ASSESSING THE IMPACT OF CHINA'S FOREIGN ENERGY QUEST ON ITS ENERGY SECURITY

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Introduction

China's stunning economic growth cannot be sustained without a corresponding increase in the supply of energy. Since the turn of the new century, Chinese national oil companies (NOCs) have been proactive in quest for fossil fuels. With 139 energy projects across the globe by the end of 2005, the Chinese NOCs' all-out efforts have drawn world-wide attention and divided perceptions.

The neorealists, perhaps the more prevalent view, tend to regard the NOCs' foreign activities as proxies of Beijing's strategic actions on the ground that they are the arms of the Chinese government; hence, the Chinese NOCs' competition was perceived as a threat to the west and a destabilizing force in the international energy market. The neoliberals and global institutionalists, however, are more sympathetic of China as a latecomer to the world market. Instead of regarding China's energy quest as a threat, they argue that the global energy market is highly integrated and China's energy quest has expanded world energy supply.

Both views explicitly or implicitly presuppose that the Chinese NOCs' foreign energy quest could enhance China's energy security. This is however, an untested hypothesis. Within China, there are voices against China's "oil diplomacy" even though the majority of works in the academia advocate government's support for the NOCs' foreign energy quest.[1]

Moreover, previous studies tend to consider the Chinese government and its NOCs as a monolithic organism. They overwhelmingly focus on China's impact on the west, but oddly no research has been carried out to examine the implications of Chinese NOCs' energy quest on the energy security of the country.

This paper aims to fill the gap by analyzing the impact and implications of Chinese NOCs's foreign energy quest on China's energy security. This study finds that the Chinese NOCs have made some progress in their foreign energy quest, which contributes to their coffers and energy reserves, but that does not mean that China's energy security would be greatly enhanced; in particular, the diversity and reliability of China's oil foreign sources are questionable. The next section briefly introduces the methodology and measuring benchmarks that this paper has developed. In the third

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[1] For a diverse view, see for example, Zhao, 2006; *Huangqiu Caijing* (Global Finance), 2005.

section, the extent to which Chinese NOCs' energy quest has enhanced China's energy security will be systematically examined by reference to the designed benchmarks. And some cases will be introduced to further examine the impact.

Methodology and Framework

Based on statistical analysis, this study aims to analyze the impact of Chinese NOCs' foreign energy quest on the country's energy security from institutional and international comparative perspectives. The international comparative approach is used to examine the progress made by Chinese NOCs in securing foreign energy resources and the prospects in that regard. Case studies are adopted to explore the institutional factors affecting the NOCs' willingness to contribute to China's energy security. Data used in this paper are mainly from the statistics of the international organizations, Chinese government agencies and NOCs.

According to United Nations Development Programme (UNDP), energy security denotes such a situation where energy supplies are available at all times in various forms, in sufficient quantities, and at affordable prices.[2] Based on this definition, this paper has designed four vectors to measure the impact of Chinese NOCs' foreign energy acquisitions on its energy security. These four vectors are availability, diversity, reliability, and affordability. Under each vector some specific indicators have been developed (see Table 1).

Table 1 Four Indicators for China's Energy Security

Availability	foreign equity oil / oil consumption
	equity oil shipped home
	international comparison
	prospect
Diversity	distribution by projects
	distribution by investment
	percentage of the first three countries in total equity oil
	distribution of oil imports
	percentage of the first four largest suppliers in China's total oil imports
Reliability	political risk, including relationship with China
	policy risk
	transportation risk
	oil depletion risk
Affordability	cost-benefit analysis
	costs of equity oil / international oil prices

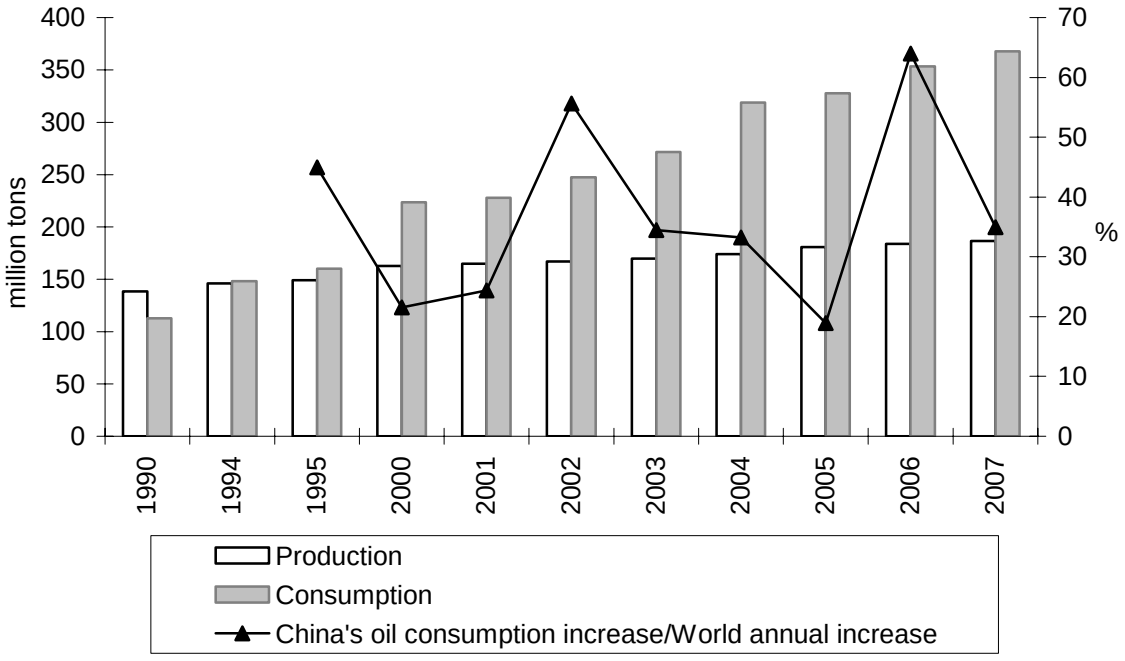
[2] United Nations Development Programme, 2000.

