., when foreign firms seek to serve local markets, trade openness may reduce FDI inflows. The reason for this is the “tariff jumping” theory (Blonigen, 2005), which argues that MNEs that seek to serve local markets may decide to set up subsidiaries in the host country if it is difficult to import their products to that country. In contrast, multinational firms that are engaged in export-oriented activities may prefer to locate their FDI in a more open economy, since trade tariffs may increase transactions costs. The effect of trade openness on foreign direct investment is therefore ambiguous. However, many studies on FDI determinants have found that countries with more trade openness receive more FDI.

As a proxy for trade openness, I use the sum of imports of goods and services and exports of goods and services as share of GDP. This is a commonly used indicator for trade openness in the literature.

Macroeconomic stability

Inflation, measured as the annual change in the consumer price index, is included as a measure of macroeconomic stability in host economies. Macroeconomic stability is generally cited as one of the factors that multinational enterprises consider when deciding where to locate their foreign direct investments. High inflation rates are a sign of macroeconomic instability and a source of uncertainty in the economy. Unstable economic conditions and poor fundamentals reduce the attraction to the host country by negatively affecting profit

expectations (Amighini et al., 2011). However, Buckley et al, (2007) found a positive and significant effect of inflation on Chinese FDI, explaining this result with the unusual tolerance of unstable countries by the Chinese investors.

Institutions

The quality of institutions in the host country is a possible important determinant of FDI activity, especially for less-developed countries, for a variety of reasons. First, poor legal protection of assets increases the chance of expropriation of a firm's assets, which makes investments less likely. Poor quality of institutions that is necessary for well-functioning markets increases the cost of doing business, and, thus, should also diminish FDI activity in the country. Last, to the extent that poor institutions lead to poor infrastructure, expected profitability falls and so do FDI into the country (Blonigen, 2005).

To test for the effect of institutions on Chinese FDI to Africa, I include a Rule of law index from the World Bank Institute Governance Indicators. *“The Worldwide Governance Indicators (WGI) is a research dataset summarizing the views on the quality of governance provided by a large number of enterprise, citizen and expert survey respondents in industrial and developing countries. These data are gathered from a number of survey institutes, think tanks, non-governmental organizations, international organizations, and private sector firms”*. The World Bank Institute Governance Indicators have also gathered data on other indicators on governance, such as voice and accountability, regulatory quality and government effectiveness. However I have only included the rule of law index and the political stability index in this analysis.

The Rule of law index measures *“the extent to which agents have confidence in abide by the rules of society; and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence”*. The index runs from -2.5 to 2.5, with higher numbers signifying better institutions.

Political stability

Political instability can be harmful for foreign direct investment. Several studies have found that political instability reduces the inflow of FDI to a country. For Chinese FDI in Africa, this has not been the case in later years, especially in countries with large endowments of natural resources. I therefore include political stability in my investigation. I use the Political Stability index which also is from the World Bank Institute Governance Indicators. The index

“reflects perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism”. This index runs from -2.5 to 2.5, with higher numbers signifying stronger governance performance.

In addition to the political stability and the rule of law index, I also include Polity IV's democracy index in the analysis. As discussed in section 4.2, Companies may even be more comfortable with investing in a country with similar institutional settings, and there may be that Chinese investors are investing in countries that are not democratic, because China itself is not a democratic country.

Democracy

Democracy is conceived as three essential, independent elements. The first is the presence of institutions and procedures through which citizens can express effective preferences about alternative policies and leaders. The second is the existence of institutionalized constraints on the exercise of power by the executive. The last element is the guarantee of civil liberties to all citizens in their daily lives and in acts of political participation (Polity IV Project, 2013). The Polity IV Democracy indicator is an additive eleven-point scale (0-10), and it is derived from coding of the competitiveness of political participation, the openness and competitiveness of executive recruitment, and constraints on the chief executive.

Natural Resources

Natural Resources are generally seen as the most important motive for the Chinese outward FDI in Africa. I therefore include natural resources in the analysis. As a proxy for natural resources I use the sum of fuel, ore, and metal exports as share of GDP. Different measurements to proxy natural resource-seeking investments have been identified in the literature (Voss, 2011). However, this proxy is used because the Chinese seem to invest in natural resources because they want to secure their domestic energy supply, and therefore the host countries' exports of natural resources are important.

As reflected by the above specification, I include an interaction term between the institutional and natural resources variable in the main estimation. As discussed above, it has been found in previous empirical studies that Chinese FDI in Africa is attracted to countries with natural resources with poor institutions (Kolstad and Wiig, 2010, 2011).

In addition to these variables I added a number of control variables that has been found to be important in previous studies of host country determinants of FDI flows³. The control variables are total FDI inflow to the African countries in the sample, mobile cellular subscriptions per 100 people as a proxy for infrastructure, real interest rate, exchange rate, and school enrolment, primary (% net), as a proxy for education.

8.2 Method

To test my hypotheses, I use a first use a sample of African countries⁴ only. Second, to test whether Chinese investment in Africa is distinctive from Chinese investments elsewhere, I employ a panel data of data on 136 countries⁵ in which Chinese firms have invested between 2003 and 2011.

To systematically test for the host country determinants of Chinese outward FDI to Africa I will use an econometric approach. The empirical foundation of this paper is based on an econometric model, namely panel data estimation. In this section I will describe the model, and how I will apply it.

8.2.1 Panel data

To capture the dynamics of the Chinese outward FDI to Africa over time, I will use panel data analysis. This gives the ability to model temporal effects and control for variables that vary over time. I will analyse the main specification using between estimation and fixed effects estimation.

A panel data set is a data set that follows a given sample of observational units, in this analysis that is countries, over time, and thus provides multiple observations on each country in the sample over time (Hsiao, 2003). A panel data set is a combination of cross-sectional and time-series data. An important advantage of panel data compared with time series or cross-sectional data sets is that they allow identification of certain parameters or questions, without the need to make restrictive assumptions. For example, panel data makes it possible to analyse changes on country level (Verbeek, 2008). Besides the advantage that panel data allows us to construct and test more complicated behavioural models than purely cross-sectional or time-series data, the use of panel data also provides a means of resolving or reducing the magnitude of a key econometric problem that often arises in empirical studies,

³ For a review, see Chakrabarti (2001) and Blonigen (2005).

⁴ The countries included are listed in table A1 in Appendix A.

⁵ The countries included are listed in table A3 in Appendix A.

namely, that the real reason one finds (or does not find) certain effects is the presence of omitted (mismeasured or unobserved) variables that are correlated with the explanatory variables (Hsiao, 2003).

By utilizing information on both the intertemporal dynamics and the individuality of the countries being investigated, one is also better able to control in a more natural way for the effects of missing or unobserved variables (Hsiao, 2003).

A second attraction of panel data is the possibility of consistent estimation of fixed effects model, which allows for unobserved individual heterogeneity that may be correlated with regressors. Such unobserved heterogeneity leads to omitted variables bias that could in principle be corrected by instrumental variables methods using only a single cross section, but in practice it can be difficult to obtain a valid instrument.

When we treat any unobserved individual heterogeneity as being distributed independently of the regressors then the effects are called random effects. Compared to the fixed effects models this stronger assumption has the advantage of permitting consistent estimation of all parameters, including coefficients of time-invariant regressors. However, random effects and pooled estimators are inconsistent if the true model is one with fixed effects.

The description under follows Vernbeek (2008).

8.2.2 Linear panel data models

If i denotes the country ($i = 1, \dots, N$) and t denotes the time period ($t = 1, \dots, T$), the standard linear regression model can be written as

$$Y_{it} = \alpha + X'_{it}\beta + \varepsilon_{it} \quad (8.1)$$

, where X_{it} is a K -dimensional vector of explanatory variables. β is a K -dimensional vector of the parameters that measures X_{it} 's effect on Y_{it} . This model imposes that the intercept β_0 and the slope coefficients in β are identical for all countries and time periods. The stochastic error term ε_{it} varies over countries and time and captures all unobservable factors that affect Y_{it} . To achieve unbiased, efficient and consistent estimators using ordinary least square regression (OLS), the usual conditions for OLS must be fulfilled.

It is often problematic to use OLS on panel data models. Given that we repeatedly observe the same countries over several time periods it is typically unrealistic to assume that the error term from different periods are uncorrelated. Unobserved heterogeneity is captured in the

error term ε_{it} . OLS is likely to be inefficient relative to an estimator that exploits the correlation over time in ε_{it} . The correlation can be written as

$$\varepsilon_{it} = \alpha_i + u_{it} \quad (8.2)$$

, where u_{it} is assumed to be homoscedastic and not correlated over time. The individual component α_i is time invariant and the choice of panel data estimator is dependent on which conditions we choose for α_i .

The model (1)-(2) becomes a random effects model when we assume that the unobserved effect α_i is homoscedastic and uncorrelated with the explanatory variables X_{it} . Thus, if the α_i is homoscedastic and uncorrelated with the independent variables (3) refers to a random effects model.

$$Cov(\alpha_i|X_{it}) = 0 \quad (8.3)$$

In many applications this assumption is considered restrictive, and there are reasons to believe that the unobserved heterogeneity in α_i is correlated with one or more of the explanatory variables.

$$Cov(\alpha_i|X_{it}) \neq 0 \quad (8.4)$$

We will now look at three different methods that can be used to estimate panel data models.

8.3.2.1 The fixed effects model

The fixed effects estimator solves the problem of unobservable heterogeneity by transforming the model in a way that excludes the cross-section variation in (1). In this approach, consistent estimation does not impose that α_i and X_{it} are uncorrelated (3), and the model is robust under assumption (4). By including an individual-specific intercept in the model, we can write the model as

$$Y_{it} = \alpha_i + X'_{it}\beta + u_{it}, \quad u_{it} \sim IID(0, \sigma_u^2) \quad (8.5)$$

, where α_i are fixed unknown constants that are estimated, and where u_{it} is typically independent and identically distributed ($IID(0, \sigma_v^2)$) over the countries in the dataset and time. The X_{it} are assumed to be independent of the v_{it} for all i and t (Baltagi, 2013).

