

Aluminium - The China Syndrome

China's transformation over the past few years from net importer to net exporter of primary aluminium to the West has raised the spectre that supply and demand will be in large surplus for the foreseeable future. Growth in primary capacity continues to set records but evidence has emerged recently that constraints, both market and government-imposed, will act to moderate future growth. **ROBIN BHAR** of Standard Bank London Limited discusses the background to the rapid growth in primary aluminium capacity in China and what conclusions can be drawn.

ANY DISCUSSION ABOUT the aluminium market soon comes round to the issue of China and its impact on global supply and demand. A week does not pass without China announcing a new project or expansion to meet strong domestic demand growth. A glance at production and consumption rankings testifies to the country's emergence as a significant player on the global scene. Chinese primary aluminium production grew by 29% last year and it is now the largest producer in the world. In addition, increases to capacity will see further growth in 2003-2005. On the consumption front, the picture is no less impressive and China is quickly consolidating its position of largest aluminium consumer in the world.

Its dominant position in global aluminium supply and demand should perhaps be of little surprise given China's rapid ascendancy in the world GDP league. China is now the second largest economy in the world on the basis of purchasing power parities rather than market exchange rates for the conversion of GDP into dollar terms. It accounts for 12% of GDP (compared with 13.5% for Europe), up from only 3% 22 years ago, and is growing remarkably fast. While the world economy has grown at a little over 3% a year since

government-funded spending on infrastructure (roads, rail, pipelines, power stations and power lines) in an effort to raise living standards in rural areas. It is estimated that 62% of China's population live in rural areas and per capita disposable income of urban workers is more than three times that of rural workers and growing twice as fast. In 2002, total fixed asset investment rose by 16.1% to US\$520.5bn. Infrastructure investment, which accounted for 40% of total investment, was one of the main drivers behind last year's 8% increase in GDP.

China's economic growth should continue to be strongly underpinned over coming years by further spending on infrastructure and the ongoing shift of the population from the rural areas to the cities, which should continue to boost construction and productivity. There has been a powerful momentum behind China's economic performance so far this year. Industrial production in the first two months of the year rose by 17.5% while fixed asset investment rose by 33% to US\$23.3bn. Robust growth in GDP is expected to be driven by fixed asset investment, exports and private consumption. Growth in fixed asset investment will be maintained through state spending and foreign direct investment. Export competitiveness looks assured as manufacturers from around the world continue to be attracted to a post-WTO China and in particular, its low cost labour, its low capital costs and its currency peg to the US dollar. China has now entered a metals-intensive phase in its growth - similar to Japan in the 1950s and 1960s and Korea/Taiwan in the 1970s and 1980s but on a much larger scale.

As illustrated by the 1997/98 Asian financial crisis, China is insulated from the global economic cycle. Domestic consumption is more important to Chinese GDP growth than the export sector and is underpinned by a young population and the prudent and successful demand management policies (through fiscal and monetary policy) of central government. Moreover, infrastructure spending has been accelerated during periods of weak export growth. The Asian financial crisis highlighted concerns over the Chinese banking sector, especially non-performing loans, estimates of which range from 10-30% of total loans outstanding. However, Chinese banks have no external liabilities (China is a net lender to the rest of the world) and approximately 80% of the banking sector is state owned. Finally, the government's massive restruc-

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1990, China over the same period has averaged growth of 9.5% a year - three times faster. Even after slowing during the latter part of the decade, it was still growing comfortably at twice the speed of the world as a whole.

Metals-Intensive Nature of Economic Growth

China has undertaken a substantial programme of investment in infrastructure and housing over the past several years, creating a growing market for consumer durables in the process. With growth having been concentrated in the coastal regions of the country the government has shifted the focus to the undeveloped and remoter western provinces, the development of which is viewed as critical to China's political and social cohesion. The Western Development Initiative has involved massive gov-

turing and reform programme focused on state-owned enterprises does not appear to have hindered economic growth in any significant manner.