An Overview of China's Foreign Energy Quest

Surging oil and gas demand accompanies China's industrialization, urbanization and modernization. As shown in Figure 1, China's indigenous oil production rose from 138 million tons (Mt) to 187 Mt between 1990 and 2007, gaining 35 percent only, whereas domestic oil demand in 2007, capturing 368 Mt, was 2.3 times that of 1990. An increasing imbalance has thus resulted from China's fast-growing demand and insufficient indigenous energy supply. In fact, China's oil consumption increase was so stunning that its share in the world's annual growth even reached 60% in 2006 (see Figure 1).

Likewise, natural gas consumption had grown rapidly in the past years. It rose 102.5 percent from 16.8 billion cubic meters (Bcm) in 1993 to 67.3 Bcm in 2007 (BP 2008). During that period, indigenous natural gas output was able to meet domestic consumption (see Figure 2), but according to International Energy Agency (IEA), imports will reach 37 Bcm by 2030, constituting 29 percent of total natural gas consumption (162 Bcm) (IEA 2002: 110 & 257).

Figure 1 China's Oil Production & Consumption



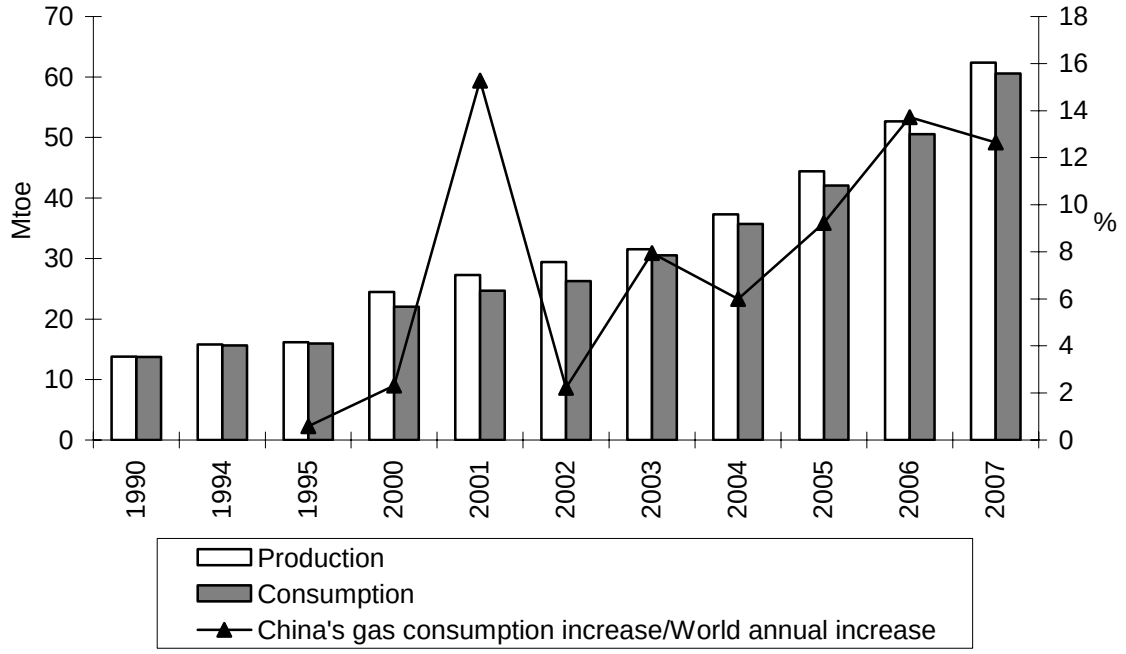
Source: Based on data from BP Statistical Review of World Energy June 2008

Therefore, China has to rely more on foreign markets in order to meet its soaring demand for hydrocarbon resources. Securing more fossil fuels from abroad has thus become one of the priorities of China's foreign relations and an important part of its foreign strategies. The government expects the NOCs to play this role, a reason why the NOCs have the state support in their foreign energy quest.[3]

[3] Chen, 2008 (a).

