7. Upgrading China's Economy through Outward Foreign Direct Investment

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Introduction

A key concern regarding China's economy, among others, is the quality of growth. The surprisingly rapid economic growth over the past 30 years in China has resulted from reliance upon extensive growth, which has been at the expense of the environment and resources. The situation has worsened in the twenty-first century. The industrial sector—the largest contributor to the country's economic growth—has experienced an obvious heavy industrialisation process since the middle to late 1990s. Within the industrial sector, manufacturing is still at the low end of the international value chain since a majority of profits flow to foreign multinationals for their provision of technology, design and other services (Wang and Wang 2011).

On the other hand, beyond mainly investing foreign reserves in low-yield foreign government bonds, China has taken the world by surprise by exporting large amounts of capital, which is increasingly in the form of outward foreign direct investment (ODI). The country's ODI flows rose sharply from US\$2.85 billion in 2003 to US\$68.8 billion in 2010—a twentyfold increase within eight years!

This raises important questions. Could ODI be a contributing factor in improving China's growth quality or, more specifically, upgrading the country's economy by moving it up the value chain? If the answer is yes, by what mechanism? Does the motivation for undertaking ODI have a bearing on growth? Are there any necessary preconditions to ensure a positive outcome? Do Chinese firms undertaking ODI meet those conditions? This chapter attempts to answer these questions by analysing statistics drawn from comprehensive firm-level investment information between 2003 and the first half of 2011.

There are three main findings. First, the key reasons underpinning Chinese pursuit of ODI, especially for the country's manufacturers, are the acquisition of resources (resource-seeking ODI) and the strategic purchase of assets (strategic

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assets-seeking ODI), such as advanced technology, established brand names and developed distribution channels. Efficiency-seeking ODI—taking advantage of lower production costs in other less developed countries—is currently not a main attraction for Chinese investors. Second, we also find that firm capability is a significant determinant for Chinese strategic assets-seeking ODI, but not a crucial factor for resource-seeking ODI. For the latter, competition plays a key role, pushing Chinese manufacturers abroad. Finally, Chinese firms in industries with either overcapacity or backward capacity are more likely to pursue resource-seeking ODI and less likely to conduct strategic assets-seeking ODI.

The implications for upgrading the country's economy are profound. Resource-seeking ODI is likely to help Chinese firms become more efficient by overcoming resource bottlenecks. But without proper institutional reforms, such as a more liberalised market for production factors, this kind of investment could result in a heavier use of resources, greater externalities in the form of carbon emissions and other pollution and a deteriorating economic structure.

In contrast, we argue that the outlook for upgrading the Chinese economy through strategic assets-seeking ODI is more favourable. For one thing, firms undertaking strategic assets-seeking ODI tend to possess a certain degree of technological capability, which facilitates their assimilation of the acquired strategic assets. For another, those firms are more likely to be in industries with lower competition and higher profit margins. As a result, they not only have capital available to purchase strategic assets, but also their profit margins are a good buffer against possible losses in the short term, which allows those strategic assets to play a role in the long run. But we also acknowledge that these two favourable conditions might not guarantee success. Weak corporate governance, a lack of transparency and experience, as well as differing cultures at the national and corporate levels, all present challenges ahead. There is still a long way for Chinese firms to go to become real international players and for China's economy to upgrade and transform.

The remainder of this chapter examines the key industrial characteristics of the Chinese economy, and the possible ODI mechanism that could upgrade the country's domestic industries, with reference to the Japanese experience, and explores the current literature on reverse knowledge spillovers. Subsequently, the basic pattern of Chinese ODI is presented, followed by an identification of Chinese motivations for ODI, as well as an independent assessment and a probit regression test. After that, an empirical analysis of the impact of firm capability and industrial competition is conducted. Finally, we discuss the implications of using Chinese ODI to upgrade the country's economy before some concluding remarks are drawn.

What Are China's Industrial Characteristics?

There has been an exceptionally large secondary industry in China. Its share of the country's GDP averaged 46.5 per cent between 2000 and 2010. In 2008, secondary industry constituted 47.5 per cent of China's GDP, compared with 21.4 per cent in the United States, 28 per cent in Japan and the world average of 27 per cent. This large secondary industry underpins China as the world's biggest manufacturer and largest exporter of global consumable products.

In addition to a large secondary industry, there has been an obvious heavy industrialisation process occurring in China since the middle to late 1990s. Heavy industry's share in above-scale total industrial output value rose sharply from 57.1 per cent in 1998 to 71.4 per cent in 2010 (Figure 7.1). The development of heavy industry is typical when a large economy enters later periods of industrialisation. Yet, unsustainably, China has approached this development with a focus on extensive growth, which in turn has increased resource constraints and environmental pressures.

Figure 7.1 Different Components in Above-Scale Total Industrial Output Value, 1998–2010 (per cent)

Source: NBS (various years).

In terms of ownership structure, China's domestic enterprises have produced an increasing share of the country's total industrial output, while the production weight of domestic state-owned or controlled enterprises (SOEs) is shrinking (Figure 7.1). Domestic enterprises' share in the country's total industrial output, although decreasing from 75.3 per cent in 1998 to 68.6 per cent in

2004, has picked up since 2005 and reached 72.8 per cent in 2010. But the contribution of SOEs to industrial output dropped to 12.2 per cent in 2010 from 49.6 per cent in 1998. Nevertheless, the privileged position held by SOEs allows them to devour an outsized share of the country's resources, such as bank loans and direct financing, and enjoy the unreasonably high profits that the monopolised industries like tobacco, oil and natural gas provide. Alternatively, non-SOEs compete intensely for limited resources and are subject to increasingly unfavourable domestic macro-conditions such as rising costs of labour and raw materials, as well as a slowing of external demand.

