TIN

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Consumer demand remains problematic. Growth in world consumption is likely to be nominal in 2003, constrained by struggling economies. Price recovery has come from a mix of investment buying and a shortfall in supply (Table 3). It is worth noting the virtual halving of LME tin stocks in the six months to end-February 2003.

There was a surplus of around 10,000 t in 2002 despite appalling market conditions. The LME cash tin price hit US$3,620/t on February 20, 2002, its lowest since the tin contract was reintroduced in 1989! The price recovered to US$4,500/t on July 19 but a scant two weeks later, on August 5, it had tumbled again to US$3,700/t only to recover once more to hit a 19-month high late in January 2003.

The gyrations of the tin price meant that by August, most mines in Bolivia had suspended operations, Indonesia's Timah had halted alluvial output and several mines in China had also shut down. Even Minsur of Peru, the world's lowest-cost producer was considering halting output to preserve the resource at its San Rafael mine.

The jokers in the tin pack once again in 2003 are China and Indonesia. How the market plays will depend on what happens in their tin-mining industries. Prospects elsewhere are relatively clear. Latin American tin production is likely to remain stable overall. Peru's Minsur has healthy reserves. In Brazil, Paranapanema is unlikely to be able to sustain last year's increase in output, running out of alluvial reserves and struggling to raise funds for investment in hard rock mining. No substantial change in output from Bolivia is likely.

Elsewhere, tin output is falling in Thailand and Malaysia, and in Australia it is also likely to be down due to difficulties at the Renison Bell mine.

China is likely to produce and export less as a result of the closure of many smaller mines. More than half of its output is now being consumed domestically and this proportion is likely to rise but a strong rally in the tin price could easily result in a jump in activity (Table 4).

In Indonesia, PT Timah has already announced that it will dredge some of the waterways around Bangka Island, increasing output over 2003 to 48,000 t. There is also the question of the growing domestic stockpile in Indonesia. Although illegal exports were more or less halted, mining activity has continued and the country's stockpile has built up to an estimated 10-15,000 t.

A strengthening tin price would almost certainly see this stockpile finding its way out of the country and into smelters elsewhere in Asia that are currently cutting output as a result of tightness in the concentrate market (Table 1).

Analysts now forecast a deficit in the global tin market for 2003. How large this deficit will be depends on which analyst you choose to believe. It could be up to 25,000 t according to those most bullish on the tin price while the more cautious suggest a supply shortfall of between 5-7%, which would mean a deficit of around 10-15,000 t in the second half of the year.

The implication for the tin price is clear and all the forecasters are agreed that it may comfortably settle back around the US$5,000/t level. In fact, tin appears to be decoupling from the rest of the base metals complex on the LME where most of the metals move in line with the bellwether copper contract. Tin is likely to move upwards whatever the rest of the metals do and is attracting substantial interest from speculative market participants. However, any move above US$5,000/t would almost certainly trigger a resurgence in idled capacity.

Production

Indonesia

PT Koba Tin reported output of saleable tin metal up 41.7% for 2001 to 15,446 t. In January, PT TImah announced plans to divest its 25% stake in Koba. In November 2001 Australian firm Iluka Resources agreed the sale of its 75% holding to Malaysia Smelting Corp. (MSC). The sale included a US$13.7 million cash paymehnt and a defered contingent consideration of up to US$6.0 million over three years depending on the tin price. The fall in price to March resulted in a downward adjustment of the cash component by US$300,000.

MSC took over Iluka’s stake in April but Timah decided to retain its 25%. Koba’s ore reserves and resources were 58,692 t and 23,794 t respectively at end 2000 according to MSC’s chief executive officer Datuk Mohd Ajib Anuar. In September, Koba announced plans to expand its production capacity by end 2003 and in January 2003 the company confirmed it was considering expanding its smelter capacity by adding another furnace.

PT Timah, the world’s largest corporate tin producer, began the year with some 70% of its 5,200 staff on compulsory holiday after effectively shutting much of its operation down for December and January but by March had restarted 12 of its 20 offshore dredges and backtracked on plans for permanent lay-offs.

Although the firm retained its stake in Koba, it disposed of a number of other assets, including stakes in copper miner PT Kutaraja Tembaga Raya and insurance group PT Asuransi Tugu Mandiri.