The NOCs are the major players, though a few Chinese private firms, which are much smaller in scale and have much smaller production capacities, have also started to "go abroad" (Table 3). The NOCs, including CNPC, Sinopec and CNOOC, are tasked to acquire more equity oil/gas, diversify oil/gas imports，and secure pipelines or long-term supply contract with foreign oil/gas producers. 'Equity oil' (*fen'e you*) is a practice by petroleum firms to participate in foreign oil or gas projects in the form of share of stocks or investments; in return, they can annually obtain a certain portion of oil and gas produced from those projects. This is a form preferred by the NOCs. The following section will gauge the NOCs' foreign efforts on China's energy security using certain relevant indicators.

Figure 2 China's Gas Production & Consumption

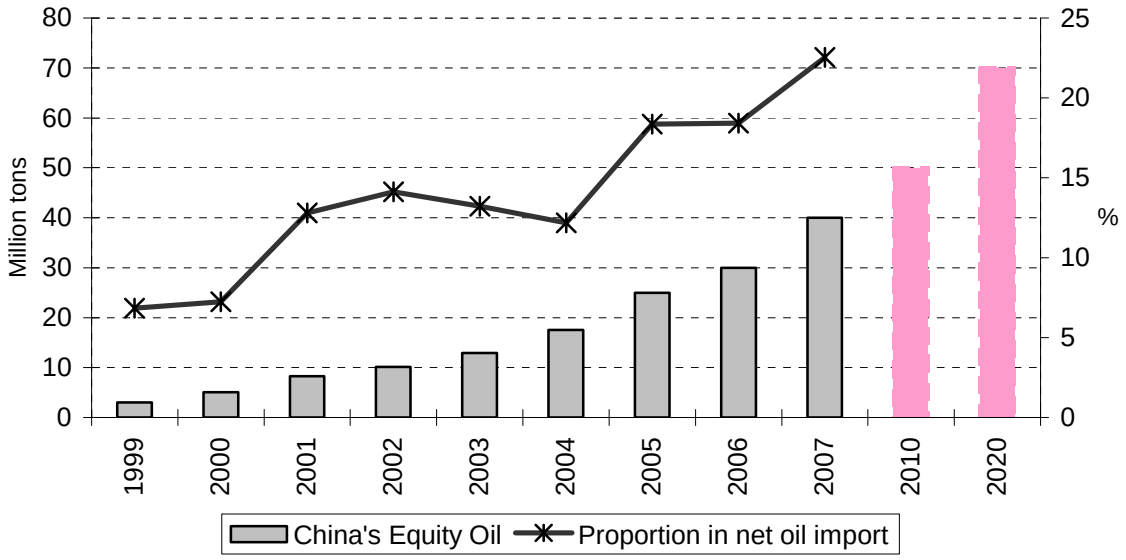


Source: Based on data from BP Statistical Review of World Energy June 2008

Availability

Sufficient oil and gas supply is the central component of energy security. To gauge the impact of the NOCs' foreign energy acquisition on China's energy security from the angle of availability, the share of foreign equity oil in China's oil consumption was used as an indicator.

Figure 3 China's Foreign Equity Oil



Source: Calculated by the author according to various sources; Net oil imports calculated based on China Commerce Yearbook.

As indicated in Figure 3, the Chinese NOCs have made tremendous progress in securing equity oil from foreign countries. Equity oil acquired reached 40 million tons (Mt) by 2007, over eleven times that of 1999. Accordingly, its proportion in China's oil imports rose from 7% to 22% from 1999 to 2020. By 2020, equity oil is projected to hit 70 Mt, accounting for 12 percent of China's oil consumption.

Despite the seemingly striking progress, not all the equity oil produced abroad was shipped back to China. In 2005 equity oil constituted 15% of China's oil imports, but 93% of the NOCs' foreign production was sold in the local markets. That is to say, majority of oil produced by Chinese NOCs has been transacted in the international market, rather than supplied to the Chinese market. The argument that China's unfair competition has intensified inter-state competition can hardly stand true.

That most equity oil is sold overseas is either because Chinese refineries can hardly process sour crude oil, or because the NOCs are reluctant to do so in that it makes less economic sense. Even if the NOCs are willing to ship it back home, in time of emergency, it is still questionable whether China can ensure its safe transportation.

Compared with its Asian neighbors, China seems to have made impressive progress in securing equity oil in foreign countries. In 2005 the equity oil they received reached 0.55 mb/d, accounting for 16% of China's oil imports in that year. This amount was less than Japan's 0.7 mb/d, but was higher than South Korea's and India's (see Table 2).

Table 2 Equity Oil from Overseas in 2005 - An International Comparison

Country	Equity Oil (mb/d)	Equity Oil /Oil Imports
China	0.55	16%
Japan	0.7	17%
India	0.09	5%
S. Korea	0.42	2.37%, incl. foreign stakes in Korea's refinery
Malaysia		22% of oil consumption

Source: Mitchell and Lahn, 2007.