Structurally, extensive governmental economic intervention, in association with distorted factor markets, has led to serious structural problems, such as excessive investment, overcapacity, redundant construction and backward production capacity in segments of China's industrial sector. Steel, cement and other traditional industries with overcapacity problems, subsidised by their parent governments, are still expanding. Some emerging industries such as wind-power equipment and polycrystalline silicon, encouraged by the Government's industry development policy, also fell into the hole of excess investment and repeated construction. Some 15–25 per cent of total capacity in 18 industries—iron, steel, coke, iron alloy, calcium carbide, electrolysed aluminium, copper smelting, lead smelting, zinc smelting, cement, glass, papermaking, alcohol, monosodium glutamate (MSG) production, citric acid, hide processing, printing and dyeing, and chemical fibre manufacturing—is inefficient backward production capacity that is seriously detrimental to the environment.

The structure of China's industrial sector—the most important part of the Chinese economy—needs profound adjustment. Overcapacity needs to be absorbed, backward production needs to be eliminated and, above all, industrial upgrading must occur. Completing the marketisation of key energy and resource prices, the strict implementation of environmental supervision mechanisms and liberalising the country's financial system are all important steps that need to occur. Another important method of achieving this goal could be through ODI.

How Does ODI Affect Domestic Industrial Upgrading?

Mechanism

Industrial upgrading, from a value chain perspective, can be defined as the process by which economic actors—nations, firms and workers—move from low-value to relatively high-value activities in global production networks (Gereffi 2005). Industrial upgrading usually appears in four forms: 1) process

upgrading—the improvement of production quality by introducing more efficient production methods and advanced technologies; 2) product upgrading—moving to the production of more sophisticated and higher value-added products or services; 3) functional upgrading—undertaking new functions with higher incomes or abandoning old functions with lower incomes; and 4) inter-sectoral upgrading—moving horizontally into new sectors (Gereffi 1999).

In a market economy, industrial upgrading is a natural, albeit not guaranteed, process and is pushed forward by market competition, technological advancement and economic development. Globalisation has tremendously hastened this process, with freer information and capital flow, as well as better resource allocation on a global scale.

Marginal industry expansion theory suggests that ODI could facilitate industrial upgrading in the home country (Kojima 1978). In this context, a marginal industry is one consisting of home manufacturers that are losing comparative advantage because of rising labour costs, appreciating local currencies and increasing environmental pressures. When ODI starts from marginal industries, resources are freed up for better usage. Some non-sector-specific resources (for example, finance) are transferable to the expanding sectors and contribute to their development. Other sector-specific resources can be transferred to, and utilised in, other countries with favourable factor conditions, which would otherwise be wasted at home (Ozawa 1979).

Marginal industry expansion theory mainly explains the industrial upgrade effect of efficiency-seeking ODI, which is usually located in developing host countries and secures access to cheaper input factors, especially labour. In addition to the desire for lower production costs in less developed countries, other incentives for pursuing ODI could positively affect industrial upgrading in a country, although the channel and magnitude can vary.

Market-seeking ODI is often pursued to defensively maintain a market position or offensively strengthen market share. In theory, if an investing firm's financial performance is elevated, they will have more resources to undertake research and development (R&D) and upgrade their production processes and products.

Natural-resource-seeking ODI removes the resource bottleneck faced by enterprises in growth and development. Detrimentally, however, there is also less pressure to develop resource-conserving and environmentally friendly technologies, which in turn undermines any industrial upgrading in the home country.

In the case of strategic assets-seeking ODI, the acquisition of technology or brand names is conducive to enhancing the firm's competitive edge

by introducing more efficient production, transitioning the firm towards the production of higher value-added goods or services, and undertaking new functions with higher income. All of these are important aspects of industrial upgrading. In addition to technology and brand names, another crucial component of strategic assets-seeking ODI is improved access to distribution channels. The investing firms benefit from higher sales and, consequently, increased profits. On this front, as with market-seeking ODI, firms have greater financial resources to upgrade their production capacity and products.

There are, however, necessary preconditions that must be met before strategic assets-seeking ODI confers benefits. Investing firms should be capable of managing and assimilating the additional strategic assets. Otherwise, the enormous upfront expenses required to purchase the assets will not be justified by the eventual return.

Japanese Experience

Japan is an ardent practitioner of marginal industry expansion theory. In early postwar Japan, labour-intensive light industries occupied the majority of Japan's manufacturing sector, accounting for 74.7 per cent of the manufacturing output and 43.5 per cent of the country's total exports in 1955. But in the 1960s, especially after 1963, with rising wage levels, those industries gradually lost their competitive advantages at home and, thus, Japanese firms moved to Singapore, Taiwan, South Korea and other Asian countries with lower labour costs.

In the 1970s, following the demise of labour-intensive light industries, heavy industries led the second wave of Japanese ODI. The development of heavy industries, and the associated massive investment, intensive energy consumption and severe pollution, increasingly proved unsustainable in a country with limited land and resources like Japan. Japan's economy was pressured into restructuring away from heavy industries towards a knowledge and technology-intensive structure. To survive, Japanese chemical, steel and other heavy industrial firms were forced to shift abroad.

Japanese ODI has helped Japanese firms maintain and grow foreign market shares and assisted with the restructuring of the country's economy away from older industries (Blomström et al. 2000; Cantwell and Tolentino 1990; Hiley 1999). Some newly industrialised countries, such as Hong Kong, Taiwan and Korea, have also successfully transformed from being exporters of raw materials to high-tech products through ODI activities and achieved industrial upgrading along the way (Lipsey 2002).

Reverse Knowledge Spillovers

ODI could channel international knowledge diffusion, not only from investing firms to host countries but also vice versa in certain circumstances.