We eliminate the individual effects α_i first by transforming the data. First, we average equation (5) for each i

$$\bar{Y}_i = \alpha_i + \bar{X}_i' \beta + \bar{u}_i \quad (8.6)$$

Where $\bar{Y}_i = T^{-1} \sum_t y_{it}$ and \bar{X}_i and \bar{u}_i are defined in the same way. Because α_i is fixed over time it appears in both (5) and (6). If we subtract (6) from (5) for each t , we get

$$(Y_{it} - \bar{Y}_i) = (X_{it} - \bar{X}_i)' \beta + (u_{it} - \bar{u}_i) \quad (8.7)$$

The model in (7) can be estimated by OLS, and the OLS estimator for β obtained from this transformed model is called the fixed effects estimator ($\hat{\beta}_{FE}$).

The fixed effects estimator uses the only time variation in y and x *within* each cross-sectional observation. That is, the fixed effects estimator uses only variation within a country over time to find the effects of the independent variables on the dependent variable (Wooldridge, 2009).

8.3.2.2 The random effects model

It is commonly assumed in regression analysis that all factors that affect the dependent variable, but have not been included as regressors, can be appropriately summarized by a random error term. In this case, this leads to the assumption that the α_i are random factors, independently and identically distributed over countries in the dataset. Thus, we write the random effects model as

$$Y_{it} = \beta_0 + X_{it}' \beta + \alpha_i + u_i, \quad u_{it} \sim IID(0, \sigma_u^2); \quad \alpha_i \sim IID(0, \sigma_\alpha^2) \quad (8.8)$$

, where $\alpha_i + u_i$ is treated as an error term consisting of two components: an individual specific component, which does not vary over time, and a remainder component, which is assumed to be uncorrelated over time. That is, all correlation of the error terms over time is attributed to the individual effects α_i . It is assumed that α_i and u_i is mutual and independent and independent of X_{js} (for all j and s). This implies that the OLS estimator for β_0 and β from (8) is unbiased and consistent.

The error components structure implies that the composite error term $\alpha_i + u_i$ exhibits a particular form of autocorrelation. The random effects model solves the autocorrelation problem by transforming the error term.

By transforming the error term and using generalised least squares on the transformed model, the random effects model is efficient. The GLS estimator is obtained by estimating the following transformed model

$$(Y_{it} - \vartheta \bar{Y}_i) = \beta_0(1 - \vartheta) + (X_{it} - \vartheta \bar{X}_i)' \beta + v_{it} \quad (8.9)$$

, where a fixed proportion ϑ of the individual means is subtracted from the data to obtain the transformed model ($0 \leq \vartheta \leq 1$). The fixed proportion ϑ is given by

$$\delta = 1 - \sqrt{\frac{\sigma_u^2}{\sigma_u^2 + T\sigma_\alpha^2}} \quad (8.10)$$

The variance components σ_α^2 and σ_u^2 are unknown in practice, and have to be estimated. In this case we can use the feasible GLS estimator (EGLS), where the unknown variances are consistently estimated in a first step. The resulting EGLS estimator is known as the random effects estimator for β (and β_0). In addition, the transformation gives an error term that is independent and identically distributed over countries and time.

8.3.2.3 Fixed effects or random effects?

If we want to compare the fixed effects and random effects estimators, Hausman (1978) has suggested a test for the null hypothesis that X_{it} and α_i are uncorrelated. The general idea of a Hausman test is that the estimators are compared: one that is consistent under both the null hypothesis and the alternative hypothesis (the fixed effects estimator) and one that is consistent under the null hypothesis only (the between estimator). We can write the null and alternative hypothesis as:

$$H_0: Cov(\alpha_i | X_{it}) = 0 \quad H_A: Cov(\alpha_i | X_{it}) \neq 0$$

Under the null hypothesis, the fixed effects estimator and the random effects estimator gives approximately the same estimators. This means that $(\hat{\beta}_{FE} - \hat{\beta}_{RE}) = 0$. The null hypothesis is unlikely to hold if there is a significant difference between the two estimators. One reason why the two estimators would be different is the existence of correlation between X_{it} and α_i , although other sorts of misspecification can also lead to rejection. If we reject the null hypothesis the random effects estimator is inconsistent and we should choose the fixed effects estimator.

8.3.2.4 The between effects estimator

The between effects estimator exploits the between dimension of the data. That is, the differences between countries, and is determined as the OLS estimator in a regression of individual averages of y on individual averages of x .

The between estimator for β is derived from the general formula for the GLS estimator

$$\hat{\beta}_{GLS} = \Delta \hat{\beta}_B + (I_K - \Delta) \hat{\beta}_{FE} \quad (8.11)$$

, where

$$\hat{\beta}_B = (\sum_{i=1}^N (\bar{x}_i - \bar{x})(\bar{x}_i - \bar{x})')^{-1} \sum_{i=1}^N (\bar{x}_i - \bar{x})(\bar{y}_i - \bar{y}) \quad (8.12)$$

is the between estimator for β . It is the OLS estimator in the model for individual means

$$\bar{y}_i = \beta_0 + \bar{x}_i' \beta + \alpha_i + \bar{u}_i, \quad i = 1, \dots, N \quad (8.13)$$

The between estimator is obtained as the OLS estimator on the cross sectional equation (13) (where we include an intercept, β_0) and we use the time averages for both y and x and then run a cross-sectional regression (Wooldridge, 2009). The between estimator effectively discards the time series information in the data set.

In summary, there are a range of estimators for the parameter vector β . The basic two are the fixed effects estimator and the between estimator (Verbeek, 2008). I will use these two estimators in my empirical analysis. There are two reasons for that. First, as the data in this analysis consist of a larger geographical unit, with countries from one region, we cannot treat the sample as a random sample from a larger population. In this case it makes sense to think of each α_i as a separate intercept to estimate for each cross-sectional unit. I therefore use the fixed effects estimator in the regression analysis. In addition, fixed effects is almost always much more convincing than random effects for policy analysis using aggregate data (Wooldridge, 2009). Second, in addition to the fixed effects estimator I use the between estimator to better compare the result in this analysis with previous research.

8.2.3 Robustness

There is the proposition that any FDI decision is made based on historical data and hence all the independent variables that are supposed to have an effect on FDI inflow would materialize their effect in the next period. In addition there may be reverse causality or endogeneity problems. Therefore, for robustness check all the independent variables are lagged by one period.

In addition there are some situations that can cause the OLS estimator to no longer be unbiased and consistent. These situations can be measurement errors in the regressors, and simultaneity or endogeneity of regressors, or heteroscedasticity.

8.3.3.1 Heteroscedasticity

The homoscedasticity assumption states that the variance of the unobservable error, u , conditional on the explanatory variables, is constant. Homoscedasticity fails whenever the variance of the unobservable changes across different values of the explanatory variables

The standard error component model given by equations (1) and (2) assumes that the regression disturbances are homoscedastic with the same variance across time and countries. This could be a restrictive assumption of panels, where the cross-sectional units may be of varying size and, as a result, may exhibit different variation (Baltagi, 2013). Assuming homoskedastic disturbance when heteroskedaticity is present will still result in consistent estimates of the regression coefficients, however, these estimates will not be efficient (Baltagi, 2013). In addition, the standard errors of these estimates will be biased (Baltagi, 2013).

8.3.3.2 Endogeneity

Endogeneity is a term that is used to describe the presence of an endogenous explanatory variable in a regression model. That is an explanatory variable that is correlated with the error term, either because of an omitted variable, measurement error, simultaneity, or reverse causality. This can cause the coefficient estimators to be inconsistent.

Omitted variables

Omitted variables bias arises if a relevant explanatory variable that is correlated with the included regressors is omitted from the model. Implicitly this assumes that the conditioning set of the model is larger than the set of right-hand-side variables in the equation. Omitted variable bias also arises if there are unobservable omitted factors in the model that happen to be correlated with one or more of the explanatory variables (Verbeek, 2008). The presence of an unobserved component in the equation that is potentially correlated with the observed regressors is also referred to as ‘unobserved heterogeneity’. The problem with such situations is that OLS does not control for these differences and may therefore attach the wrong importance to differences in the observed explanatory variables.

Measurement error

Another situation where the OLS estimator is likely to be inconsistent arises when an explanatory variable is subject to measurement error. Measurement error is defined as the error resulting from the measurement of a variable.

Simultaneity

Another major source is the simultaneity problem that arises when the regression equation is one of several structural equations of a simultaneous model and hence contains current endogenous explanatory variables (Verbeek, 2008).

Reverse causality

Another form of the endogeneity problem is reversed causality. It refers to the possibility that not only X_i has an impact on Y_i but at the same time Y_i has an impact on one or more elements of X_{2i} .

These situations are, however, not likely in this analysis. One situation that is more likely to occur in this analysis is multicollinearity.

Multicollinearity

The term multicollinearity is used to describe the problem when an approximate linear relationship among the explanatory variables leads to unreliable regression estimates. The approximate relationship is not restricted to two variables but can involve more or even all regressors (Verbeek, 2008). The fact that I include an interaction term between institutions and natural resources in the regression makes the problem of multicollinearity very likely in this regression. The correlation matrix in table A2 shows that the correlation between natural resources and the interaction term is high. I will therefore do several robustness checks, to be certain that results in the regression analysis are not biased.