In terms of the prospect of securing equity oil, in the short run China would be in a good position to acquire foreign hydrocarbon assets, but in the long run the prospect might be grim due to growing competition among oil importing countries and energy nationalism in producing countries, where governments impose tougher terms on foreign energy companies. In the short term, oil price plunges as a result of the financial turmoil have dealt a heavy blow to many oil companies and oil exporting countries. In an effort to attract foreign capital to bail them out, countries like Russia have to tone down their energy nationalism and change their close-door policy, a kind of policy used to bar foreign investors from their oil/gas blocks. This has provided some opportunities for the Chinese NOCs to further expand their foreign businesses that may come with potential risks too. It was in such a context that Moscow took the initiative to approach China in November 2008 with the offer of a branch oil pipeline to Daqing, a talk which has been originally in a deadlock for over a decade.[4]

In the long run, the prospect of securing more foreign oil/gas equities may not be so sanguine. For one thing, resource nationalism might be revived with economic recovery and world growing demand for oil and gas. Even today, more than 3/4 of the world's oil reserves are still closed to foreign equity investment.[5] For another, fierce competition among Asians would further aggravate China's access to foreign equities. China has targeted foreign equity oil/gas to reach 50 million tons of oil equivalent (Mtoe) by 2010 and 70 Mtoe by 2020. Other major oil consumers have also set their own targets. For instance, India expects to expand its equity oil/gas to 20 Mtoe by 2010 and further to 60 Mtoe by 2025. Similarly Japan's and South Korea's foreign equity oil requirement would reach 40% and 35% of their crude imports, whereas that proportion was only 15% for Japan in 2007 and 4.1% for Korea.[6] Hence, it is conceivable that inter-state contest for fossil fuels would intensify in the future.

[4] China and Russia signed seven agreements on 17 Feb. 2009, including the loans-for-oil deal worth US$25 billion. See Chen, 18 Feb. 2009.

[5] Downs, 2007, p.45.

[6] Mitchell & Lahn, 2007.

Diversity

It is widely accepted that a country's energy security could be more ensured with more diversified sources of energy supply. To gauge the impact of Chinese NOCs' foreign energy quest on the country's energy security from the dimension of diversity, this paper takes a look at both equity oil and oil import sources with the following indicators: distribution by projects, distribution by investment, percentage of the first three countries in total equity oil, distribution of oil imports, and percentage of the first four countries in China's total oil imports.

As shown in Table 3, simply from the perspective of the number of overseas energy projects, CNPC is the leading Chinese player in the international market. It owns over one half of Chinese foreign energy projects. Other than the three oil giants, other Chinese state-owned enterprises such as Sinochem and CICIT and private firms have also embarked on foreign oil-related investments, albeit still very small in terms of both number of projects and investment magnitude, in recent years when international oil prices kept surging. In terms of continents, Chinese foreign investments spread from Africa, Southeast Asia, Middle East, Europe and Latin America, in that order. Major countries where Chinese oil companies are investing include Sudan, Angola, Russia, Kazakhstan, Saudi Arabia, Indonesia, and so on.

Table 3 Distribution of Overseas Investments by Chinese Oil Companies

	CNPC		Sinopec		CNOOC		Others*	Total		Major Countries
	Projects No.	%	Projects No.	%	Projects No.	%	Projects No.	Projects No.	%	
Europe	16	22	3	9	0	0	2	**21**	15	Russia, Kazakhstan, Uzbekistan
Middle East	8	10	11	34	0	0	6	**25**	18	Saudi Arabia, Yemen, Iran
Africa	19	26	11	34	4	25	3	**37**	27	Sudan, Angola, Algeria, Nigeria
Northeast Asia	1	1	0	0	1	6	1	**3**	2	Mongolia
Southeast Asia	15	20	3	9	11	69	2	**31**	22	Indonesia, Australia, Malaysia, Papua New Guinea
Latin America	11	15	3	9	0	0	2	**16**	11	Venezuela, Brazil, Ecuador, Peru
North America	4	5	1	3	1	6	0	**6**	4	Canada
In Total	**74**	100	**32**	100	**17**	100	**16**	**139**	100	

Note: * The other companies primarily include Sinochem, Zhuhai Zhenrong, China Aviation Oil, China National Oil & Gas Exploration and Development Corp., China National Power Equipment Corp., China Oilfield Services Ltd.

Source: *Zhongguo Hangye Yujing Wang* (China Industry Warning Net) (2006).

Based on distribution by investment, again CNPC is the heavyweight with foreign investments of 57% during 1995-2006 (see Table 4). All the three NOCs have substantial investments in Africa, indicating the growing importance of this "lost continent" to China's energy security and these corporations' takeoff. Both CNPC and Sinopec invest heavily in Russia and Central Asia. Among Chinese oil companies' overseas investments, Russia and Central Asia account for 49%, and Africa attracts 29%, showing the importance of the two continents to China.