Timah also faced a challenge from the regional authority of Bangka Island, claiming it wanted 25% ownership of the group, citing regional autonomy laws passed in 2001. The central government in Jakarta retains 65% of Timah.

In February, Timah reported results for the year to end-December 2001. Net profits slumped 89% to Rp36.78 billion. The company produced 38,081 t of refined tin and sold 39,999 t for the year as a whole. Timah's average selling price for 2001 was US$4,408/t, down from US$5,520/t in the previous year.

In September, the company reported first half a net loss of Rp53.8 billion. It was the first loss Timah had recorded for ten years. Costs rose to US$4,285/t from US$3,355/t as a result of reduced sales volume, while average prices received fell to US$4,116/t from US$5,078/t a year earlier (Table 2).

Indonesia's tin reserves are running low. Some analysts suggest the country has little more than eight year's reserves left. However, according to PT Timah's own analysis, the company's proven reserves will last five years, probable reserves could last eight and the company claims other unquantified tin reserves.

In mid-March, the Indonesian Government confirmed plans to ban the export of tin ore from April 1, but the legislation was delayed until June 15. As the tin price tumbled, Timah claimed that it planned to reduce production costs over the next five years to US$3,000/t from US$4,149/t in 2001. However, the ban ultimately did come into effect on June 1.

In May, the company's new president director, Thobrani Alwi, highlighted Timah's negotiations with local government. He noted that for each tonne of tin-in-concentrate mined the company was paying to the central government around US$120/t, of which 20% is held by Jakarta and 80% returned to Bangka and Belitung province. According to Mr Alwi, private exporters directly paid the province US$100/t. He said: "if the local government wants to take money from us, we can talk, we can contribute... but we have already paid a royalty directly to Jakarta and a tax for the land."

The export ban was already biting by late June, with reports towards the end of the month that around 1,900 t of tin ore was piling up on Bangka Island. By the third week in July, that figure had risen to around 2,500 t.

By mid-July, Timah claimed that its production had returned to normal and that it had increased the number of operational ocean-going dredges. Less than two months later the company was talking of suspending operations again but claimed to be sticking to an output target for the year of 34,400 t.

Timah also targeted output of 34,400 t for 2003, claiming it would be able to meet the target in both 2002 and 2003 despite idling seven dredges from November 2002 through to end-March 2003.

The recovery in the tin price during the fourth quarter of 2002 allowed the company to announce in January 2003 plans to restart offshore tin exploration in the second half of 2003, having suspending exploration in late 2001. Timah holds exploration and mining rights until 2025 for more than 7,700 km^2 across several islands and offshore areas in the Java Sea.

The company is considering constructing an 8,000 t/y smelter on the island of Kundur, chosen for its proximity to Singapore. Timah says the cost of transporting concentrate from mining sites in the Riau islands to its smelter in Mentok is too high. It also pointed out the risk of piracy, which is rampant in the sea off western Sumatra.

China

At the start of the year, lower export quotas were expected to be the order of the day, following on from a cut in tin metal export quotas of around a third in 2001. In fact Chinese production overall was expected to fall to around 80,000 t from 90,000 t the previous year. By the year-end that forecast would seem hopelessly optimistic. Domestic consumption for the year was put at 50,000 t.

The country's second largest tin producer China Tin (Liuzhou Huaxi) forecast a drop in its own output for the year. In May, general manager Xhang Youbao said the company's output would be down by 5%. In March one of the firm's two mines in Guangxi had been shut down following the latest in a series of accidents. In August, Liuzhou updated its output forecast to 15,000 t for the year, down from 21,000 t in 2001. In the event, the company produced just 13,000 t of tin in 2002.

By way of contrast Yunnan Tin Corp. (YTC), China's largest producer, announced plans in January to increase output and in March YTC's general manager Xiao Jianming was reported as claiming output for 2002 would be around 25,000 t, helped by the firm's new Ausmelt furnace. Trial production began in April. The 25,000 t/y smelter is second in size to the 34,000 t/y smelter installed by Ausmelt for Minsur in Peru. YTC raised its output forecast to 28,000 t in August but then suspended operations at the new smelter in September as the tin price slumped. The smelter restarted operations at the end of October and YTC revised its output for the year back down to about 25,000 t.