8.2.4 Descriptive Statistics

The descriptive statistics of the data set is presented in table 6. The descriptive statistics is included to explain the data in this study. The descriptive statistics shows that there are some missing variables in the sample, the data set is therefore unbalanced. We see that there is large variation in Chinese FDI.

Table 6: Descriptive Statistics for the African countries dataset.

Variable	Obs	Mean	Std. Dev.	Min	Max
Chinese FDI	356	42.39553	265.3897	-63.14	4807.86
GDP	487	2.47e+10	5.17e+10	9.07e+07	4.02e+11
Trade	472	78.97908	33.18004	21.67376	209.8743
Inflation	464	65.23099	1134.167	-17.62744	24411.03
Institutions	490	-.6621024	.6186313	-1.855239	1.055742
Natural Resources	333	30.96142	31.19602	0	98.63061

The number of observations differs for each variable, with no two numbers being alike. Natural Resources and Chinese FDI has the least observations, with 333 and 356 observations respectively, whereas GDP, Trade, Inflation and Institutions range between 464 and 490. The table shows that there is a large variation in Chinese FDI, with standard deviation of roughly six times the size of the mean. There are also great differences in GDP, with a very large standard deviation. This is also the case for trade, which ranges from a minimum of Inflation varies violently, with a disturbing max at 24 411 per cents per year. This figure stems from Zimbabwe in 2007. The institutions indicator has a negative mean. The numbers range from 1.855239 to 1.055742, on the scale from -2.5 to 2.5, where higher numbers suggests better institutions. Natural Resources are also unevenly distributed, with a minimum of 0. In general the table shows a very diverse dataset, with very different countries and large variations in observations.

9 Regression results

In this chapter, I present the regression results. The aim of this master thesis is to investigate the determinants of Chinese outward FDI in Africa. In this section the described model in the previous section will be applied to the collected data, first by looking at Chinese outward FDI to African countries, then by looking at Chinese outward FDI to the 139 countries globally, in the extended dataset. All calculations reported here are obtained using STATA.

In the first part of the analysis, I perform fixed effects estimation. This is shown in the two first columns in the regression result tables. Here, the interaction term between institution and natural resources is also included in the second column. In the second part of the analysis the average of Chinese outward FDI flows for the period 2003-2011 are regressed on annual averages of the of the explanatory variables, using the between estimator. The last two columns in the tables show this regression. In the last column I include an interaction term between institution and natural resources.

The fixed effects estimator let us use the changes in the independent variables over time to estimate the effects of the independent variables on the dependent variable within a country, capturing the time-dimension of the data.

The between estimator, on the other hand, allows us to use the variation between countries to estimate the effects of the independent variables on the dependent variable. That is, the between estimator estimates the effects of the independent variables on the dependent variable using the cross-sectional information in the data. Using the between estimator is equivalent to taking the mean of each country across time and running a regression on the collapsed dataset of means.

9.1 Results: African countries

I first do an econometric analysis where the logarithm of annual aggregated Chinese outward FDI flows to 49 African countries in the period 2003-2011 are regressed on the explanatory variables discussed in section 8.1.2, using the fixed effects estimator and the between effects estimator, as described in section 8.3. In the main regression I use the rule of law index from the World Bank Institute Governance Indicators as a proxy for institutional quality.

The main results of my econometric analysis of host country determinants of Chinese FDI in Africa are presented in table 7. The first two columns of the table show the estimation results

when the fixed effects estimator is used, while in the last two columns the between effects estimator is used.

Table 7: Main result on determinants of Chinese FDI in Africa.

	(1)	(2)	(3)	(4)
	Fixed effects	Fixed effects	Between estimator	Between estimator
GDP	2.62e-11 ^{***} (4.87e-12)	2.33e-11 ^{***} (4.86e-12)	1.25e-12 (4.77e-12)	1.61e-12 (4.84e-12)
Trade	0.0460 ^{***} (0.0125)	0.0393 ^{**} (0.0125)	-0.0152 (0.00910)	-0.0170 (0.00956)
Inflation	0.00336 (0.00199)	0.00497 [*] (0.00202)	-0.000706 (0.00369)	-0.000633 (0.00372)
Institutions	-0.921 (0.933)	-2.746 [*] (1.090)	0.690 (0.561)	1.005 (0.730)
Natural resources	0.00992 (0.0114)	0.0574 ^{**} (0.0191)	0.0406 ^{***} (0.00991)	0.0309 (0.0174)
Natural resources*Institutions		0.0622 ^{**} (0.0203)		-0.0126 (0.0184)
_cons	-3.350 ^{**} (1.026)	-3.689 ^{***} (1.010)	1.541 (0.864)	1.824 (0.965)
<i>N</i>	231	231	231	231
<i>R</i> ²	0.224	0.261	0.455	0.463

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The first column show the result when the interaction term of institutions and natural resources is excluded from the main specification. The results show that host country GDP and trade openness have a significant association with Chinese FDI. As the fixed effects estimator use the changes in the independent variables over time within a country, the results suggests that countries receive more Chinese FDI in periods when they have larger GDP and more trade openness.

However, GDP and trade openness are not significant when the between effects estimator is used. As the between effects estimator uses the variation between countries to estimate the effects of the independent variables on the dependent variable, this suggest that countries that have a higher GDP and more trade openness relative to the other countries in the sample, do not receive more Chinese FDI.

This may suggest that Chinese FDI in Africa has become more market-seeking in recent years, but not necessarily. The fact that GDP and trade openness are insignificant when the between effects estimator is used, suggest that the Chinese FDI in Africa is not market-

seeking in general. It may instead suggest that there is a path-dependence for Chinese FDI in Africa. That is, they first invested in countries with poor institutions and natural resource, because of the natural resources, and then they have become more market-seeking over time in the countries that they are present in, because they want to diversify their investments in these countries.

If the Chinese FDI in fact has become more market-seeking, there may be several reasons for this. First, Africa's economic growth accelerated in the years following the 2000, making it the world's second-fastest-growing region after emerging Asia. In addition, private consumption in Africa rose by \$568 billion from 2000-2010 (McKinsey, 2012). According to the World Investment Report 2013, the expansion of FDI flows in some consumer-oriented industries in Africa is indications that the prospects of the greater spending power of African consumers are attracting more foreign investors. In addition, the largest consumer markets in Africa also count among the continent's main FDI destinations for consumer oriented FDI in manufacturing and services (UNCTAD, 2013b). The African consumer market is highly concentrated, with 10 of 53 countries – Algeria, Angola, Egypt, Ghana, Kenya, Morocco, Nigeria, South Africa, Sudan and Tunisia – accounting for 81 per cent of Africa's private consumption in 2011 (McKinsey, 2012). Some of these countries are among the largest recipient countries of Chinese FDI, suggesting that Chinese investors have diversified their investment, becoming more market-seeking.

When including the interaction term between institutions and natural resources, and using the fixed effects estimator, all the explanatory variables are significant in some degree. This may because of be multicollinearity. However, the correlation matrix⁶ shows no strong correlation between the explanatory variables, except between GDP and institutions, as well as the interaction term and natural resources.

The institution coefficient is significant and negative. As the rule of law index, which is used to proxy institutions in this regression, runs from -2.5 to 2.5, with higher numbers suggesting better institutions. The increase in this index, and hence slightly better institutions, will cause Chinese FDI to the country to be reduced. This may suggest that countries receive more Chinese FDI in periods when their institutions are poorer, relative to the country's own average.

⁶ Table A6 in Appendix A.

However, the interaction term of natural resources and institutions is significant and positive. As the fixed effects estimator use the changes in the independent variables over time to estimate the effects on the dependent variable within a country, the results shows the effect of increased exports and changes in the institutional environment within a country, relative to the country's average export of natural resources and institutional quality, on Chinese FDI. The result therefore suggests that countries receive more Chinese FDI in periods with more export of natural resources, and that this effect is stronger in countries with good institutions. However, whether the overall effect of institutions is positive or negative depends on the level of natural resource export, as the derivative of FDI with respect to institutions is the direct effect (-2.746) plus the indirect effect (0.0622) times the level of natural resource export. The overall effect of institutions is 0 when natural resources are $(2.746/0.0622)$ and negative (positive) when natural resource export is lower (higher) than $(2.746/0.0622)$.

The fact that the interaction term is positive and significant contrasts previous research, as previous research has found Chinese FDI to be attracted to countries that have poor institutions (Kolstad and Wiig, 2011) and high political risk (Buckley et al., 2007), and may suggest that the Chinese investments in Africa have evolved in recent years.

I suggest three possible explanations of this result.

First, this result may be evidence of the latecomer perspective. That is, the Chinese FDI in Africa in the period 2003-2006, which is the period looked at in Kolstad and Wiig (2011), may have gone to countries that have poor institutions, such as Sudan and Angola, not because they have poor institutions, but because these were the countries that was in need for increased inward FDI, and where the Western firms were not largely present. This may have given the Chinese investors an opportunity to invest in these countries. That is, Chinese investments in the early 2000s went to countries with poor institutions and natural resources, because these countries represented the only available locations for a latecomer such as China.

According to Alden and Davies (2006) China has overcome its role as a latecomer to the African continent by having a willingness to work with any state, regardless of its international standing, based upon the Chinese foreign policy precepts of non-interference in domestic affairs in other states. In practice, this has meant that Chinese investors have been able to invest in pariah regimes which Western firms are barred from doing business in. China has also used the lavishing of diplomatic attention, coupled with support of prestige projects

and development assistance to potential recipient countries, as a prominent feature of the MNC's overall bidding process, to secure investment projects (Alden and Davies, 2006).