First, the investment destination matters. Generally, firms investing in a host country with a relatively high level of technology are more likely to receive technology spillovers and enjoy productivity gains. For example, Potterie and Lichtenberg (2001) found that ODI transferred technology only in one direction: the country's productivity increased if it invested in R&D-intensive foreign countries but not if foreign R&D-intensive countries invested in it. They also found that this effect was higher for large countries than it was for small ones. Hijzen et al. (2006), using French firm-level data, argued that ODI in developed countries increased an investing firms' productivity, while ODI in developing economies had no productivity effects. Similar findings were also found in Italian multinational enterprises (MNEs) (Falzoni and Grasseni 2005).

There is also evidence of reverse knowledge spillover in emerging market (EM) ODI. For instance, Chen et al. (forthcoming), drawing on data from 493 EM MNEs between 2000 and 2008 from 20 different EMs and 43 different industries, found evidence that EM MNEs that have subsidiaries in host-developed markets exhibited stronger technological capabilities at home.

Second, the investment motivation matters. Firms undertaking international knowledge-sourcing ODI are found to enjoy substantially, and significantly, higher productivity growth. For example, Pradhan and Singh (2008) found that technology-sourcing ODI by Indian automotive firms had a strong and positive effect on the firms' R&D intensity, particularly if such investments were located in developed countries. While Branstetter (2006) found evidence that ODI increased the flow of knowledge spillovers both from and to Japanese firms investing in the United States, such knowledge spillovers received by the investing Japanese firms tended to be strongest via R&D and product development facilities.

Finally, the capabilities of the investing firm matter. The realisation of reverse knowledge transfer depends on the investing firm's productivity, absorptive capacity² and technology transfer skills. Only when these factors are present are investing firms capable enough to absorb and transfer spillovers, allowing the entire company, rather than just foreign subsidiaries, to benefit from the external knowledge (Smeets and Bosker 2011).

2 Defined as the firm's ability to recognise the value of new, external information, to assimilate it and apply it to commercial ends (Cohen and Levinthal 1990).

Where is Chinese ODI Going?

What are the main destinations of Chinese ODI? What are the key sectors attracting Chinese investors? These are critical questions for analysing the upgrading effects of ODI. But these questions are difficult to answer, especially if one relies only on figures from China's official reports released annually by the Ministry of Commerce of the People's Republic of China (MOFCOM). According to the official data, from 2003 to 2009, 78.26 per cent of the country's ODI flow went to Hong Kong, the Cayman Islands and the British Virgin Islands. The largest category of investment during the same period, accounting for 32.26 per cent, was commercial services. Interpretation of these figures could be misleading since MOFCOM's data report only the first destination of ODI, which in many cases is a transit intermediary. For instance, some of the reported Chinese ODI in Hong Kong returns to the Mainland, or uses Hong Kong as a platform for making further investments in other countries such as Australia or Europe. As a result, reliance upon MOFCOM data does not greatly assist in the analysis of Chinese ODI.

To fill this gap, we construct datasets with detailed investment information at the project level. First, we use the approved ODI project information from the National Development and Reform Commission (NDRC). Then, we scrutinise these data according to the following rules.

We retain the data where

1. the investment amount is reported or can be found
2. the investment content is reported or can be found
3. Chinese investors control more than 10 per cent of the total share in the project.

We discard the data if

1. the buyer and seller are both Chinese firms
2. round-tripping ODI—the final destination of ODI is the home country—is apparent
3. the investment is to set up a trade centre, industrial, scientific or technological parks, or an economic zone.

Table 7.1 Top Destinations of Chinese ODI Between 2003 and the First Half of 2010

Number of projects			Investment amount (US\$billion)		
Australia	43	14.68%	Australia	12.16	12.23%
Hong Kong	21	7.17%	South Africa	7.63	7.68%
United States	21	7.17%	Hong Kong	6.97	7.01%
Germany	20	6.83%	Canada	6.00	6.03%
Canada	18	6.14%	Russia	5.99	6.03%
Russia	13	4.44%	Singapore	5.95	5.98%
Vietnam	10	3.41%	Kazakhstan	5.83	5.86%
Laos	9	3.07%	United States	5.67	5.70%
Singapore	8	2.73%	Norway	4.50	4.53%
Cambodia	7	2.39%	Afghanistan	4	4.02%
Indonesia	7	2.39%	Laos	2.44	2.45%
Developed	176	60.07%	Developed	52.44	52.75%
Developing	117	39.93%	Developing	46.98	47.25%

Source: Author's calculation based on the constructed datasets.

After the application of the above parameters, 293 investment projects totalling US\$99.43 billion were made by 216 Chinese firms from 2003 to the first half of 2011. Table 7.1 describes the top destinations and the distribution of Chinese ODI between developed and developing economies.

As shown, Australia is the biggest recipient of Chinese investment. Australia's resources are its major attraction. More than 80 per cent of Chinese investment in Australia is in the mining sector, nearly half of this goes to iron ore and the rest goes to coal, zinc, aluminium, copper, uranium, and so on. Real estate, finance and manufacturing constitute 10 per cent of China's investment portfolios, while agriculture and infrastructure have been gaining importance in recent years. Similarly, a large amount of Chinese ODI pours into Canada, Russia and South Africa for their resources—specifically, oil and oil-sands in Canada, oil and forest resources in Russia and gold and platinum in South Africa.

Hong Kong is the second-largest destination of Chinese ODI in terms of the number of projects and third-largest in value of total investment (Table 7.1). Unlike Chinese ODI in resource-rich economies, Chinese investments in Hong Kong centre on services, such as finance, shipping, telecommunications and electronic information.