There was no output from YTC's joint venture Chenzhou Mineral Resource Investment Co. in southern Hunan Province in 2002. However, the 3,000 t/y smelter based there was due to recommence operations in 2003.

One of the factors behind China's overall projected fall in output is the continued shut down of mines in Nandan county. In August 2001, operations were suspended there following a flooding disaster. Many of these mines did not resume output in 2002. In June, a Communist Party official was sentenced to death for trying to cover up a mine accident that killed 81 people. Three others received sentences of between 10 and 20 years.

In November, the discovery of substantial new tin reserves in Qitianling, in southern central Hunan was reported. These new reserves should offset the exhaustion of mines elsewhere in the country. According to domestic sources, recoverable tin reserves in China had previously been declining by an annual average of around 5% in recent years.

Peru

In August Minsur, the world's number three tin producer, claimed that it hoped to boost its refined metal output by more than a third. However, by the middle of the third quarter the company was talking about suspending production to protect its resource in the face of a renewed slump in the tin price.

For 2002 as a whole, Minsur reported sales of PS579 billion, up from PS541.9 billion a year previously. However, more than half of the company's income for the year was generated by the sale of its 12% stake in the Backus brewery business.

Bolivia
The Colquiri mine, being run since 1999 as a joint venture between Comsur and the UK's Commonwealth Development Corp., restarted production early in 2002, expecting to produce 2,400 t of tin and 16,000 t of zinc during that year. The mine has 12 Mt of proven and probable reserves averaging 0.83% Sn and 4.7% Zn, and 12.6 Mt of resources averaging 0.52% Sn and 3.74% Zn in the form of tailings.

Early in June, Deputy Mining Minister Epifanio Mamani said investment in Colquiri had exceeded the stipulated requirement of the privatisation process. Comsur/CDC had been asked to invest US$2 million over two years but Mr Mamani claimed that the joint venture had invested US$14 million in 18 months.

Mining co-operatives agreed in May to continue supplying concentrate to the Vinto smelter despite the uncertainty then surrounding the smelter's future as a result of the collapse of its owner, RBG Resources.

In June, the Comsur/CDC joint venture began negotiations with the government to take over the Vinto smelter and Huanuni mine from the liquidators of RBG. RBG itself was officially wound up in the London High Court on June 12. Comsur/CDC took control of Vinto but following Mr Mamani's resignation and confusion over the future of the Huanuni mine, state mining firm Comibol retook operational control of the mine on June 19. On July 22, a vote in the Chamber of Deputies in La Paz approved the necessary changes to the Mining Code to allow Comibol to take full control of the mine.

In October, the Bolivian Government annnounced its intention to file a US$19 million lawsuit for breach of contract against RBG.

Despite the corporate convulsions involving Bolivia's tin mines, output in the first half of 2002 actually rose, by around 11% to 7,550 t, and for the January-September period it was up 10.8% to 9,970 t.

Australia
The Renison Bell mine in Tasmania produced 8,976 t in the fiscal year to June 2001 but output was dropping as a result of lower head grade. A sale to Sirocco Resources was announced by Murchison United in April. Mine life then was put at two years of reserves, five years of resources and additional untested potential at depth and along strike. In June, Sirocco said it would complete the purchase of the mine in July.

In May, Murchison claimed it would press ahead with the acquisition of a 49% stake in the Neves Corvo copper-tin mine in Portugal even though its partner Outukumpu had pulled out of the joint bid. Tin production was discontinued at Neves Corvo in the third quarter of 2002 due to the low availability of economically recoverable ore. The US$78 million deal was due to be completed by the end of June. On June 10, Murchison completed a share placement raising A$63.9million (US$36.8million) to help fund it. However, the purchase failed to go through and the deal was terminated at the end of July. Murchison said this was because the necessary governmental approvals, authorisations and consents had not been obtained.

The collapse of the Neves Corvo purchase also triggered the collapse of Murchison's sale of the Renison Bell mine to Sirocco. This deal was resurrected in August and in September Sirocco changed its name to Renison Consolidated in advance of the purchase being completed. The firm was expecting the revised deal to be concluded in November. It was not.

In fact, in December, Renison Consolidated backed out of the deal, claiming the operating performance of the mine had deteriorated markedly. Murchison United turned to private contractor Barminco and signed a deal in which it retained 100% ownership while Barminco agreed to provide operating and management services for the mine.