One evidence of this is the Sinopec's acquisition of lease of Angola's Block 18, which Shell had decided to sell its stake in to the Indian company, the Oil and Natural Gas Corporation (ONGC), when a last minute decision by the state-owned Angolan company Sonagol, which is the company responsible for the management of oil and gas reserves in Angola, gave the rights to the Chinese state-owned company Sinopec. Crucial to the turnaround was the Chinese government's willingness to provide a \$2 billion loan to the Angolan government (Alden and Davies, 2006). According to Corkin (2011) the Chinese loans initially helped facilitate the Chinese state-owned enterprise, Sinopec, access to Angola's oil.

In Sudan, the Chinese diplomatic support for the government in Khartoum during the civil war with the South, and later the Darfur region, as well as supplying the country with arms and military hardware, have played a significant role in facilitating the Chinese investors relationship with Sudan (Alden and Davies, 2006).

This shows that Chinese government has a highly visible role in helping the Chinese investors to establish business in these countries, and supports the interpretation that Chinese FDI have flown to countries that have unexploited resources and poor institutional environment, such as Angola and Sudan.

Another explanation of the findings that Chinese FDI is attracted to countries with good institutions and natural resources in this data sample, may be that Chinese investors did a lot of investments in countries with poor institutions and natural resources when they established themselves there, and now they can benefit from these investments, for example the investments in the oil sector in Angola and Sudan. They do not need to invest as much as they did when they started up and therefore the negative and significant relationship between institutions, natural resources and Chinese FDI found in Kolstad and Wiig (2011) is not there anymore, when looking at determinants of Chinese FDI. However, this does not mean that the Chinese investors have changed their attitude when it comes to investments in countries with poor institutions. Since they still are largely present in Sudan and Angola, this can be a sign that the Chinese can manage in countries with poor institutions.

Third, over the years, the Chinese outward FDI in Africa has increased exponentially and the Chinese investors have diversified their investments on the continent, which the significance

of GDP and trade openness confirms. This may be the reason why the association between poor institutions and abundances of natural resources changes from a negative determinant of Chinese FDI in Africa in Kolstad and Wiig (2011), to a positive determinant in this thesis, where the data covers additional years.

The two last columns in the table show the results when using the between effects estimation on the main specification. Here, only natural resources have a significant and positive effect on Chinese FDI to African countries. This result reassures that Chinese FDI in Africa is attracted to countries with abundant reserves of natural resources. However, when adding the interaction term, none of the coefficients are significant.

The fact that the between estimator gives so few significant results weakens the result from the fixed effects estimation. I cannot say that Chinese FDI is attracted to countries with better institutions and natural resources in general, just that countries receive more Chinese FDI in periods with more export of natural resources, and that this effect is stronger in countries with good institutions.

9.1.1 Testing different variables in the main specification

In addition to the rule of law index, I also test for other institutional variables, namely political risk⁷ and democracy⁸. The GDP and trade variables are robust to replacing the institutional index with these indexes, when the fixed effects estimator is used. This supports the result from the regression on the main specification.

I find a significant effect of political risk only when including the interaction term between political risk and natural resources. Again, the interaction term is positive and significant, supporting the explanation that the Chinese investors is not attracted to high political risk, but were only interested in investing in countries with high political risk because these were the countries that was available in the early years of Chinese investment in Africa.

When including the democracy index I get a significant and negative coefficient. This may suggest that when a country becomes more democratic, the Chinese investments in the country are reduced. The democracy index runs from 0 to 10, with higher numbers suggesting a more democratic country. The increase in 1 on the democracy index will cause Chinese FDI to the country to be reduced with 0.4 percent. As China itself is not a democratic country, this

⁷ Table B1 in Appendix B.

⁸ Table B2 in Appendix B.

may support the notion that Chinese investors like to invest in countries that are similar to themselves. However, when democracy is interacted with natural resources there is no significant effect.

In addition to testing for GDP, I also include GDP growth⁹ and GDP per capita¹⁰. I find no significant effect of GDP growth. However, GDP per capita is significant when I use fixed effects estimation. This suggests that a country will receive more Chinese FDI in periods when GDP per capita is higher, and that Chinese FDI to a country will increase as GDP per capita increases. As GDP per capita is an indicator for a country's population's income, and as a population with high income may be able to buy the Chinese manufacturing goods, this is supporting the market-seeking motivation of the Chinese investors. The fact that institutions are no longer significant when adding GDP per capita to the regression may be because of the fact that institutions and GDP per capita is highly correlated. That is, a country with better institutions may have higher GDP per capita as good institutional quality gives people better incentives to earn more and own more.

To determine what form of natural resources matter for Chinese FDI in Africa, I split the natural resource proxy into fuel export and ores and metal export. Disaggregation of the natural resource proxy shows that ores and metals are significant¹¹, and that fuel is not significant¹². This is the opposite result of what one would expect, and may be because South Africa, as the largest recipient of Chinese FDI in Africa, is biasing the result because of the fact that the Chinese invests in ores and metals in South Africa. I therefore rerun the regression of the disaggregated natural resource proxy and exclude South Africa¹³.

When doing this, I get a significant effect of fuel as well as ores and metals, suggesting that the Chinese FDI in Africa is attracted to fuel, ores and metals. This makes sense, given the background information on Chinese investments in Africa. In addition, when rerunning the regression with disaggregated natural resources proxy on the extended dataset that includes all countries, both ores and metals and fuel are significant¹⁴. This supports that natural resources – fuel, ores and metals are determining factors for Chinese outward FDI.

⁹ Table B3 in Appendix B.

¹⁰ Table B4 in Appendix B.

¹¹ Table B6 in Appendix B.

¹² Table B7 in Appendix B.

¹³ Tables B8 and B9 in Appendix B.

¹⁴ Tables C6 and C7 in Appendix C.

9.1.2 Are Chinese investors different than other investors in Africa?

In addition to examine the main determinants of Chinese FDI to Africa, I am also interested in examine whether Chinese investors differ from other investors in Africa. To test this, I rerun my estimations using total FDI inflow, from all countries, to the same 49 African countries as the dependent variable. Here, I also use both the fixed effects estimator and the between effects estimator to capture both the time-series dimension and the cross-section dimension of the data.

The results on determinants of total inflow of FDI to African countries in the period 2003-2011 are presented in table 8. The regressions in this table include the same explanatory variables as the main regression in table 7.

Table 8: Regression results when total inflow of FDI to African countries is the dependent variable.

	(1)	(2)	(3)	(4)
	Fixed effects	Fixed effects	Between estimator	Between estimator
GDP	2.98e-12 (2.45e-12)	3.26e-12 (2.47e-12)	6.60e-12 (3.45e-12)	7.86e-12* (3.59e-12)
Trade	0.00967 (0.00580)	0.00967 (0.00580)	-0.000401 (0.00910)	-0.00234 (0.00919)
Inflation	0.0000185 (0.0000463)	0.0000159 (0.0000463)	-0.0000869 (0.000323)	-0.0000852 (0.000321)
Institutions	-0.0990 (0.268)	-0.282 (0.318)	0.823 (0.519)	1.283 (0.640)
Natural resources	0.00195 (0.00567)	0.00819 (0.00815)	0.0247* (0.00919)	0.00836 (0.0163)
Natural resources*Institutions		0.00820 (0.00768)		-0.0218 (0.0179)
_cons	18.58*** (0.479)	18.47*** (0.489)	18.56*** (0.852)	18.90*** (0.892)
<i>N</i>	288	288	288	288
<i>R</i> ²	0.025	0.030	0.325	0.348

Standard errors in parentheses.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The results show that natural resources and GDP are the only significant variables, when the between effects estimator is used. In the main regression on Chinese investment in Africa, presented in table 7, only natural resources are significant when the between effects estimator is used. Institutions and the interaction term are not significant, neither when the fixed effects estimator or the between estimator is used.

This indicates that investors in general are attracted to countries with larger markets, and natural resources. The result is somewhat different from the result of the main regression of Chinese FDI, in that institutions are not a significant determinant, and this may suggest that institutions are not important for other investors. However, this seems rather unlikely, and it is, based on these results, difficult to argue that Chinese investors act differently than other investors in Africa.

9.1.3 Robustness

To test whether the main results of the analysis are robust, I perform several robustness tests.

First, I test the robustness of the main results by adding a number of control variables, including exchange rate, real interest rate, educational levels, infrastructure and total FDI inflow to the African countries.¹⁵ When including several control variables, I find that natural resources is significant both when the between estimator is used, and the fixed effects estimator is used. That is, Chinese FDI is more attracted to countries that have a higher export of natural resources, than to countries that do not export so large amounts of natural resources. In addition, the fixed effects estimation shows that a higher export of natural resources within a country over time is also significant and positively associated with Chinese FDI. The significance of the interaction term when the fixed effects estimator is used, is also robust to adding a number of other control variables, suggesting that the results from the regression on the main specification is robust, when it comes to natural resources and institutions.

Infrastructure and education in addition to natural resources are significant, when the fixed effects estimator is used. However GDP and trade are not significant when adding a number of control variables. This may be because infrastructure and education is correlated to GDP.

There is no significant effects in the specification that includes a number of control variables, when the between estimator is used on the regression.

Second, I remove South Africa from the sample. Although resources have played a role in Chinese investments in South Africa, involvement in other sectors suggest that getting access to the South African market has been an important motive for Chinese FDI (Kolstad and Wiig, 2011). Since the quality of institutions in South Africa is much higher than in other African countries, in addition to the fact that the country has a higher GDP and GDP per capita than other countries on the continent, the Chinese FDI in the country may be motivated

¹⁵ Table B5 in Appendix B.

by other factors, than Chinese FDI to the other African countries that has a poor institutional environment and a poorer population. I therefore exclude South Africa from the sample and rerun the regression on the main specification.

The results of the regression when South Africa is excluded from the sample are presented in table 9. The results show that excluding South Africa from the regression does not qualitatively change the results. This suggests that Chinese FDI in the other African countries is determined by the same determinants as in South Africa.