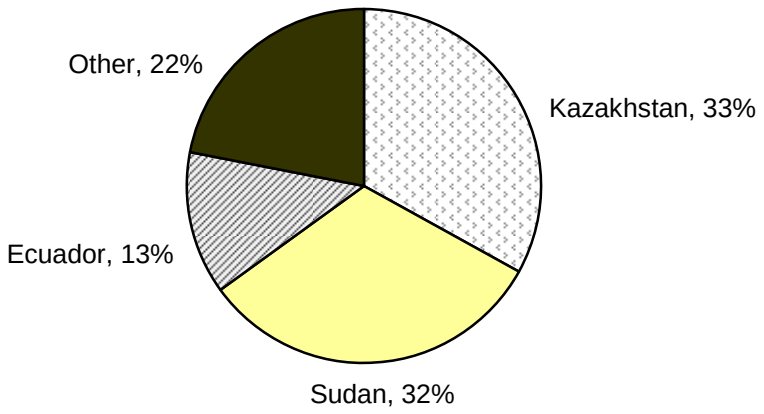
Table 4 Distribution by Investment 1995-2006
(Million US$)

NOC	Total	Africa	Middle East & North Africa	RCA	Asia	South & North America
CNPC	15,440	2,599	795	9,159	810	2,077
Sinopec	8,356	3,101	464	4,220	21	550
CNOOC	3,281	2,289	0	0	972	122
TOTAL	27,178	7,989	1,259	13,379	1,803	2,749

Source: Chatham House Report (2007).

In terms of the percentage of the first three countries in total equity oil, as shown in Figure 4, foreign equity oil production by Chinese NOCs came up to 0.68mb/d in 2006, 78% of which was produced in Kazakhstan, Sudan and Ecuador, whereas equity oil supplies from other countries only had a share of 22%. This implies that China's equity sources are highly concentrated.

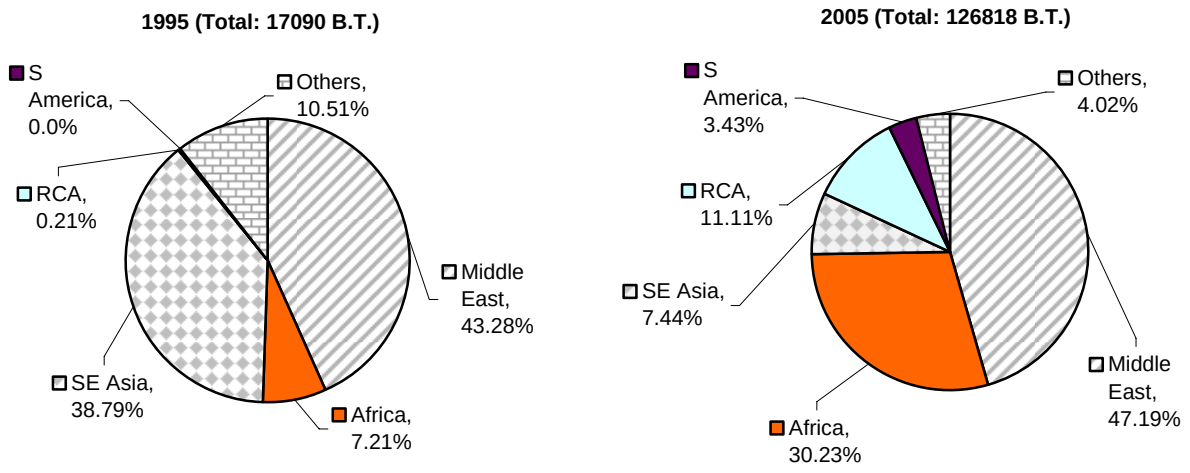
Figure 4 Foreign equity-oil production, 2006
Total: 0.68 mb/d



Source: Downs,

As to the distribution of oil imports, China's efforts to diversify oil import sources have made some success. Figure 5 indicates that China's crude oil imports from Africa have risen sharply over the past decade. By 2005, its share reached 30%, making it the second largest source of supply, just next to the Middle East. In contrast, crude imports from Southeast Asia declined dramatically from 39% in 1995 to merely 7% in 2005. With three quarters of crude coming from the Middle East, China's dependence on that region seems to have been growing, but crude imports from RCA (Russia and Central Asia) and South America also saw a 11% and 3% increase over 1995-2005 respectively. In a nutshell, with China's growing reliance on foreign oil, it will strive harder to diversify the import sources with the Middle East and Africa remaining as significant players in China's energy supply security.

Figure 5 Crude Imports



Source: 1995 data: The Editorial Board of the Almanac of China's Foreign Economic Relations and Trade, *Almanac of China's Foreign Economic Relations and Trade 1997/98*, Beijing: China National Economy Publishing House Economic Information & Agency, 1997; 2005 data: The Editorial Board of the China Commerce Yearbook, *China Commerce Yearbook 2007*, Beijing: China Commerce and Trade Press, 2007.

Based on the percentage of the first four countries in total oil imports, over the past three years, Saudi Arabia, Angola, Iran, and Russia in that order have become the first four largest suppliers of China's crude oil. Crude imports from the above four countries have consistently accounted for more than one half of China's aggregate crude imports (See Table 5a).

In contrast to its increasing imports of crude oil, China is less dependent on foreign refined oil imports. As shown in Table 5b, China primarily imports refined oil from neighboring countries. One exception is Venezuela from which China had 8 and 10 percent of its total imports in 2006 and 2007 respectively. As a general trend, it seems that the import sources of China's refined oil are now more evenly spread out in that the proportion of imports from the first four largest suppliants had declined from 77% in 2005, to 66% in 2006, and further down to 44% in 2007. It deserves more research to comprehend China's import pattern.