Other top destinations include the United States, Germany, Vietnam, Laos and Cambodia. The United States and Germany attract Chinese manufacturers for a variety of reasons: their advanced technology, prestigious brand names and large domestic markets. The Association of South-East Asian Nations (ASEAN)

members presumably offer mainly low production costs. Yet overall, developed economies have attracted more Chinese ODI and account for 60.07 per cent of the number of projects and 52.75 per cent in dollar terms.

About 80 per cent of Chinese ODI is focused on industry, including mining, manufacturing and electricity, gas and water.³ Within the industrial sector, mining is the largest recipient of Chinese ODI in dollar terms while manufacturing is the largest recipient in terms of the number of investments (Table 7.2).

Of the 94 investments in the mining sector, seven are coal projects; 18 target oil and natural gas; 29 are in ferrous metals; and 39 are for nonferrous metals. The majority of sectors that attract Chinese manufacturing ODI are quite capital intensive. Automobiles, general-purpose and special-purpose equipment, electrical machinery, nonferrous metals and ferrous metal smelting and processing, communication equipment and chemical manufacturing account for 86.2 per cent of Chinese ODI in manufacturing.

Table 7.2 Sector Distribution of Chinese ODI

	Number of projects		Investment amount (US\$ billion)	
Agriculture	12	4.10%	0.37	0.38%
Industry	231	78.84%	83.34	83.82%
Mining	94	32.08%	52.10	52.40%
Manufacturing	124	42.32%	23.07	23.20%
Automobile industry	16	9.37%	4.78	17.94%
General-purpose equipment manufacturing	15	8.78%	0.26	0.97%
Special-purpose equipment manufacturing	15	8.78%	2.65	9.96%
Electrical machinery manufacturing	11	6.44%	0.45	1.68%
Nonferrous metal smelting and processing	9	5.27%	1.11	4.17%
Communication equipment, computer, other electronic equipment	9	5.27%	3.10	11.64%
Chemicals manufacturing	8	4.68%	5.96	22.37%
Ferrous metal smelting and processing (steel and iron)	7	4.10%	1.47	5.53%
Electricity, gas and water	13	4.44%	8.18	8.22%
Other	50	17.06%	15.71	15.80%
Total	293	100%	99.43	100%

Source: Author's calculation based on the constructed datasets.

3 As defined using the National Bureau of Statistics of China (NBS) definitions.

The distribution by sector of Chinese ODI is in line with the country's own industrial features, as discussed earlier in this chapter. The heavy industrialisation process requires more resources and energy input. For the past decade, China has been relying on imports to meet its increased demands for commodities. But the commodities boom has increased prices beyond the point where Chinese producers can maintain their profit margins. The combination of the country's stockpiles of foreign exchange reserves and an appreciating currency ensured the country's enterprises looked outwards, taking major stakes in overseas mining projects and acting as both shareholders and customers. Meanwhile, rapid development of the heavy industries at home also pushed those capital-intensive enterprises abroad.

Chinese ODI Motivations

Firms engaging in ODI are generally driven by one, or a combination, of the following four motivations: market-seeking ODI, natural-resource-seeking (henceforth resource-seeking) ODI, technology and other strategic-asset-seeking ODI (henceforth strategic assets-seeking), and efficiency-seeking ODI (Buckley et al. 2007; Cross and Voss 2008; Dunning 1992, 1993). Our identification of the core causes of Chinese ODI occurs over three stages. First, the author and an outside researcher separately made an independent assessment of the primary and secondary reasons for each investment based on accessible project data and definitions outlined in the existing literature. Second, the two assessments are collated. Third, a probit model is used to empirically test the determinants of Chinese ODI by different motivations and support our assessment.

Determinants

Market-Seeking ODI

Market-seeking ODI occurs when the investing firm expands horizontally into markets to secure or defend a market position established through arm's-length relationships or to develop a new, previously unserved market (Buckley et al. 2007). Market-seeking ODI can be used defensively if a foreign country imposes or threatens to impose barriers to imports, or if a firm wishes to better serve its established customers and strengthen their loyalty by setting up a foreign affiliate close to its local customers. It can also be a positive strategy to explore new markets.

Market-seeking ODI responds to variables that measure market opportunities such as host-market size, income and growth momentum. To account for this, we incorporate three variables: the gross domestic product (GDP) of the host country, *GDP*; GDP per capita, *GDPP*; and GDP growth rate, *GDPG*. These three variables are from the World Bank's database, *World Development Indicators* (*WDI*). GDP and GDPP are converted to logarithms for the estimation.

Given other conditions, market-seeking ODI should positively respond to the host country's *GDP* and *GDPG*. As for *GDPP*, the signs are unclear. A higher GDP per capita suggests a higher purchasing power. But there is also evidence that developing countries usually invest heavily in other developing countries (UNCTAD 2006). One of the reasons for this is that products made by developing firms are more likely to suit the tastes and needs of consumers in countries with a similar level of economic development.

Resource-Seeking ODI

Resource-seeking ODI is directed to exploit local factor endowments such as oil, gas, minerals, timber and other natural resources. The abundance of natural resources in the host country is the key determinant of this type of ODI. We adopt two measures: *orefuelsh*—the share of ores and fuel in the host country's total exports; and *imrawsh*—the host country's share in China's total imports of raw materials.⁴ These two variables are calculated based on the merchandise trade matrix from the UN Conference on Trade and Development (UNCTAD) database. It can be expected that resource-seeking ODI should be positively related to *orefuelsh* and *imrawsh*.

Strategic Assets-Seeking ODI

Strategic assets-seeking ODI includes technology-seeking ODI and other strategic assets-seeking ODI. Technology-seeking ODI is directed to destinations that either already possess advanced technologies or are in the process of developing them (perhaps through technology clusters). Investing firms seeking this type of ODI tap the knowledge pool either directly, by cooperating with local companies, or indirectly, through spillover and demonstration effects. The remainder of the category—other strategic assets-seeking ODI—is normally aimed at acquiring brand names and obtaining improved access to distribution channels and tacit assets, with a view to helping the acquirer fulfil certain long-term strategic objectives.