Table 9: Regression results when South Africa is excluded from the sample.

	(1) Fixed effects	(2) Fixed effects	(3) Between estimator	(4) Between estimator
GDP	2.75e-11*** (5.79e-12)	2.53e-11*** (5.71e-12)	-4.60e-12 (5.44e-12)	-4.41e-12 (5.45e-12)
Trade	0.0476*** (0.0127)	0.0408** (0.0126)	-0.0160 (0.00873)	-0.0184 (0.00913)
Inflation	0.00335 (0.00199)	0.00494* (0.00202)	-0.00100 (0.00354)	-0.000923 (0.00355)
Institutions	-1.006 (0.939)	-2.805* (1.094)	0.636 (0.538)	1.043 (0.696)
Natural resources	0.00987 (0.0115)	0.0575** (0.0193)	0.0434*** (0.00960)	0.0309 (0.0166)
Natural resources*Institutions		0.0619** (0.0204)		-0.0163 (0.0177)
_cons	-3.498** (1.055)	-3.844*** (1.038)	1.598 (0.829)	1.968* (0.922)
<i>N</i>	223	223	223	223
<i>R</i> ²	0.206	0.244	0.472	0.486

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

As South Africa possess large reserves of non-fuel minerals, such as platinum, and manganese, and being the top recipient country for Chinese FDI in the period 2003-2010, South Africa may have biased the result that fuel is not a significant determinant for Chinese FDI in Africa. I therefore split the natural resource proxy into ores and metals and fuel and rerun the regression with the sample where South Africa is excluded.

The result shows that there in fact is a significant effect of fuel export, when the between effects estimator is used. That suggests that oil is an important determinant of Chinese FDI in Africa, except for South Africa.

However, South Africa is not the only country in Africa with a better institutional environment than the average. I therefore remove the five countries with the best institutional quality in Africa¹⁶, namely Mauritius, Cape Verde, Seychelles, and South Africa, as these outliers, or extreme observations may bias the results.

The results of the regression when the outliers are removed are presented in table 10. The table shows that the results do not qualitatively change when these five countries are excluded from the sample. This suggests that the main result of this analysis is robust, and not biased because of the good institutions of these countries.

Table 10: Regression results when the five outlier countries are excluded from the sample.

	(1)	(2)	(3)	(4)
	Fixed effects	Fixed effects	Between estimator	Between estimator
GDP	2.70e-11*** (5.82e-12)	2.51e-11*** (5.78e-12)	-4.15e-12 (5.24e-12)	-4.43e-12 (5.25e-12)
Trade	0.0467*** (0.0138)	0.0409** (0.0138)	-0.0135 (0.00859)	-0.0154 (0.00880)
Inflation	0.00342 (0.00200)	0.00477* (0.00204)	-0.00166 (0.00346)	-0.000975 (0.00353)
Institutions	-0.822 (0.975)	-2.465* (1.164)	0.416 (0.647)	1.223 (1.034)
Natural resources	0.00809 (0.0117)	0.0506* (0.0206)	0.0401*** (0.00932)	0.0246 (0.0181)
Natural resources*Institutions		0.0542* (0.0217)		-0.0211 (0.0211)
_cons	-3.190** (1.152)	-3.776** (1.157)	1.425 (0.818)	2.018 (1.011)
<i>N</i>	197	197	197	197
<i>R</i> ²	0.209	0.239	0.479	0.498

Standard errors in parentheses.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

9.2 Results: All countries

The results in the previous section provide a view of the main determinants of Chinese FDI to Africa. As noted earlier, I am also interested in whether the pattern of Chinese investment in Africa is different from Chinese investments elsewhere. To test this, I run regressions on a larger dataset of Chinese FDI to 139 countries. Comparing the significance of variables and their estimated coefficients will provide information on whether other factors matter for China

¹⁶ According to the Ibrahim Index of African Governance of the Mo Ibrahim Foundation.

in Africa than elsewhere, and whether the impact of certain determinants is stronger or weaker in Africa than elsewhere.

The main results of my econometric analysis of the host country determinants of Chinese FDI globally, using the dataset which include 139 countries where Chinese investors have invested in the period 2003 to 2011, are presented in table 11. The first two columns in the table show the estimation results when the fixed effects estimator is used, while in the last two columns the between effects estimator is used.

Table 11: Main result on determinants of Chinese FDI globally.

	(1)	(2)	(3)	(4)
	Fixed effects	Fixed effects	Between estimator	Between estimator
GDP	3.35e-13* (1.45e-13)	3.42e-13* (1.47e-13)	5.14e-13*** (1.01e-13)	5.06e-13*** (1.02e-13)
Trade	0.00779* (0.00343)	0.00786* (0.00345)	0.00781* (0.00339)	0.00759* (0.00342)
Inflation	0.0000694 (0.0000941)	0.0000680 (0.0000942)	0.0000165 (0.000352)	0.0000175 (0.000353)
Institutions	0.629** (0.232)	0.571 (0.310)	-0.00430 (0.202)	0.0914 (0.270)
Natural resources	0.0306*** (0.00624)	0.0311*** (0.00650)	0.0181** (0.00607)	0.0172** (0.00631)
Natural resources*Institutions		0.00176 (0.00621)		-0.00369 (0.00693)
_cons	0.391 (0.380)	0.385 (0.381)	0.474 (0.414)	0.488 (0.416)
<i>N</i>	728	728	728	728
<i>R</i> ²	0.066	0.066	0.224	0.226

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The first column of results excludes the interaction term of institutions and natural resources, and shows that GDP, trade openness, institutions and natural resources has significant associations with Chinese FDI to the 139 countries in the sample. As the second column shows, institutions are not significant when the interaction term between institutions and

natural resources is included to the specification. This may come from the fact that institutions and the interaction term are highly correlated¹⁷.

As the fixed effects estimator use the changes in the independent variables over time within a country, the fact that institutions are positive and significant, when the interaction term is not included may suggest that countries receive more Chinese FDI in periods when their institutions are better, relative to their own average level of institutional quality.

The last two columns in table 11 show the results when the between estimator is used. Here, I find a significant effect of GDP, trade openness and natural resources, both when the interaction term of institutions and natural resources is excluded and included in the main specification. That is, GDP, or market size, and trade openness, in addition to natural resources, has significant association with Chinese FDI globally. This suggests that the Chinese FDI globally is market-seeking in addition to natural resource-seeking.

In sum, the main result that differs from Chinese investment in Africa is the fact that GDP and trade openness are significant when the between effects estimator is used. This is evidence of the fact that Chinese investments are market-seeking, as the result suggests that countries with larger markets and more trade openness receive more Chinese FDI. The second difference is the fact that institutions have a positive sign. As the fixed effects estimator is used, the result suggests that countries receive more Chinese FDI in periods when their institutions are better, relative to their own average, and hence suggest that the Chinese FDI globally is attracted to countries with good institutions.

9.2.1 Testing different variables in the main specification

In addition to the rule of law index, I also test for other institutional variables, namely political risk and democracy. The GDP and trade variables are robust to replacing the institutional index with these indexes, both when the fixed effects estimator and between effects estimator are used.

When I replace the rule of law index with the political risk index¹⁸ in the main specification, I find no significant effect of political risk, nor the interaction term, both when fixed effects estimator and between effects estimator is used. I find, however a significant negative effect of democracy¹⁹, when the fixed effects estimator is used. The interaction term between

¹⁷ The correlation matrix is presented in table A6 in Appendix A.

¹⁸ Table C1 in Appendix C.

¹⁹ Table C2 in Appendix C.

democracy and natural resources are also significant, however this effect is positive, suggesting that that countries receive more Chinese FDI in periods with more export of natural resources, and that this effect is stronger in countries with a more democratic form of government.

When replacing GDP with GDP growth²⁰ I find no significant effect. When replacing GDP with GDP per capita²¹, however, I find a significant effect of GDP per capita, when using the fixed effects estimator, suggesting that a country will receive more Chinese FDI in periods when GDP per capita is higher, and that Chinese FDI to a country will increase as GDP per capita increases. As GDP per capita is an indicator for a country's population's income, and purchasing power, this supports the market-seeking motivation of the Chinese investors.

As discussed in the previous chapter, when rerunning the regression with disaggregated natural resources proxy on the extended dataset that includes all countries, both ores and metals and fuel are significant²². This supports that natural resources, both in terms of fuel, ores and metals are determining factors for Chinese outward FDI.

When including other a number of control variables²³, including exchange rate, real interest rate, educational levels, infrastructure and total FDI inflow to the countries in the sample, I find a significant effect of infrastructure both when the fixed effects and between effects estimator is used. In addition inflation is negative and significant, when using the fixed effects estimator. This suggests that countries receive less Chinese FDI in periods when their inflation is higher, relative to their own average.

9.3 Summary of findings

The main finding in this regression analysis is that the interaction term of natural resources and institutions is significant and positive. This result contrasts previous research, as previous research has found Chinese FDI to be attracted to countries that have poor institutions (Kolstad and Wiig, 2011) and high political risk (Buckley et al., 2007), and may suggest that the Chinese investments in Africa have evolved in recent years.

Another main finding in the main regression analysis on Chinese FDI in Africa is that host country GDP and trade openness have a significant association with Chinese FDI. As the

²⁰ Table C3 in Appendix C.

²¹ Table C4 in Appendix C.

²² Tables C6 and C7 in Appendix C.

²³ Table C5 in Appendix C.

fixed effects estimator use the changes in the independent variables over time within a country, the results suggests that African countries receive more Chinese FDI in periods when they have larger GDP and more trade openness. This may suggest that Chinese FDI in Africa has become more market-seeking in recent years, but not necessarily. The fact that GDP and trade openness are insignificant when the between effects estimator is used, suggest that the Chinese FDI in Africa is not market-seeking in general.