Table 5a Major Sources of China's Crude Oil Imports

Unit: million tons

Year	Ranking	Country	Quantity	Yearly Total Imports	%
2005	1	Saudi Arabia	22.2	126.8	17.5
	2	Angola	17.5		13.8
	3	Iran	14.3		11.3
	4	Russia	12.8		10.1
	% of the first four countries in total crude imports				**52.6**
2006	1	Saudi Arabia	23.9	145.2	16.4
	2	Angola	23.5		16.2
	3	Iran	16.8		11.6
	4	Russia	16.0		11.0
	% of the first four countries in total crude imports				**55.1**
2007	1	Saudi Arabia	26.3	163.2	16.1
	2	Angola	25.0		15.3
	3	Iran	20.5		12.6
	4	Russia	14.5		8.9
	% of the first four countries in total crude imports				**52.9**

Source: China Commerce Yearbook, 2007-2008.

Table 5b Major Sources of China's Refined Oil Imports - by country

Unit: million tons

Year	Ranking	Country	Quantity	Yearly Total Imports	%
2005	1	South Korea	8.96	31.43	28.5
	2	Singapore	6.21		19.8
	3	Russia	5.13		16.3
	4	Japan	3.04		9.7
	% of the first four countries in total crude imports				**74.3**
2006	1	South Korea	11.05	36.38	30.4
	2	Russia	5.16		14.2
	3	Singapore	4.84		13.3
	4	Venezuela	3.11		8.5
	% of the first four countries in total crude imports				**66.4**
2007	1	Russia	4.92	33.80	14.6
	2	Venezuela	3.37		10.0
	3	Singapore	3.24		9.6
	4	Japan	3.16		9.3
	% of the first four countries in total crude imports				**43.5**

Source: China Commerce Yearbook, 2007-2008.

Reliability

Reliability is defined as the extent to which China's energy supplies are exposed to various types of risks in its major foreign energy investment and import countries. It is for certain that there are many different types of risks that may result in oil/gas supply disruptions, and thus jeopardize a country's energy security. The risks highlighted in this paper primarily consist of political risk (including relationship with China), policy

risk, transportation risk, and oil depletion risk. Although it is hard to accurately measure them, a rough picture of these risks in the major countries where China's equity oil and oil imports come from may help one to comprehend China's energy security.

As indicated in Figure 4 and Table 5, China's equity oil was overwhelmingly concentrated in Kazakhstan, Sudan, Ecuador, Angola, and Nigeria, while crude oil imports primarily come from Saudi Arabia, Angola, Iran, Russia, Oman, and Sudan, and refined oil is primarily from South Korea, Russia, Venezuela, Singapore, and Japan. An analysis of risks will thus involve these countries.

Political risk is defined as the risk of loss of investment returns or the disruption of trade resulting from political changes or instability in a country. In general, the political risk that China's equity oil and oil imports are exposed is mixed. At one end of low political risk is oil producing countries which could help promote China's energy security. For example, both the Sino-Kazakhstan oil pipeline and Saudi' direct crude supply have agreed on providing a long-term energy supply to the jointly invested refineries in China and reduced Beijing's reliance on the Strait of Malacca.

At the other end of high political risk, Sudan, Angola and Nigeria have all been torn apart by internal conflicts. Foreign oil companies have often been plagued by repeated incidents of kidnaps and killings of foreign workers in local oilfields and sabotages of local petroleum facilities. This forced Shell to withdraw from Nigeria. Attacks on Chinese oil workers and oilfields also happened in countries like Nigeria, Sudan, Ethiopia, and so on. Iran and Sudan's hostile relations with the US-led west and sanctions imposed by the latter have also made China's reliance on them very vulnerable. In the middle, countries like Russia are actively playing the energy card.

Policy risk refers to the risk of loss of investment returns or the disruption of trade caused by changes in policies, such as tax laws, tariffs, expropriation of assets, or restriction in repatriation of profits. For example, a company may be stumbled by nationalizing oil blocks, expropriation or tightened foreign exchange repatriation rules, or increased credit risk if the government changes its policies to make it difficult for the company to pay creditors. As energy nationalism widely exists in oil producing countries, particularly in times of oil price spikes, such policy risks can hardly be ruled out. The nationalization wave in the Middle East and Latin America in the 1970s is such a reminder.

In recent years, Ecuador's windfall scheme of imposing 99% of petroleum special profits tax has caused foreign investors to panic and a series of disputes. The Chinese NOCs have also run into contract breach, policy change, price increase requests from Russia, Kazakhstan, Turkmenistan, Uzbekistan, and so on. For instance, CNPC had to accept the request for raising oil prices by Rosneft, Russia's national oil company in January 2008 notwithstanding their long-term oil purchase contract clinched in 2004. Likewise, Chinese NOCs encountered similar risks of Central Asian states' commercial contract breaches.[7]

[7] *Guoji Xuanqu Daobao* (International Herald Tribune), 2008.