Marlborough Resources' Ardlethan mine in New South Wales began 2002 operating at 500 t/y with a floor price scheme which offered the firm a minimum of at least US$4,420/t through 2002-03 against costs of around US$3,000/t. All the firm's output was being sold to Malaysia Smelting Corp. Marlborough announced plans in April to expand output to 700 t/y with the eventual aim of lifting production to 1,000-1,400 t/y. The capital cost of the immediate expansion plan was put at A$1 million compared with an original total cost A$5.0 million. In September, monthly output hit a record 74.8 t. In January 2003, Marlborough announced plans to increase production yet further to 1,500 t/y of tin-in-concentrate.

At the end of September, Malaysia Smelting Corp. announced plans to cut its tin metal production at its Butterworth smelter in Malaysia, closing two of its four furnaces from November, although the firm said tin metal output from Koba would be unaffected. MSC said its Malaysian smelter output would fall to 15,000 t in 2003 from an estimated 30,000 t for 2002.

Brazil

In September, Paranapanema denied claims that its output would rise in 2002, saying that output would remain stable at 10,000 t for the year but that it was likely to fall in 2003 and 2004 as the Pitinga mine is nearing exhaustion. The company's hard-rock project, Rocha Sa, could produce up to 22,000 t/y but formal approval to develop the project has not yet been granted. In fact, the company only produced 8,900 t in 2002.

Cesbra, part of the Brascan group, actually increased output by 10% to 1,200 t in 2002. The company is Brazil's only fully vertically-integrated tin producer.

Thailand

Tongkah Harbour reported first half output of 149.1 t, down from 339 t in the 2001 first half, and reduced its overall production target for 2002 to 480 t, down 25% on the previous year. Tongkah suspended mining operations in September because of poor tin prices and by November output was running some 43% down on year ago levels.

Despite Tongkah's reduced output, Thai tin smelter Thaisarco claimed that its tin metal output would be unaffected. Thaisarco said it would still produce 17-18,000 t for the year.

South Africa

Phamine Mining announced plans to start operating a smelter in Limpopo in July after investment of R27 million. The company claims to supply 80% of South Africa's tin demand from old tin dumps. The smelter is based at Leeuwpoort and is being fed by operations at Doornhoek and Rooiberg. Phamine is 30%-owned by empowerment group Phakula Investments, 30% by Structor Investments, a consortiumillion of mining experts, and the remainder of the equity is held by the management.

Rwanda

In August it was reported that South African-backed Metal Processing Association (MPA) was to begin tin production in Gisenyi in the east of Rwanda. The firm, operating a 500 kW electric smelter, said it would purchase feedstock locally from miners who had previously exported their concentrate. MPA aims to produce around 200 t/y of tin metal.

Argentina

Sunshine Mining & Refining's attempts to develop the Pirquitas silver-tin mine came to nought and the prospect was appropriated by Sunshine's creditors in March. Vancouver-based junior, Silver Standard, took a 43.4% stake in the project in June.

CIS

A tin-tungsten processing works is expecting to commence operation early in 2003, processing ore from the Sary-Dzhazsk mine in Kyrgyzstan's Issyk-Kul region. The Kyrgyz Government estimates tin reserves at the mine at around 160,000 t. The project is being backed by, among others, Novosibirsk Tin Works.

UK

In June, the new owner of South Crofty, Baseresult Holdings, claimed that the Cornish mine has "substantially" more reserves than the estimated 3.0 Mt at the time of its closure in 1998. The firm said it was in pre-production planning but that it could take two years before the mine started producing tin again.

In January 2002, a review board was established to look into personal injury claims relating to Rio Tinto's former Capper Pass tin smelter on Humberside. The board was set up as a result of lengthy negotiations following Rio Tinto's initial proposal to set up a scheme to review some 350 claims of a causal link between smelter discharges and cancers and other diseases suffered by former employees and local residents.

By September, the number of claims had risen to 730. The review board expects to complete its work by early 2004. At its peak output in the 1970s, Capper Pass produced up to 15% of Western primary tin demand and operated with a workforce of around 800.