4 Raw materials are calculated as: China's total imports of goods minus the total imports of manufactured goods.

We use the revealed comparative advantage (RCA) index in high-tech exports, RCA_hi , as a proxy for the abundance of strategic assets in the host economies. Balassa (1965) originally proposed the RCA index. He argued that the comparative advantage of a country's industry could be revealed by the ratio of the share of an individual sector's exports in total exports to that share for the world. An index value less than 1 implies relative disadvantage, whereas a value greater than 1 indicates relative advantage.

We follow Balassa's definition (Equation 7.1).

Equation 7.1

$$RCA_{c,i,t} = \frac{\frac{EX_{c,i,t}}{\sum_c EX_{c,i,t}}}{\frac{\sum_i EX_{c,i,t}}{\sum_i \sum_c EX_{c,i,t}}}$$

In Equation 7.1, $EX_{c,i,t}$ denotes the exports of industry i of country c in year t . $RCA_{c,i,t}$ denotes the revealed comparative advantage of industry i of country c in year t .

In this study, we calculate RCA_hi using the trade matrix from the UNCTAD database. In addition to RCA_hi , to some extent, rich countries with high GDP per capita, $GDPP$, also possess more strategic assets, mainly technology and brand names. So, we expect a significantly positive response of strategic assets-seeking ODI to both RCA_hi and $GDPP$.

Efficiency-Seeking ODI

Efficiency-seeking ODI is undertaken to generate economies of scale and scope and/or to secure access to cheaper input factors, especially labour, by dispersing design and production facilities globally. In doing so, firms take advantage of factor endowment differences between locations to improve efficiency levels.

Efficiency-seeking ODI is normally quite sensitive to cost factors. Thus, we introduce three variables: 1) GDP deflator, *inflation*, is an inflation indicator; 2) the change of nominal exchange rate against the US dollar relative to the previous year, *exchanf*, measures the exchange rate fluctuation; and 3) $GDPP$ represents the labour cost. The data source for *inflation* and $GDPP$ is the World Bank's *World Development Indicators*, and the calculation for *exchanf* is based on the UNCTAD database. It can be expected that efficiency-seeking ODI should be negatively related to *inflation*, *exchanf* and $GDPP$.

Results

Table 7.3 lists the distribution of the assessed primary motivation of Chinese ODI projects in the aggregate. As seen, overall, the largest attraction is to seek natural resources; 41 per cent of projects are in overseas resources and account for 51 per cent of total investments in dollar terms. Market-seeking ODI comes second while strategic assets-seeking ODI is the third-largest group.

If we focus only on manufacturing firms, their primary motivation is slightly different. The key driver turns to strategic assets-seeking ODI, which represents 35 per cent of projects and absorbs 46 per cent of all investments. This demonstrates that Chinese producers, who have been struggling in low value-added activities, are trying to seek strategic assets—advanced technology, established brand names and distribution channels—to increase their profit margins and climb the value chain. But still, natural resource-seeking ODI, or securing the supply of raw materials, is an important objective for Chinese manufacturers going abroad. This is especially true for Chinese steel companies, who rush into Australia and take equity in iron ore projects so as to secure the future supply of iron ore and hedge against the possibility of unfavourable price movements.

Table 7.3 Primary Motivation Distribution of Chinese ODI

	By number		By value	
	Number	Total share	Value (US\$ billion)	Total share
Overall				
Market-seeking	87	30%	28.2	28%
Resource-seeking	121	41%	51.0	51%
Strategic assets-seeking	78	27%	20.0	20%
Efficiency seeking	7	2%	0.2	0%
Manufacturing				
Market-seeking	49	27%	6.9	22%
Resource-seeking	61	34%	9.9	32%
Strategic assets-seeking	63	35%	14.2	46%
Efficiency seeking	7	4%	0.2	1%

Source: Author's own compilation and calculation based on the constructed datasets.

Notably, taking advantage of lower production costs in other less developed countries is not a main driver of Chinese ODI. Only seven projects out of the 293 investments are primarily to increase efficiency. This is possibly because there are large inland areas in China. Despite rising labour costs in recent years, Chinese producers prefer moving their factories inward to less prosperous inland areas (see Chapter 5 of this volume) rather than operating across borders, which could entail huge uncertainties. The other possible reason involves data qualifications. Our sample covers mainly large investment projects based

on reported information. It is harder to track the numerous small investments that might be undertaken by efficiency-seeking investing enterprises.

Our assessment of Chinese ODI motivations is supported by the empirical tests (Table 7.4). Indeed, market-seeking ODI is significantly affected by market variables *GDP*, *GDPP* and *GDPG*. As expected, *GDP* and *GDPG* have a positive effect but *GDPP* is negatively linked to a destination's market attraction. Also as predicted, strategic assets-seeking ODI has a significantly positive reaction to *GDPP* and *RCA_hi*, and resource-seeking ODI is also significantly positively related to *orefuelsh* and *imrawsh*; but the result for efficiency-seeking ODI is unsatisfactory. Although *inflation* has a significantly negative impact as predicted, the coefficient of *exchanf*, although still negative, is not significant. This is probably due to the limited size of observations for efficiency-seeking ODI (Table 7.3), which makes estimation difficult.