Transportation risk refers to factors that may jeopardize the safety of energy transportation in its way to its destination, which may include terrorists, pirates, maritime obstruction, military embargo, and so forth. China's oil imports including equity oil shipped home face the highest transportation risk as 80% of them have to pass through the Strait of Malacca and Taiwan Strait, which are exposed to the above risks.[8] Currently the Strait of Malacca is the busiest waterway in the world, with about 50,000 ships plying the route annually, carrying half of the world's oil and one-third of the world's trade. The oil from the Middle East and Africa has to en route the Strait of Hormuz, another chokepoint vulnerable to power politics and regional confrontations in the Middle East, thus adding another layer of risks.

In order to reduce its reliance on the Strait of Malacca, China endeavors to expand oil/gas resources from Russia and Central Asia while trying to find other alternative routes that can bypass Malacca, such as building oil/gas pipelines from Myanmar and Pakistan.[9] But it remains controversial whether oil imports bypassing the Strait of Malacca could enhance China's energy security given that other risks may arise, as illustrated earlier regarding oil from Central Asia.

Affordability

Affordability can be measured in two ways, comparing the costs of acquiring equity oil and the costs of directly purchasing oil from the international market, and in terms of a country's GDP per capita growth relative to oil price fluctuations. To examine China's affordability, a simple cost-benefit analysis and an evaluation of whether equity oil can buffer a country from oil price shocks will be conducted.

A cost-benefit analysis of China's foreign energy investments shows that with other things being equal, the total value of China's equity oil, which is equivalent to the total equity oil received by Chinese oil companies multiplied by the annual average crude oil prices, was larger than its total investments (Table 6). This implies that simply from a cost-benefit analysis, Chinese NOCs have reaped some returns. In particular, the returns in 2007 rose substantially largely because of the increase in equity oil as well as the sharp hike of world oil price in that year.

Nonetheless, China's investment adopted here only covers reported investment figures, which do not include the Chinese government's loan waiver, foreign aid, and other assistance like infrastructure construction in oil producing countries. For instance, in 2006 China exempted 31 African countries from 156 debts amounting to 10.9 billion RMB; it also provided large infrastructure assistance.[10] Although these debts relief and foreign assistance are not directly associated with China's energy quest, they may have helped facilitate its energy deals in that continent. Hence, simply from the economic point of view, the costs would be much larger than the economic benefits it could obtain.

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8 Li and Li , 2007.

9 Currently the China-Myanmar oil pipeline is under construction, while China is still considering whether to build a pipeline from Pakistan due to the huge costs and complex terrain. See Huang, Zhou and Li, 2006.

10 Qi, 2006.

Table 6 Cost-Benefit Analysis of China's Overseas Investments

Total Equity Oil 1999-2006 (Million Tons)	**Average Oil Price** 1999-2006 (US$/ton)	**Total Value of Equity Oil** 1999-2006 (USD Billions)	**Overseas Investment in Crude Oil** 1993-2006 (USD Billions)
111.9	272.1	30.442	27.077
1999-2007	**1999-2007**	**1999-2007**	**1993-2006**
151.9	299.8	45.539	27.077

Note: Only reported investment figures were used.
Source: Crude oil prices: BP Statistical Review of World Energy, 2007; Overseas investment: Chatham House, 2007.

What is more controversial is the role of equity oil: can it buffer a country including China from oil price shocks? There are two opposite views to this question. Proponents believe that the cost of equity oil will be less than international oil prices. "'Equity oil' is thought of as cheap as it can cost as little as US$10 a barrel because it is priced according to Finding, Development & Operating Costs, rather than at international market prices." Opponents, who are normally neo-liberal institutionalists and globalization theorists, however, are of the view that equity oil is unlikely to buffer China from price shocks because the oil market is a global market and oil price is the same at the border of every country.[11] Even if the Chinese government can successfully force the NOCs to sell oil to Chinese consumers at below world market prices, this can hardly last long.

However, it makes less sense to have such a debate without taking account of world oil price levels and a host country's taxation policy. It is apparent that the higher the international crude oil prices are, the more likely equity oil will be more economical for countries which possess it. Not only do different countries have different types of taxes and royalties, but also their rates vary. For instance, Malaysia imposes a 10% royalty on oil and gas, while this rate is 20%, 1-16.7%, 8-20% in Saudi Arabia, Venezuela and Norway respectively; in the U.S. the rate is 12.5% for inland resources and 16.7% for oil and gas offshore.[12] Indeed, the cost of equity oil in some countries may be below 10 dollars per barrel, but the taxes and royalties in many countries, if not all, carve up to 80-90% of the economic rent of oil exports.[13]

While missing data make it hard to discern the correlations between equity oil and China's affordability, a qualitative analysis may be of help. As aforementioned, the costs of equity oil are composed by its exploration and production cost, FOB cost, producing countries' taxes and royalties, and other miscellaneous costs, whereas China's affordability is decided by its GDP per capita and world crude prices in the simplest sense. Indeed, the double-digit growth in the past ten years has greatly

[11] Downs, 2008; and Huang, p.55.