When rerunning my estimations using total FDI inflow, from all countries, to the same 49 African countries as the dependent variable, the main results are that investors in general are attracted to African countries with larger markets, and more natural resource export. Although only natural resources are significant when the between effects estimator is used in the main regression on Chinese investment in Africa, GDP is significant when the fixed effects estimator is used, which suggests that countries receive more Chinese FDI in periods when they have larger GDP and more trade openness. The result suggests that Chinese investors in Africa are not so different than other investors in Africa, when it comes to market-seeking and natural resources-seeking. However, the main difference is that institutions are not a significant determinant when the dependent variable is total inflow of FDI, and this may suggest that institutions are not important for other investors, whereas for Chinese investors they are important.

When running the regressions on a larger dataset of Chinese FDI to 139 countries, to test whether Chinese investment in Africa is distinctive from Chinese investments elsewhere, the main results is that I find a significant effect of GDP, trade openness and natural resources, when the between estimator is used, both when the interaction term of institutions and natural resources is excluded and included in the main specification. The result suggests that GDP, or market size, and trade openness, in addition to natural resources has significant association with Chinese FDI globally, and thus, the Chinese FDI globally is market-seeking in addition to natural resource-seeking.

10 Concluding remarks

The aim of this thesis has been to investigate determinants of Chinese FDI in Africa, with a particular focus on institutions and natural resources.

China's outward FDI to Africa has in recent years increased exponentially. In 2005 Chinese FDI in Africa reached 1.6 billion US dollars, and by the end of 2011 this had increased to 16 billion US dollars. This has caused a great debate of the motives behind the increased Chinese presence on the continent, and the host country determinants of Chinese FDI.

According to the main results found in the econometric analysis Chinese FDI in Africa is attracted to countries with large markets and natural resources. The main finding of the thesis is that there is found no evidence that Chinese outward FDI is more attracted to natural resources in countries with poor institutions and high political risk. The results rather indicate that good institutions in interaction with natural resources are a determinant of Chinese FDI in Africa.

I have also looked at the question of whether the Chinese invest differently in Africa than other investors. Here, the main results are that investors in general are attracted to countries with larger markets, and more natural resource export. The result suggests that Chinese investors in Africa are not so different than other investors in Africa, when it comes to market-seeking and natural resources-seeking. However, the main difference is that institutions are not a significant determinant when the dependent variable is total inflow of FDI, whereas for Chinese FDI it is significant.

In addition, I have also looked at the question of whether Chinese investments in Africa are different than Chinese investments elsewhere. The result from this analysis suggests that GDP, or market size, and trade openness, in addition to natural resources has significant association with Chinese FDI globally, and thus, the Chinese FDI globally is market-seeking in addition to natural resource-seeking.

In sum, the investment pattern of Chinese FDI in Africa revealed in this thesis does not appear distinctive per se. However the fact that FDI is only one component, whereas trade and aid is the other two, in the Chinese involvement on the African continent, suggests that we need to look beyond differences in investment flows only, to assess the full impact of China's impact on the African development. For instance, a lot of the official development aid may in some

aspects be similar to FDI. A significant part of Chinese aid consists of investments in infrastructure tied to the use of Chinese entrepreneurs, but is still not regarded as FDI. This may have implications for the results of this thesis.

10.1 Additional research

In the process of working with the paper several other links and directions concerning the question have emerged. Due to the limited scope of this paper I have not been able to pursue all these interesting topics, but note that these can and will be interesting question to look closer into.

First there would have been great to be able to confirm the determinants of Chinese FDI in Africa with a different set of data. Although China's Ministry of Commerce reports data collected using a methodology in accordance with OECD and IMF guidelines, to UNCTAD and present the data in the *Statistical Bulletin of China's Outward Foreign Direct Investment*, it would be great to use data reported by a third party to control for the possibility of misreporting in the data set by the Chinese government.

In addition, it would be meaningful to conduct the analysis with sector specific data, making it easier to see which sectors the Chinese investment in Africa is going into. At last, it would be interesting to investigate the effects of the increased Chinese presence on the continent for the African host countries, in terms of trade and aid as well as FDI.

11 Literature

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12Appendix

12.1 Appendix A

Table A1: List of countries included

Comoros, Congo DR, Congo, Cote D'Ivoire, Djibouti, Egypt, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, South Africa, Sudan, Tanzania, Togo, Tunisia, Uganda, Zambia, Zimbabwe.

Table A2: Correlation Matrix for the African countries dataset.

	LFDI	gdp	trade	inflat~n	instit~s	natura~s	natres~t
LFDI	1.0000						
gdp	0.4708	1.0000					
trade	-0.1866	-0.1882	1.0000				
inflation	0.0063	-0.0569	0.0213	1.0000			
institutions	-0.1098	0.0752	0.3402	-0.2275	1.0000		
naturalres~s	0.4769	0.3125	-0.1258	0.0204	-0.4589	1.0000	
natresinst	-0.3204	-0.0865	0.1047	-0.1253	0.6964	-0.8310	1.0000

Table A3: List of countries included in the dataset including all countries

Afghanistan, Albania, Algeria, Angola, Argentina, Australia, Austria, Azerbaijan, Bahamas, Bahrain, Bangladesh, Barbados, Belgium, Benin, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Brunei Darussalam, Bulgaria, Burundi, Cambodia, Cameroon, Canada, Cape Verde, Central Africa, Chad, Chile, Colombia, Comoros, Congo DR, Congo, Cuba, Czech Republic, Cote D'Ivoire, Denmark, Djibouti, Ecuador, Egypt, Equatorial Guinea, Eritrea, Ethiopia, Fiji, Finland, France, Gabon, Gambia, Georgia, Germany, Ghana, Greece, Guinea, Honduras, Hong Kong, China, Hungary, India, Indonesia, Iran, Islamic Republic of, Iraq, Ireland, Israel, Italy, Japan, Jordan, Kazakhstan, Kenya, Korea, Kuwait, Kyrgyzstan, Lao People's Democratic Republic, Latvia, Lebanon, Lesotho, Liberia, Libya, Macao China, Madagascar, Malaysia, Malawi, Mali, Malta, Mauritania, Mauritius, Mexico, Mongolia, Morocco, Mozambique, Myanmar, Namibia, Nepal, Netherlands, New Zealand, Niger, Nigeria, Norway, Oman, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Qatar, Romania, Russian Federation, Rwanda, Samoa, Sao Tome and Principe, Saudi Arabia, Senegal, Seychelles, Sierra Leone, Singapore, South Africa, Spain, Sri Lanka, Sudan, Sweden, Switzerland, Tajikistan, Tanzania, Thailand, Togo, Tunisia, Turkey, Turkmenistan, Uganda, Ukraine, United Arab Emirates, United Kingdom, United States, Uruguay, Uzbekistan, Venezuela, Viet Nam, Yemen, Zambia, Zimbabwe

Table A4: Descriptive Statistics for the dataset that includes all countries.

Variable	Obs	Mean	Std. Dev.	Min	Max
FDI	1047	248.0489	2356.686	-721.68	38640.3
GDP	1373	3.40e+11	1.26e+12	9.07e+07	1.50e+13
Trade	1343	89.12323	52.48325	.3088029	446.0469
Inflation	1289	26.99536	680.6236	-17.62744	24411.03
Institutions	1374	-.1162029	1.022395	-1.955609	2.001923
Natural Resources	1099	28.34773	30.48663	0	99.73957

Table A5: Correlation Matrix for the dataset that includes all countries.

	LFDI	gdp	trade	inflat~n	instit~s	natura~s	natres~t
LFDI	1.0000						
gdp	0.2425	1.0000					
trade	0.1692	-0.1931	1.0000				
inflation	-0.0128	-0.0404	-0.0296	1.0000			
institutions	0.1063	0.3296	0.2802	-0.1609	1.0000		
naturalres~s	0.1511	-0.1539	-0.1319	0.0395	-0.3535	1.0000	
natresinst	-0.0192	0.1379	0.1435	-0.1267	0.6946	-0.4447	1.0000

12.2 Appendix B

Regression results from regressions on the African countries dataset. *logFDI* is the dependent variable.

Table B1: Regression result when the political risk index is included in the specification

	(1)	(2)	(3)	(4)
	Fixed effects	Fixed effects	Between estimator	Between estimator
GDP	2.61e-11 ^{***} (4.88e-12)	2.54e-11 ^{***} (4.75e-12)	3.15e-12 (4.60e-12)	3.04e-12 (4.68e-12)
Trade	0.0456 ^{***} (0.0126)	0.0441 ^{***} (0.0122)	-0.0101 (0.00951)	-0.0106 (0.00979)
Inflation	0.00334 (0.00201)	0.00407 [*] (0.00196)	-0.00273 (0.00353)	-0.00263 (0.00359)
Political risk	-0.00162 (0.416)	-1.274 [*] (0.549)	-0.0824 (0.332)	0.0156 (0.474)
Natural resources	0.0111 (0.0114)	0.0228 (0.0116)	0.0328 ^{***} (0.00855)	0.0319 ^{**} (0.00929)
Natural resources*political risk		0.0328 ^{***} (0.00958)		-0.00235 (0.00800)
_cons	-2.932 ^{**} (0.968)	-2.934 ^{**} (0.941)	0.988 (0.857)	1.048 (0.892)
<i>N</i>	231	231	231	231
<i>R</i> ²	0.220	0.266	0.431	0.433

Standard errors in parentheses.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B2: Regression result when the democracy index is included in the specification.