Largest Consumer in the World

China is already the largest aluminium market in the world, overtaking the USA in 2001. Primary aluminium consumption reached 4.25Mt in 2002, a rise of 19.9% on the previous year. Consumption has accelerated since 1990, with growth averaging 16.1% per annum in 1990-2000, compared with 5.4% in 1960-1990. Key sectors behind this phenomenal growth are construction, packaging, the power industry, home appliances and the auto industry. Construction projects for the 2008 Beijing Olympic Games will also boost aluminium demand from late this year, with 42 stadiums and some 50 hotels to be built. Over 80% of aluminium consumed in China is used in construction, while less than 20% is used in industry. In the developed countries industrial use accounts for typically 70% and less than 30% for construction. China's position as the centre of the world's manufacturing base means that use in industry should accelerate. Consumption growth in 2003 is estimated at 13% taking the total to 4.8Mt. Robust growth is expected to continue over the next 10 years; consumption is forecast to reach 5.2Mt in 2005.

As Figure 2 shows, the per capita use of aluminium in China is approximately one tenth of the US and the potential to move up the curve is significant.

Production Surges

In tandem with its status as the largest aluminium consumer in the world, the country is now the largest primary aluminium producer, overtaking the USA in 2001. Total annual primary output was about 4.35Mt last year compared to 3.37Mt in 2001, a rise of 29% and following a rise of over 19% in 2001. Production was probably understated given the large number of smelters and the lack of a centralised reporting system. At the end of 2002 the country had 132 smelters, many of which are small, high cost producers using old Soderberg technology, compared with 123 in 2001 and only 63 some 10 years ago. Average capacity is 20,000tpy compared with 80,000tpy in the West. Total primary production capacity at the end of 2002 reached 5.10Mt. Currently, new smelting capacity that are either under construction or have received government approval, have a combined annual design capacity of 2.6Mt. A number of regional governments and enterprises have started preparations for building a batch of new projects, including some capable of producing more than 500,000tpy of aluminium. By the end of 2006, primary capacity is expected to have reached 7Mtpy.

Abundant, Cheap Electricity Fuelling Capacity Expansions

What is behind this surge in production? Clearly, the phenomenal growth in aluminium consumption mentioned earlier is helping to fuel the strong growth in domestic smelting capacity. However, the key factor is the emergence of surplus electrical power. Energy companies eyeing the good profitability of such a venture are using this surplus electrical power for the production of aluminium for domestic consumption or export. Power generation has been boosted by

Exchange Based		PPP Based	
USA	8,879	USA	8,879
Japan	4,055	China	4,450
Germany	2,104	Japan	3,186
France	1,453	India	2,224
UK	1,404	Germany	1,930
Italy	1,163	France	1,349
China	980	UK	1,322
Brazil	730	Italy	1,268
Canada	614	Brazil	1,149
Spain	583	Russia	1,022

the construction of regional electricity grids and the deregulation of the sector, underlined by liberalisation of the state power utility last year. The soon-to-be completed Three Gorges Dam project is well publicised but is only one of numerous power projects under construction. In western China, the Three Gorges region has 26 700MW power projects. Longtan has seven 600MW projects and Gongbexia has five 300MW projects. Deregulation has allowed direct supply of electricity from a generator to large volume users with high-voltage transmission such as aluminium smelters. In many cases, smelters have formed joint ventures with generating companies in order to build new smelters/generating plants or to expand existing capacities.

> ... the key factor is the emergence of surplus electrical power <

A number of other factors have also assisted the production surge:

- Availability of regional government grants often at very low interest rates for smelter modernisation or green-field construction. Moreover, this allows the provincial authorities whose major concern is on jobs and revenue, to have a degree of autonomy from central government.
- Rationalisation of existing smelters into larger units and closure of small inefficient plants. The government has sought to rationalise the number of smelters for reasons of competitiveness and economies of scale. Smelters of