Table 7.4 Results of the Identification of Chinese ODI Motivations

Dependent variable	Market-seeking (1; otherwise 0)	Strategic assets-seeking (1; otherwise 0)	Resource-seeking (1; otherwise 0)	Efficiency seeking (1; otherwise 0)
lnGDP	0.245***	0.103	-0.383***	0.169
	-3.12	(-0.82)	(-3.54)	(-0.64)
lnGDPP	-0.335***	1***	0.128	-0.251
	(-3.05)	-2.62	(-0.89)	(-0.81)
GDPG	0.081**	-0.049	-0.152***	0.259*
	-2.45	(-1.16)	(-2.75)	-1.84
RCA_hi	-0.101	0.895**	-0.424	-1.882
	(-0.35)	-2.04	(-1.1)	(-1.35)
orefuelsh	-0.425	-2.333**	1.451***	-0.603
	(-0.91)	(-2.29)	-2.63	(-0.62)
imrawsh	-7.851*	-7.965	20.998***	-8.851
	(-1.67)	(-1.4)	-3.74	(-0.23)
inflation	0	-0.109*	0.084***	-0.093*
	(-0.02)	(-1.73)	-2.76	(-1.71)
exchanf	3.172**	-0.179	-0.72	-1.468
	-2.07	(-0.1)	(-0.4)	(-0.25)
Industry dummy	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes
Observations	289	289	289	289
Pseudo R-squared	0.3138	0.5196	0.6302	0.4901

*** indicates the coefficient is significant at the 1 per cent level

** indicates the coefficient is significant at the 5 per cent level

* indicates the coefficient is significant at the 10 per cent level

Note: Value of z statistics in parentheses.

Source: Author's own estimation.

The Impact of Firm Capability and Industrial Competition

The dominant explanation for the emergence of trans-border production by national firms asserts that firms going abroad must possess a bundle of intangible assets, which yield a rent to the firm capable of meeting the cost of 'foreignness' and offer an edge over local and third-country competitors in particular markets (Caves 1971; Hymer 1960; Kindleberger 1969).

Firms engaged in asset-augmenting ODI are motivated to venture into international markets to acquire strategic assets such as brand names, technology, distribution networks, R&D facilities and managerial competencies. Nevertheless, these firms still have to possess some resources or capabilities to assimilate and manage the acquired strategic assets and apply them to commercial ends.

Do Chinese firms possess the capabilities needed to invest overseas? Without doubt, they have ample funds and can leverage a huge domestic market. But these advantages are not firm specific or ownership specific. At the enterprise level, they are still painfully weak in areas of technology, management capability and brand names when compared with the global giants.

Compared with the primary and service sectors, the manufacturing sector indeed has a comparative advantage in terms of performance in export markets and development in the domestic economy (Huang and Wang 2011). But the advantages of Chinese manufacturers have focused on products such as simple bulk goods like steel, coal and cement, and the assembly of the various components of televisions, washing machines, refrigerators, airconditioners, microwaves and motorbikes that require minimal technological investment from the final assembler (Wang and Wang 2011).

Nevertheless, after 60 years of development, China has established a mature manufacturing system. It maintains high standards, if not necessarily while using up-to-date technology, in certain industries like mechanical manufacturing, metal smelting, household appliances and textiles (Li 2007). The mature technology in these industries is well matched to the requirements of China and other less developed economies.

In addition to firm capability, the degree of industrial competition is an important factor that determines a firm's internationalisation strategies and performance (Boter and Holmquist 1996). Intense competition in a home market can drive subordinate firms to undertake ODI so as not to be squeezed by dominant domestic incumbents (Dawar and Frost 1999; Mascarenhas 1986). A relatively low level of competition at home might not provide enough

incentives to venture abroad, especially to developed economies (Yamakawa et al. 2008); however, the impact of industrial competition can vary on different motivations of ODI.

This section dissects the impact of firm capability and industrial competition on three reasons for Chinese ODI: market-seeking ODI, resource-seeking ODI and strategic assets-seeking ODI.

Variables

Firm Capability

Firm capability is difficult to measure since it is inherently unobservable. Here, we construct three dummy variables to measure whether a firm is provided with a labour-intensive capability, *labourcapa*; a capital-intensive capability, *capitalcapa*; and a technological-intensive capability, *techcapa*. To construct these variables, we first label the firm a 'market leader' if it is one of the top-500 enterprises in China, in the Chinese Manufacturing Industry 500 or Chinese Service 500, ranked by the China Enterprise Confederation (CEC). Then, if a 'market leader' invests in labour-intensive industries, it is said to possess a labour-intensive capability, and its *labourcapa* equals 1; if not, it equals zero. We use the same approach for *capitalcapa* and *techcapa*.

Industrial Competition

Industrial competition is proxied by profit margins at the sectoral level. The higher the profit margins, the lower the industrial competitive pressure should be. We incorporate two profit margin measures at the sectoral level: the profit ratio of sales, *profit_sale*, and the profit ratio of costs, *profit_cost*.

We also control five other sectoral variables: *Growth*, the year-on-year growth rate of total output value; *Significance*, the share of each sectoral total output value in total industrial output value; *State power*, the share of state capital in total paid-in capital; *Exports share*, the share of exports in total sales; and *Intensity*, total assets per worker. All of these sectoral-level variables are first-lagged to ease endogeneity issues and are calculated from various years of the *China Industry Economy Statistical Yearbook*.

We are also interested in the behaviour of firms from industries with large overcapacity or backward technology. Thus, we include a dummy variable, *overbackcapacity*, which equals 1 if the investing firm is from an industry with excess or backward capacity, as specified by the Ministry of Industry and Information Technology of the People's Republic of China. If not, it equals zero.

Findings

From the results of the probit regression analysis reported in Table 7.5, there are four main findings.