	(1)	(2)	(3)	(4)
	Fixed effects	Fixed effects	Between estimator	Between estimator
GDP	2.37e-11*** (5.34e-12)	2.20e-11*** (5.77e-12)	4.79e-12 (4.95e-12)	5.78e-12 (5.03e-12)
Trade	0.0563*** (0.0141)	0.0563*** (0.0141)	-0.00862 (0.00984)	-0.0127 (0.0106)
Inflation	0.00934 (0.0126)	0.00989 (0.0127)	-0.0125 (0.00786)	-0.0126 (0.00785)
Democracy	-0.0471** (0.0180)	-0.0445* (0.0183)	0.0397 (0.0627)	0.00151 (0.0724)
Natural resources	0.00918 (0.0122)	0.0126 (0.0130)	0.0330** (0.00926)	0.0243 (0.0124)
Natural resources*democracy		-0.00119 (0.00150)		0.00345 (0.00328)
_cons	-3.463*** (0.998)	-3.422*** (1.001)	0.698 (1.009)	1.083 (1.072)
<i>N</i>	202	202	202	202
<i>R</i> ²	0.239	0.242	0.420	0.440

Standard errors in parentheses.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ **Table B3: Regression result when GDP is replaced by GDP growth in the specification.**

	(1)	(2)	(3)	(4)
	Fixed effects	Fixed effects	Between estimator	Between estimator
GDP growth	0.0438 (0.0374)	0.0468 (0.0360)	0.0351 (0.135)	0.0123 (0.142)
Trade	0.0484*** (0.0134)	0.0389** (0.0132)	-0.0156 (0.00867)	-0.0178 (0.00945)
Inflation	0.00317 (0.00214)	0.00530* (0.00213)	0.0000887 (0.00465)	-0.000308 (0.00475)
Institutions	-0.753 (0.999)	-3.183** (1.146)	0.709 (0.541)	1.029 (0.764)
Natural resources	0.0115 (0.0122)	0.0742*** (0.0199)	0.0416*** (0.00893)	0.0332 (0.0167)
Natural resources*institutions		0.0823*** (0.0210)		-0.0114 (0.0190)
_cons	-2.788* (1.095)	-3.344** (1.065)	1.421 (1.141)	1.843 (1.349)
<i>N</i>	231	231	231	231
<i>R</i> ²	0.110	0.177	0.455	0.461

Standard errors in parentheses.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B4: Regression result when GDP is replaced by GDP per capita in the specification.

	(1)	(2)	(3)	(4)
	Fixed effects	Fixed effects	Between estimator	Between estimator
GDP per capita	0.00125*** (0.000184)	0.00114*** (0.000184)	-0.000149 (0.0000987)	-0.000147 (0.0000997)
Trade	0.0424*** (0.0121)	0.0363** (0.0120)	-0.0130 (0.00850)	-0.0149 (0.00908)
Inflation	0.00384* (0.00192)	0.00531** (0.00194)	-0.000155 (0.00358)	-0.0000797 (0.00361)
Institutions	-0.292 (0.901)	-2.058 (1.063)	1.114 (0.567)	1.403 (0.734)
Natural resources	-0.00260 (0.0112)	0.0429* (0.0188)	0.0478*** (0.00950)	0.0393* (0.0165)
Natural resources*Institutions		0.0583** (0.0196)		-0.0112 (0.0178)
_cons	-3.876*** (0.996)	-4.165*** (0.981)	1.700* (0.762)	1.976* (0.885)
<i>N</i>	231	231	231	231
<i>R</i> ²	0.281	0.313	0.489	0.495

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B5: Regression result when several control variables are included to the specification.

	(1)	(2)	(3)	(4)
	Fixed effects	Fixed effects	Between estimator	Between estimator
GDP	4.88e-12 (6.77e-12)	8.90e-12 (6.69e-12)	-1.78e-12 (7.84e-12)	-3.02e-12 (7.78e-12)
Trade	0.0201 (0.0176)	0.0147 (0.0171)	-0.0129 (0.0127)	-0.0104 (0.0127)
Inflation	-0.00688 (0.0244)	-0.0000428 (0.0236)	0.151 (0.108)	0.108 (0.112)
Institutions	-0.286 (1.360)	-3.264 (1.733)	0.371 (1.139)	-0.625 (1.410)
Natural resources	0.0423** (0.0138)	0.0875*** (0.0218)	0.0390* (0.0161)	0.0604* (0.0243)
Exchange rate	-0.00515 (0.00571)	-0.00599 (0.00550)	0.00102 (0.000685)	0.00104 (0.000674)
Real interest rate	-0.0281 (0.0216)	-0.0131 (0.0215)	0.0717 (0.0815)	0.0892 (0.0816)
Education	0.0850*** (0.0221)	0.0968*** (0.0217)	-0.0190 (0.0407)	-0.0320 (0.0415)
Infrastructure	0.0358*** (0.00840)	0.0316*** (0.00825)	0.00705 (0.0211)	0.0109 (0.0210)
Total FDI inflow	-1.03e-10 (8.96e-11)	-1.32e-10 (8.69e-11)	4.26e-10 (2.72e-10)	4.84e-10 (2.72e-10)
Natural resources*Institutions		0.0724* (0.0276)		0.0367 (0.0316)
_cons	-8.521** (2.657)	-10.44*** (2.660)	0.424 (4.450)	1.084 (4.410)
<i>N</i>	104	104	104	104
<i>R</i> ²	0.593	0.628	0.816	0.840

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B6: Regression result when splitting the natural resource variable into ores and metals and fuel, and including ores and metals in the specification.

	(1) Fixed effects	(2) Fixed effects	(3) Between estimator	(4) Between estimator
GDP	2.42e-11 ^{***} (4.79e-12)	2.31e-11 ^{***} (4.81e-12)	1.11e-11 [*] (5.00e-12)	1.02e-11 (5.05e-12)
Trade	0.0447 ^{***} (0.0107)	0.0451 ^{***} (0.0107)	-0.00734 (0.0107)	-0.00677 (0.0107)
Inflation	0.00436 [*] (0.00194)	0.00329 (0.00203)	-0.00373 (0.00415)	-0.00328 (0.00416)
Institutions	-1.293 (0.858)	-2.156 [*] (0.986)	-0.441 (0.537)	-0.772 (0.614)
Ores and metals	0.0458 ^{**} (0.0169)	0.0748 ^{**} (0.0236)	0.0208 (0.0134)	0.0458 (0.0262)
Ores and metals*Institutions		0.0535 (0.0306)		0.0315 (0.0284)
_cons	-3.743 ^{***} (0.869)	-4.105 ^{***} (0.889)	1.073 (1.068)	0.833 (1.086)
<i>N</i>	241	241	241	241
<i>R</i> ²	0.263	0.275	0.242	0.269

Standard errors in parentheses,

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ **Table B7: Regression result when splitting the natural resource variable into ores and metals and fuel, and including ores and metals in the specification.**

	(1) Fixed effects	(2) Fixed effects	(3) Between estimator	(4) Between estimator
GDP	2.58e-11 ^{***} (4.89e-12)	2.54e-11 ^{***} (4.90e-12)	5.25e-12 (6.15e-12)	6.23e-12 (6.35e-12)
Trade	0.0489 ^{***} (0.0123)	0.0484 ^{***} (0.0123)	-0.00911 (0.0113)	-0.00973 (0.0114)
Inflation	0.00411 [*] (0.00205)	0.00512 [*] (0.00222)	-0.00199 (0.00458)	-0.00181 (0.00462)
Institutions	-1.142 (0.938)	-1.550 (0.997)	-0.0946 (0.666)	0.0956 (0.721)
Fuel	-0.0131 (0.0138)	0.00899 (0.0231)	0.0238 (0.0125)	0.00643 (0.0273)
Fuel*Institutions		0.0266 (0.0223)		-0.0185 (0.0257)
_cons	-3.106 ^{**} (1.024)	-3.243 ^{**} (1.030)	1.312 (1.080)	1.444 (1.104)
<i>N</i>	232	232	232	232
<i>R</i> ²	0.224	0.230	0.256	0.267

Standard errors in parentheses,

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B 8: Regression result when splitting the natural resource variable into ores and metals and fuel, including ores and metals in the specification, when South Africa is excluded from the sample.

	(1)	(2)	(3)	(4)
	Fixed effects	Fixed effects	Between estimator	Between estimator
GDP	2.61e-11*** (5.63e-12)	2.60e-11*** (5.59e-12)	8.58e-12 (6.09e-12)	8.28e-12 (6.10e-12)
Trade	0.0457*** (0.0108)	0.0463*** (0.0108)	-0.00752 (0.0108)	-0.00696 (0.0108)
Inflation	0.00438* (0.00194)	0.00323 (0.00203)	-0.00396 (0.00420)	-0.00350 (0.00422)
Institutions	-1.360 (0.862)	-2.277* (0.989)	-0.517 (0.551)	-0.807 (0.623)
Ores and metals	0.0469** (0.0170)	0.0789** (0.0242)	0.0185 (0.0139)	0.0420 (0.0273)
Ores*institutions		0.0576 (0.0311)		0.0290 (0.0290)
_cons	-3.889*** (0.890)	-4.309*** (0.913)	1.125 (1.078)	0.893 (1.103)
<i>N</i>	233	233	233	233
<i>R</i> ²	0.249	0.263	0.187	0.212

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ **Table B 9: Regression result when splitting the natural resource variable into ores and metals and fuel, including fuel in the specification, when South Africa is excluded from the sample.**

	(1)	(2)	(3)	(4)
	Fixed effects	Fixed effects	Between estimator	Between estimator
GDP	2.66e-11*** (5.82e-12)	2.59e-11*** (5.84e-12)	-2.82e-12 (7.51e-12)	-1.84e-12 (7.85e-12)
Trade	0.0505*** (0.0125)	0.0500*** (0.0125)	-0.0113 (0.0110)	-0.0116 (0.0112)
Inflation	0.00412* (0.00206)	0.00511* (0.00222)	-0.00193 (0.00444)	-0.00181 (0.00450)
Institutions	-1.238 (0.944)	-1.644 (1.005)	-0.0489 (0.647)	0.0782 (0.703)
Fuel	-0.0135 (0.0139)	0.00817 (0.0231)	0.0313* (0.0128)	0.0192 (0.0277)
Fuel*institutions		0.0262 (0.0224)		-0.0125 (0.0253)
_cons	-3.248** (1.052)	-3.377** (1.057)	1.519 (1.054)	1.600 (1.079)
<i>N</i>	224	224	224	224
<i>R</i> ²	0.207	0.213	0.265	0.271

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

12.3 Appendix C

Regression results from regressions on the all countries dataset. *logFDI* is the dependent variable.