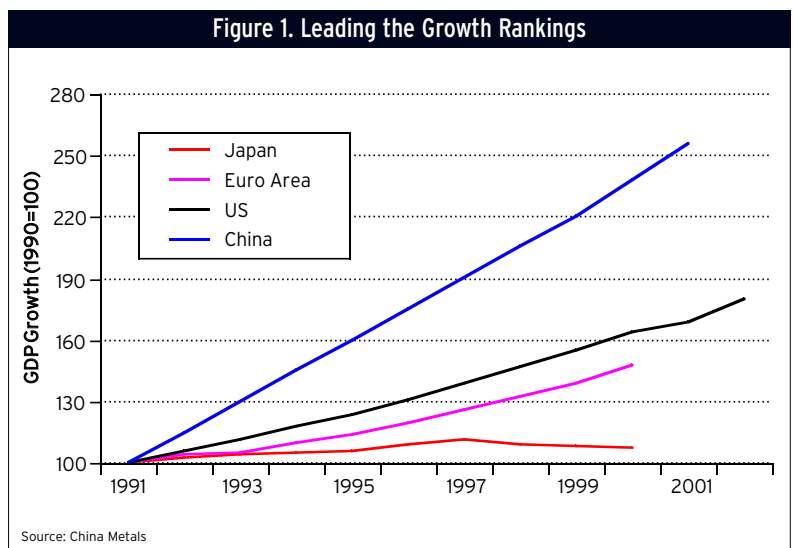
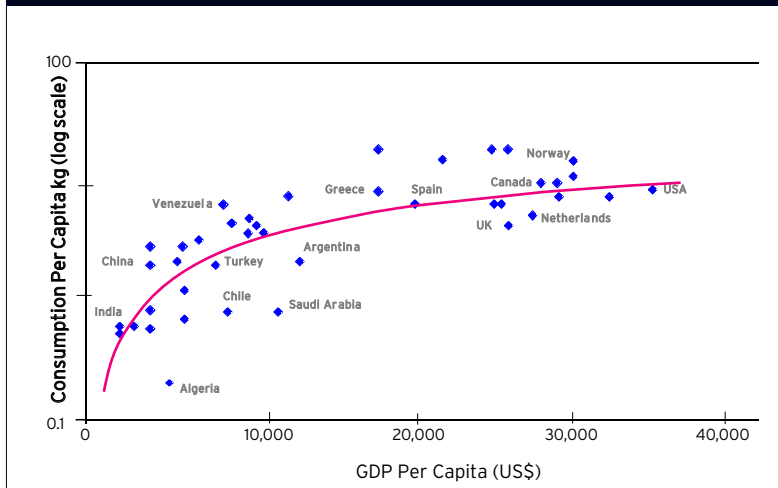


Figure 2. Aluminium Per Capita Intensity of Use (2000)



less than 50,000t capacity were ordered to close and a rush to expand capacity was seen as a way of getting round this.

- Environmental. Phase-out of older, inefficient and polluting Soderberg technology has forced smelters to renovate and expand capacity to survive. Around 1.37Mtpy of Soderberg capacity has been earmarked for closure or replacement by the end of 2005. The concerns were themselves triggered by entry into the WTO.
- Lower capital costs. Building a 700,000t capacity smelter in China will require a capital cost of US\$1.2bn. A 250,000t capacity smelter in the West will have a capital cost of US\$1.3bn. Tighter environmental controls will raise capital costs as will higher labour costs or a change in currencies.

➤ The domestic alumina supply shortfall is expected to reach 5.2Mt in 2003 ... about 47% of total demand <

Are There any Obstacles to Capacity Expansions?

Evidence has emerged that production growth could be slower than expected because of a lack of raw materials, power, government policies and the SARS epidemic.

A lack of alumina for domestic aluminium production has been due to the poor quality of local bauxite and a tight international market. The domestic alumina supply shortfall is expected to reach 5.2Mt in 2003, accounting for about 47% of total demand. This necessitates imports of alumina from the international market to meet the rapidly growing primary smelting capacity. Chinese imports of alumina have soared from less than 1.5Mtpy in 1997 to 4.5Mtpy in 2002. Approximately 70% of China's alumina imports are purchased on the spot market and Chinese buying, coupled with disruption to supplies from Australia and Venezuela, have pushed alumina prices currently to US\$300/t from less than US\$150/t in November 2002. There have been reports that smelters have started to draw on alumina stocks accumulated over the past two years.

Although the government has approved the construction of more power stations energy shortages in eastern and

central China are reported to be holding back economic development and this situation is likely to continue until the Three Gorges Dam project is commissioned next year. Guizhou Aluminium recently announced that it would fail to hit a 2003 output target of 240,000t by 30,000-40,000t due to power shortages. Other smelters are also likely to be affected and may be forced to trim output by around 10%.

Government Acts to Moderate Capacity Growth

Last year the central government announced a decision to curb the rapid growth in aluminium capacity specifying the following policy measures:

- Accelerating the phase-out of Soderberg plants.
- Restricting alumina imports for smaller smelters.
- Centralising the power to approve new projects.
- Loans to new projects by state banks banned unless approved by central government.