Table 7.5 Results of Probit Regression Analysis⁵ for Manufacturing ODI

Dependent variable	Market seeking (1; otherwise 0)		Strategic assets seeking (1; otherwise 0)		Resource seeking (1; otherwise 0)	
labourcapa	0.266 (0.59)	0.233 (0.51)	-0.296 (0.58)	-0.248 (0.47)	-0.678 (1.16)	-1.034 (1.61)
capitalcapa	-0.076 (0.28)	-0.06 (0.23)	0.533* (1.93)	0.49* (1.75)	-0.323 (1.03)	-0.303 (0.95)
techcapa	-1.074** (2.08)	-1.022* (1.96)	1.307*** (2.89)	1.174** (2.55)	-0.712 (1.01)	-0.584 (0.81)
profit_sale	0.876 (0.26)	1.223 (0.37)	16.345*** (3.20)	15.176*** (3.18)	-17.114** (2.20)	-14.623* (1.85)
State power	0.866 (0.48)	1.003 (0.55)	-3.913** (1.96)	-4.982** (2.29)	1.5 (0.6)	1.486 (0.59)
Exports share	5.081** (2.15)	5.941** (2.21)	-3.854 (1.52)	-7.016** (2.25)	-55.309*** (2.91)	-53.403*** (2.93)
overbackca- capacity		0.218 (0.69)		-0.696** (1.93)		0.724* (1.77)
Growth	0.824 (1.03)	0.833 (1.04)	-0.502 (0.53)	-0.475 (0.49)	0.307 (0.29)	0.191 (0.17)
Significance	-5.201 (0.77)	-8.282 (1.02)	17.177** (2.37)	28.785*** (2.97)	20.805 (1.5)	12.853 (0.9)
Intensity	-0.002 (0.19)	-0.003 (0.27)	-0.031** (2.01)	-0.025 (1.54)	-0.01 (0.61)	-0.013 (0.8)
Year	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R-squared	0.0584	0.0608	0.2539	0.2714	0.3541	0.3689
Observations	170	170	170	170	170	170

* indicates the coefficient is significant at the 10 per cent level

** indicates the coefficient is significant at the 5 per cent level

*** indicates the coefficient is significant at the 1 per cent level

Note: Absolute value of z statistics in parentheses.

Source: Author's own estimation.

First, firm capability is a significant determinant for Chinese strategic assets-seeking ODI, but not a crucial factor for market-seeking or resource-

⁵ The result using *profit_cost* is similar. So, for simplicity, we do not report it.

seeking ODI. The results indicate the coefficient for *techcapa* and *capitalcapa* is significantly positive for strategic assets-seeking ODI but insignificant (or significantly negative) for market-seeking and resource-seeking ODI. This means that the greater the investing firm's technology-intensive capability or capital-intensive capability the more likely it is that the firm will conduct strategic assets-seeking ODI.

Second, competition increases the likelihood of Chinese manufacturers seeking natural resources overseas, while it has no significant impact on manufacturers seeking a larger market overseas. In contrast, lower competition encourages Chinese firms to undertake strategic assets-seeking ODI. This is evidenced by the *profit_sale* coefficient, the proxy for industrial competition, which is significantly positively linked with the probability of strategic assets-seeking ODI, negatively linked with resource-seeking ODI, while insignificant for market-seeking ODI.

Third, although firms pursuing strategic assets-seeking ODI might face less competition currently, the potential for future competitive pressure cannot be ignored. The coefficient of *State power* is significantly negatively associated with the choice for strategic assets-seeking ODI; the lower the state power, the more likely a firm is to undertake strategic assets-seeking ODI. Usually, in sectors with lower state power, entry barriers, at least administratively, are also lower. Firms in these sectors, although presently enjoying relatively high profit margins, will likely face severe potential competition in the future. Thus, they have incentives to go overseas and acquire strategic assets to maintain their competitive edge at home.

Finally, firms from industries with excess or backward capacity are more likely to enter into resource-seeking ODI, less likely to conduct strategic assets-seeking ODI and are indifferent to market-seeking ODI. As shown in Table 7.5, the coefficient of the dummy variable *overbackcapacity* is significantly positive for resource-seeking ODI, significantly negative for strategic assets-seeking ODI and insignificant for market-seeking ODI.

Implications for Upgrading China's Economy

Japanese ODI has greatly facilitated the restructuring of the country's economy by moving abroad labour-intensive, resource-consuming and environmentally detrimental activities between the 1960s and 1980s. What remain at home are operations with a greater technological content and higher added value. As a result, despite losing nearly two decades after the burst of the Japanese asset

price bubble, the Japanese economy is still competitive, its environmental situation has improved considerably, it is a very efficient consumer of resources and Japanese goods are still respected for their exceptionally high quality.

Any upgrade of China's economy through ODI, if possible, will, however, be quite different from Japan's experience. The desire to seek lower production costs overseas is not a major motivation for Chinese firms. Also, rising labour costs, the appreciating renminbi and increasingly severe environmental policies do not—at least currently—push Chinese enterprises to shift labour and energy-intensive, low value-added businesses abroad on a large scale. Instead, factories are moving within China to the western and central regions where production costs are lower than in the coastal areas. Other Chinese firms wish to grow their global footprint by pursuing overseas resources with the intention of locking in, or even lowering, the costs of raw materials.

As confirmed by the above results, domestic competition has played a crucial role in forcing Chinese manufacturers to invest abroad to secure their resource supply. While it removes the resource bottleneck, increases a firm's profit margin and thus equips them with greater resources to undertake innovation and move up the value chain, it also steers firms away from resource competition and potentially towards competition for ideas, management and technologies.

But resource-seeking ODI is a double-edged sword. Investment in the resource sector is risky and requires a large amount of funds, while directing money elsewhere could have a more positive impact on upgrading a firm's products and processes.

Chinese firms are known for their ability to draw on a great deal of money. But, even for the country's state-owned enterprises (SOEs), commercial pressures are mounting rapidly. After all, they still must pay millions of dollars in interest every year and undergo the economic performance evaluation required by the State-Owned Assets Supervision and Administration Commission (SASAC). Notably, the 2011 dismissal of Sinosteel's CEO by SASAC was partly because of the large losses of the company's Australian investment, Midwest Mining Corp.