Table C1: Regression result when the political risk index is included in the specification.

	(1)	(2)	(3)	(4)
	Fixed effects	Fixed effects	Between estimator	Between estimator
GDP	4.64e-13*** (1.04e-13)	4.71e-13*** (1.04e-13)	6.36e-13*** (1.38e-13)	6.31e-13*** (1.40e-13)
Trade	0.0109** (0.00341)	0.0111** (0.00342)	0.0100** (0.00347)	0.00989** (0.00351)
Inflation	0.0000568 (0.0000943)	0.0000575 (0.0000942)	-0.0000121 (0.000345)	-0.00000530 (0.000346)
Political risk	0.0375 (0.188)	-0.165 (0.246)	-0.304 (0.203)	-0.234 (0.274)
Natural resources	0.0278*** (0.00614)	0.0295*** (0.00628)	0.0184** (0.00576)	0.0177** (0.00607)
Natural resources*political risk		0.00674 (0.00527)		-0.00220 (0.00586)
_cons	0.195 (0.384)	0.168 (0.384)	0.191 (0.431)	0.213 (0.437)
<i>N</i>	734	734	734	734
<i>R</i> ²	0.071	0.074	0.197	0.198

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table C2: Regression result when the democracy index is included in the specification.

	(1)	(2)	(3)	(4)
	Fixed effects	Fixed effects	Between estimator	Between estimator
GDP	4.30e-13*** (1.04e-13)	4.31e-13*** (1.02e-13)	5.01e-13*** (1.30e-13)	5.25e-13*** (1.32e-13)
Trade	0.00704 (0.00384)	0.00776* (0.00375)	0.00215 (0.00369)	0.00276 (0.00372)
Inflation	0.0000577 (0.0000941)	0.0000752 (0.0000919)	0.0000401 (0.000324)	0.0000190 (0.000324)
Democracy	0.0000891 (0.0158)	-0.139*** (0.0302)	0.0299 (0.0209)	-0.0134 (0.0444)
Natural resources	0.0287*** (0.00661)	0.00654 (0.00766)	0.0208*** (0.00551)	0.0149 (0.00768)
Natural resources*democracy		0.00753*** (0.00140)		0.00171 (0.00155)
_cons	0.486 (0.426)	0.980* (0.426)	0.650 (0.455)	0.806 (0.475)
<i>N</i>	682	682	682	682
<i>R</i> ²	0.060	0.107	0.192	0.201

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ **Table C3: Regression result when GDP is replaced by GDP growth in the specification.**

	(1)	(2)	(3)	(4)
	Fixed effects	Fixed effects	Between estimator	Between estimator
GDP growth	-0.0427 (0.0248)	-0.0427 (0.0248)	0.0182 (0.0566)	0.0275 (0.0570)
Trade	0.00651 (0.00337)	0.00650 (0.00337)	0.00238 (0.00357)	0.00197 (0.00359)
Inflation	0.0000686 (0.0000941)	0.0000690 (0.0000943)	0.000103 (0.000396)	0.000118 (0.000396)
Institutions	0.709** (0.228)	0.727* (0.298)	0.387 (0.212)	0.615* (0.286)
Natural resources	0.0316*** (0.00629)	0.0315*** (0.00653)	0.0166* (0.00668)	0.0144* (0.00691)
Natural resources*institutions		-0.000567 (0.00613)		-0.00903 (0.00758)
_cons	0.823* (0.360)	0.822* (0.360)	1.145* (0.473)	1.116* (0.473)
<i>N</i>	724	724	724	724
<i>R</i> ²	0.063	0.063	0.062	0.073

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table C4: Regression result when GDP is replaced by GDP per capita in the specification.

	(1)	(2)	(3)	(4)
	Fixed effects	Fixed effects	Between estimator	Between estimator
GDP per capita	0.0000685*** (0.0000122)	0.0000812*** (0.0000131)	0.0000199 (0.0000179)	0.0000197 (0.0000179)
Trade	0.00724* (0.00329)	0.00706* (0.00328)	0.00280 (0.00355)	0.00249 (0.00355)
Inflation	0.0000392 (0.0000922)	0.0000452 (0.0000919)	0.0000246 (0.000387)	0.0000256 (0.000386)
Institutions	-0.436 (0.306)	-0.149 (0.325)	0.0362 (0.357)	0.247 (0.401)
Natural resources	0.0158* (0.00660)	0.00857 (0.00719)	0.0144* (0.00690)	0.0125 (0.00711)
Natural resources*institutions		-0.0161* (0.00647)		-0.00851 (0.00748)
_cons	0.220 (0.356)	0.122 (0.357)	1.031* (0.465)	1.038* (0.465)
<i>N</i>	728	728	728	728
<i>R</i> ²	0.106	0.115	0.069	0.078

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table C5: Regression result when several control variables are included to the specification.

	(1)	(2)	(3)	(4)
	Fixed effects	Fixed effects	Between estimator	Between estimator
GDP	-5.56e-13 (4.01e-13)	-5.56e-13 (4.02e-13)	2.41e-13 (2.99e-13)	2.08e-13 (2.93e-13)
Trade	0.00581 (0.00463)	0.00582 (0.00470)	0.00457 (0.00554)	0.00345 (0.00546)
Inflation	0.0526 (0.0267)	0.0526 (0.0269)	0.0954 (0.0707)	0.103 (0.0694)
Institutions	-0.508 (0.559)	-0.516 (0.870)	-0.321 (0.383)	0.208 (0.458)
Natural resources	0.0143 (0.0112)	0.0144 (0.0119)	0.0168* (0.00844)	0.0141 (0.00839)
Exchange rate	0.000105 (0.0000898)	0.000104 (0.000102)	0.0000376 (0.0000712)	0.0000229 (0.0000701)
Real interest rate	0.0105 (0.0199)	0.0106 (0.0206)	0.00803 (0.0370)	0.00127 (0.0364)
Education	-0.0289 (0.0268)	-0.0288 (0.0271)	0.0138 (0.0343)	0.0191 (0.0337)
Infrastructure	0.0320*** (0.00371)	0.0320*** (0.00375)	0.0169* (0.00834)	0.0171* (0.00818)
Total FDI inflow	2.96e-12 (3.62e-12)	2.96e-12 (3.65e-12)	1.78e-11 (1.59e-11)	1.57e-11 (1.56e-11)
Natural resources*institutions		0.000183 (0.0144)		-0.0184* (0.00911)
_cons	1.620 (2.416)	1.616 (2.438)	-2.409 (3.302)	-2.816 (3.242)
<i>N</i>	353	353	353	353
<i>R</i> ²	0.303	0.303	0.264	0.303

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table C6: Regression result when splitting the natural resource variable into ores and metals and fuel, and including ores and metals in the specification.

	(1) Fixed effects	(2) Fixed effects	(3) Between estimator	(4) Between estimator
GDP	3.71e-13* (1.46e-13)	3.98e-13** (1.46e-13)	5.03e-13*** (1.04e-13)	5.20e-13*** (1.04e-13)
Trade	0.00896** (0.00344)	0.00980** (0.00343)	0.00780* (0.00348)	0.00843* (0.00347)
Inflation	0.0000645 (0.0000948)	0.0000688 (0.0000943)	-0.0000390 (0.000364)	0.00000921 (0.000361)
institutions	0.341 (0.223)	0.0196 (0.249)	-0.0979 (0.195)	-0.277 (0.219)
Ores and metals	0.0471*** (0.0107)	0.0587*** (0.0114)	0.0146 (0.0103)	0.0252* (0.0119)
Ores*institutions		0.0374** (0.0133)		0.0225 (0.0127)
_cons	0.736* (0.358)	0.648 (0.357)	0.871* (0.395)	0.768 (0.396)
<i>N</i>	753	753	753	753
<i>R</i> ²	0.053	0.065	0.177	0.197

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ **Table C7: Regression result when splitting the natural resource variable into ores and metals and fuel, and including fuel in the specification.**

	(1) Fixed effects	(2) Fixed effects	(3) Between estimator	(4) Between estimator
GDP	3.07e-13* (1.47e-13)	2.94e-13* (1.49e-13)	5.01e-13*** (1.02e-13)	4.84e-13*** (1.02e-13)
Trade	0.00739* (0.00349)	0.00731* (0.00349)	0.00709* (0.00342)	0.00674 (0.00341)
Inflation	0.0000426 (0.0000953)	0.0000459 (0.0000956)	0.0000607 (0.000357)	0.0000884 (0.000355)
Institutions	0.511* (0.235)	0.606* (0.286)	-0.0670 (0.201)	0.123 (0.238)
Fuel	0.0153* (0.00686)	0.0137 (0.00736)	0.0153* (0.00629)	0.0115 (0.00678)
Fuel*institutions		-0.00407 (0.00691)		-0.0112 (0.00764)
_cons	1.020** (0.360)	1.031** (0.361)	0.790* (0.383)	0.830* (0.382)
<i>N</i>	728	728	728	728
<i>R</i> ²	0.036	0.037	0.206	0.220

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$