Ironically, this had the opposite effect and accelerated the surge in output growth. More recently, China's National Development and Reform Commission (NDRC), a new central government department formed primarily from the former State Development Planning Commission, has issued a circular requiring regional governments to stop approving any new electrolytic aluminium capacity projects. Foreign investment will continue to be allowed. However, any such projects will be subjected to stricter screening procedures. The NDRC also warned domestic financial institutions of the potential risks in helping finance new electrolytic aluminium projects, since it believes excessive production capacity already exists throughout the domestic industry. The NDRC appealed to domestic commercial banks and their regulatory bodies to toughen their credit controls. It also advised domestically listed companies against funding aluminium capacity by raising capital from share and convertible bond issues. 'Blind development' of the aluminium industry will lead to a severe over-supply situation, as well as exerting pressure on the domestic power sector, increasing the alumina supply deficit and limiting China's attempts at becoming more competitive in the global market. It said that it would, "...positively encourage existing electrolytic aluminium enterprises to develop into major aluminium enterprise groups with global competitiveness through mergers, the restructuring of assets, optimisation of resource allocation and centralisation of industries."

It remains to be seen how effective the NDRC policy is in constraining capacity growth. Earlier directives were simply ignored by many regional governments and companies operating under their jurisdiction. Will central government be willing and able to force autonomous regional states to toe the line? Chinese aluminium production was lower than expected in the first quarter due to power problems and severe tightness in alumina supplies. However, aluminium production appears to have ramped up again in April and showed an increase of 441,000t month-on-month, and a staggering 1.243Mtpy year-on-year. Aluminium production totalled 1.677Mt in the first four months of this year - an increase of over 20% year-on-year, and in spite of lower production rates in the first quarter.

Aluminium production so far appears to be little affected by the SARS epidemic. As the majority of Chinese aluminium is

consumed domestically, the expected SARS-incurred slow-down in China's GDP growth will have an impact on aluminium consumption in the country, especially the consumption of consumer goods. In this case, the impact of SARS will be seen in higher net exports of aluminium to the West.

> 'Blind development' of the aluminium industry will lead to a severe over-supply situation
[NDRC] <

China remains the fastest growing major economy by a wide margin and after many years of growth it is now 'large', reaching critical mass on a global scale. This has been achieved through a co-ordinated and powerful infrastructure drive, rising skill levels among the Chinese workforce and capital investment from abroad, from domestic entrepreneurs and from regional and national governments. Economic reforms and more liberal economic policy (following membership of the WTO) and sheer size of a relatively young population suggest continued strong growth, although there are risks (reform of state-owned enterprises, bad debts at banks, unemployment/political risk, etc.). China has now entered a metals-intensive phase in its economic development - similar to Japan and Korea/Taiwan but on a much larger scale. Its aluminium industry plays an increasingly dominant role on the global stage but as far as capacity growth is concerned, questions remain to be answered as to how much production will actually come on stream. The government has signaled its intent on curbing the rampant and uncontrolled surge in capacity growth in an attempt to make its industry globally competitive and conform to international standards ■

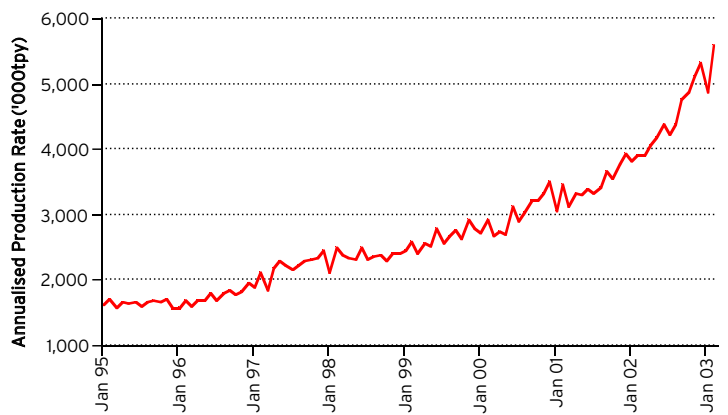
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Figure 3. Chinese Annualised Aluminium Production Rates



Source: Chinese State Statistics Bureau

Figure 4. Chinese Aluminium Production, Consumption & Net Exports