Moreover, inadequate supporting infrastructure, extensive local bureaucracy (especially in relation to the environment and indigenous landowners) and high labour costs (especially for unskilled workers) all increase the risks for Chinese investment in overseas resources and these conditions are especially apparent in developed economies like Australia and Canada. Similarly, resource exploration in developing countries must contend with unstable social and political situations, as well as possible expropriation hazards that all add greater uncertainty to resource-seeking Chinese ODI.

Setting aside the risks mentioned above, resource-seeking ODI might discourage Chinese firms from developing resource-conserving and environmentally friendly technologies, while promoting heavier energy use and carbon production.

The above is readily apparent for firms from industries with overcapacity or backward technology. Our probit regression analysis suggests that those firms are more likely to enter resource-seeking ODI, less likely to conduct strategic assets-seeking ODI and are indifferent to market-seeking ODI. This means that a significant number of firms from industries in this category neither digest excess production capacity through market-seeking ODI nor reduce backward production capacity or optimise incremental control structures through strategic assets-seeking ODI. Instead, they prefer resource-seeking ODI. This could result in more blind investment and low-level expansion, intensifying China's structural imbalances. Admittedly, factor market distortions, such as cheap capital and energy, could play a key role, but ODI only adds another dimension to this problem.

The more promising method for upgrading China's economy is through strategic assets-seeking ODI. It is apparent that strategic assets-seeking ODI has become the most important driver of Chinese overseas manufacturing investments (Table 7.3). Chinese firms have been heavily reliant on importing core components and technologies. Their Foreign Technology Dependence Ratio is more than 50 per cent, while developed economies do not exceed 30 per cent and the United States and Japan are about 5 per cent (Lu and Zhang 2007). Chinese firms also lack global brand names. According to the '100 World Best Brands in 2009', eight of the top 10 were US companies, and no Chinese company made the list.

Acquiring strategic assets through ODI helps elevate the competitiveness of Chinese firms by promoting their movement up the value chain, and in turn upgrading the Chinese economy. But such a favourable outcome is by no means preordained. At least two conditions have to be satisfied. The first requirement is that investing firms should possess a certain degree of capability—namely, an absorptive ability—the technology transfer skills to manage the acquired strategic assets, absorb spillovers and also transfer them back to the parent country. The second requirement is that investing firms should be patient enough or tolerant commercially to bear short-term losses while the advantages of the strategic assets come to fruition.

Our empirical results indicate that Chinese strategic assets-seeking ODI firms have partially met the above requirements. Their technological capabilities have facilitated their assimilation of acquired strategic assets. As shown in

Table 7.5, the higher the investing firm's technology-intensive capability or capital-intensive capability, the more likely it will be to conduct strategic assets-seeking ODI.

Chinese firms are also willing to absorb short-term losses and allow strategic assets to realise their value in the long run. Unlike resource-seeking ODI firms, which are significantly in industries with severe competition and low profit margins, strategic assets-seeking ODI firms are more likely to be from industries with lower current competition and higher profit margins—albeit in many instances where there is the potential for competitive pressure to increase. Under these circumstances, and in the current absence of competition, firms have the funds to buy strategic assets, but also could use their profits to buffer against near-term losses without concern for being squeezed out of the industry.

Conclusions

China, with its need to accelerate structural readjustment and improve the quality and efficiency of economic growth, is at a critical juncture. In the country's Twelfth Five-Year Plan, covering 2011 to 2015, the key message was that the mode of economic development must be transformed. The core competitiveness of the manufacturing industries must be improved and resource conservation, as well as a concern for the environment, should be high on the agenda.

In this chapter, we argued that ODI could play a role in upgrading the country's economy. The statistical evidence suggests Chinese firms are motivated to invest overseas predominantly to acquire resources and strategic assets. It is also apparent that firms seeking resources overseas are often pushed abroad by domestic competition, while those investing in overseas strategic assets are already exhibiting a certain degree of technological capability.

The impact of resource-seeking ODI on upgrading China's economy is mixed. On the one hand, the resource bottleneck faced by enterprises in development might be eased, which allows investing firms to pay more attention to other aspects of competition such as product and process innovation. On the other hand, their incentive to develop resource-conserving and environmentally friendly technologies is also weakened. This could result in a wasteful use of resources and be detrimental to growth quality.

The impact of strategic assets-seeking ODI on upgrading China's economy is, however, more positive. Technology and brand acquisition are conducive to enhancing a firm's competitive edge, while improved access to distribution channels is helpful to boost sales, increase profits and provide financial

resources for the upgrading of a firm's production and products. One question remains, however: whether Chinese firms are able to best utilise strategic assets. Our analysis suggests that they are indeed equipped with certain technological capabilities that will assist with the assimilation of acquired assets. Also, firms pursuing strategic assets-seeking ODI are from industries with lower competition and higher profit margins. As a result, sufficient room (time, in the main) is available for the strategic assets to take effect.

Nevertheless, Chinese ODI faces other challenges ahead. Cultures at the national and corporate levels need to be reconciled and both must learn to engage with foreign regulators, unions and local communities, which remain unfamiliar territory. Firms also need to improve corporate governance and management skills to consolidate, absorb and operate foreign assets. While these challenges are also often present when conducting business abroad, that these challenges exist reflects the institutional background at home and, therefore, highlights problems with China's economy as well.

Chinese ODI is still small in size but its growing global importance is striking. It not only has the ability to upgrade China's economy if properly managed but might also facilitate deeper reforms of SOEs, improve corporate governance, strengthen the notion of corporate social responsibility and, eventually, create a better and more orderly economic and business environment in China.

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