[12] Wang and Ma, 2007.

[13] Chatham House, 2007.

enhanced China's affordability for oil imports, but as verified in the last three oil-price-spike years, the country was badly hit by the over-lifted inflation and the repeated oil shortage crisis. Moreover, as discussed earlier, expectations of surging oil prices would brew stronger energy nationalism, a factor that would prompt energy exporting countries to change rules of game in their favor, thus heightening the risks and dealing a blow to foreign investors including China.

Problems from the Institutional Perspective

Apparently the preferences of the Chinese government and the NOCs do not coincide.[14] In fact, they have different interest or goal priorities in securing fossil fuels abroad. The Chinese government has multiple goals in its support for the NOCs' venture abroad. While encouraging the NOCs to catch up by "going out", the government expects them to help ensure China's energy supply security. When necessary, they should put social and political obligations above commercial interests. For the NOCs, however, corporation and marketization have made the NOCs more market-oriented and become self-interest motivated players;[15] their priority in foreign markets is to expand their energy reserves and fiscal coffers. Hence, their different priorities and goals imply that the NOCs would not be obedient to state mandates.

The NOCs' "defections" is set to run counter to China's national interests. Above all, they may do harm to China's foreign interests and soft power. Inter-corporate fierce competition has often forced the Chinese companies to curtail costs through reducing wages, working conditions, and safety standards, irrespective of local customs and laws. Such practices are set to incur local grievances and even protests. For instance, Sinopec was accused of desecrating the forest in its exploration at the Loango National Park in Gabon in October 2006.[16] Also, anti-China sentiments permeated in some developing countries due to cheaper China-made commodities which forced out some local players. To salvage China's image, the government issued a new regulation calling for Chinese companies to practice "localization" (in the sense of abiding by local laws, customs and regulations) when carrying out their overseas business abroad in order to protect China's national interests.[17]

The NOCs sometimes go against state directives not to compete with each other in foreign bids, resulting in Chinese wealth dissipation. Against the backdrop of world oil prices staying at record highs in recent years, Chinese enterprises are more enthusiastic about going abroad to acquire more oil and gas equities. Not only are CNPC, Sinopec and CNOOC, the three largest Chinese oil giants, working hard to venture across the world, other SOEs and even private firms are also attracted by the potentially lucrative returns and are joining the quest for foreign oil and gas. For instance, China Citic Group, whose major business lies in financial services, has embarked on upstream oil and gas E&P business as well. The company successfully acquired the Kazakhstan oil assets of Canada's Nations Energy Company Ltd. for

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14 Chen, 2008 (a).

15 Chen, 2009.

16 Gill and Reilly, 2007.

17 MoC, MFA, and SASAC, 2005.

US$1.91 billion in December 2006. Competition is so fierce that sometimes the Chinese NOCs even bid against each other over some foreign projects. Regardless of the government's directives not to compete against each other in foreign bids, contests between PetroChina and Sinopec in Sudan and Libya as well as between CNOOC and Sinopec in Brazil exemplify such cases.[18] Beijing obviously is reluctant to see such a situation as their overbid can only lead to state asset dissipation. Therefore, in recent years the government has made efforts to reconcile their foreign bids, but it remains to be seen whether the government's coordination efforts will be foiled by the NOCs.

The NOCs' 'defection' behaviors could be exacerbated by the problem of "weak government and strong NOCs", as well as the government and the NOCs asymmetric information regarding the costs and profits of the NOCs' foreign operations, and the high costs to monitor their overseas behaviors.[19]

Conclusion

From the perspective of availability, Chinese NOCs have impressively expanded equity oil production since they embarked on foreign energy quest in the 1990s, but most equity oil was sold in the international market. Despite the NOCs' onerous efforts, the sources of both equity oil and crude oil imports remain very concentrated in a few countries. If these countries reduce or cut oil supplies to China, Beijing's energy security would be severely hit. More worrisome is that China's major oil sources have to rely on a handful of countries which are either in unrest or fall out with the US-led West. In terms of affordability, it is controversial whether equity oil can buffer China from oil price shock. Economic growth has indeed enhanced its purchasing capability, but surging oil prices could still deal a blow to its economy with its soaring demand for oil/gas.

The NOCs have benefited a lot from their foreign energy quest since it has contributed to enlarging their energy reserves and fiscal coffers; however that does not necessarily mean it is a great enhancement to China's energy security given the huge state financial and diplomatic support, the great risks involved and the limited amount of equity being transported home. On a positive note, the global financial crisis may provide a good chance for China to diversify its foreign investments and acquire oil/gas equities in countries that used to be inaccessible.

As the state ownership of the NOCs has disquieted other countries which hold misgivings about Chinese state involvement, a better way to alleviating such a concern is to bring Chinese private companies in. Foreign energy quest may help mitigate China's energy security, but a more effective way to enhance China's energy security is to pay more attention to energy conservation.

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[18] Wu and Han, 2005.

[19] For a detailed analysis of the NOCs' behaviors, see Chen, 2008 (b).

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