US

The tin world's 'virtual mine' began production again in May 2002 as the US Defense Logistics Agency resumed tin sales from its stockpile. In June the DLA announced that it would cease to exist in 2007. The Annual Materials Plan for fiscal 2002 and fiscal 2003 (the year to end-September) targeted sales of 12,000 t of tin. The DLA posts tin sales under the Basic Ordering Agreement on its website www.dns.dla.mil.

Consumption

Global tin consumption is said to be relatively steady. Soldering has overtaken tinplate as the main end-use but only just – estimated as being responsible for 31% of tin consumption compared to tinplate's 30% share.

The main hurdle which tin continues to face in the electronics industry is the spectre of components failure. While pure tin and high tin content alloys are being touted as replacements for lead solder – offering excellent control and uniformity of plating thickness together with good conductivity, there remains one problem – NASA researchers warn about the spontaneous growth of 'tin whiskers'.

These near-perfect single crystalline structures of tin were first reported back in the 1940s. They present two reliability issues for users of pure tin solder. The first is electrical shorting when whiskers grow between adjacent conductors of different potential and, second, whiskers may break loose from their substrate and cause mechanical problems.

Notwithstanding the ticklish problem of tin whiskers, the drive to lead-free solder continues. In March, Matsushita Electric Industrial introduced a new lead-free solder that may be used with conventional lead-solder equipment for reflow soldering of electronic components, and in June Fujitsu unveiled another new lead-free solder, a tin, zinc and aluminium mixture.

One of the major end-uses of tin chemicals was closed off by the International Maritime Organisation's prohibition of the use of tributyl tin (TBT) compounds in antifouling preparations, with effect from January 2003. There has been growing concern over the impact on the marine environment of TBT organotin compounds. Imposex, the superimposition of male sexual characteristics on females, is one of the major adverse effects of TBT use.

Tinplate tends not to make headlines under normal circumstances but as an issue tinplate imports made plenty of business headlines through the year. In March the Bush Administration imposed tariffs of 30% on imported tinplate, a decision that was fought through the courts by importers, including the European firm Corus and the four Japanese steelmakers, Nippon Steel, NKK, Kawasaki Steel and Toyo Kohan. In August the US Court of International Trade ruled in favour of the Japanese firms, calling for anti-dumping orders dating back to 2000 to be revoked.

It wasn't just in the US where domestic producers were fighting their own corners. In China, in August, a consortium of eight domestic tinplate producers claimed they were looking to bring anti-dumping cases against importers.

On a relatively less combative note, the Brazilian steelmaker CSN unveiled planned investments of US$40 million to go head to head with the country's aluminium producers in the packaging market. CSN plans to increase its tinplate output to 180,000 t/y.

Malaysian tinplate producer Perstima began construction of a new tinplate plant in Vietnam in October with completion due in October 2003. The new plant's capacity is put at 90,000 t/y.

In Europe, after a number of false starts, test runs began at US Steel Kosice's continuous annealing line in December. The 200,000 t/y installation will more than double tinplate output to 340,000 t/y. The new line is one of the key investments in US Steel's commitment to the Slovakian Government to spend US$700 million at the plant within ten years of taking control back in 2000.

Elsewhere Corus finally shut down its Ebbw Vale operations in south Wales in July as part of the restructuring announced back in February 2001. The tinning line had already been moved to Trostre and recommissioned in April. A putative merger between Corus and CSN of Brazil collapsed in November.

In Belgium, in April, Cockerill Sambre closed its tinplate line at Flemalle in order to boost capacity utilisation at its 220,000t/y line at Tilleur. In Germany, Rasseltein Hoesch concentrated its operations in Andernach, after closing its plant in Dortmund in September 2001.

Tables next page

Table 1: Tin-in-Concentrate Output ('000 t)						
	1997	**1998**	**1999**	**2000**	**2001**	**2002**
Indonesia*	54.5	53.9	47.8	51.6	50	52
Peru	27.9	25.7	29.7	37.4	38.2	39
Brazil	18.2	15	14	14	14	13
Bolivia	13	11	12	11.6	10	12
Australia	10.4	10.2	11	9.5	8.9	7.5
Portugal	3.5	2.9	2.2	2.3	2.1	1.2
Malaysia	5	5.7	7.3	6.3	5.1	5
Others	8.9	10	8.5	10	40	17
TOTAL	**141.4**	**134.4**	**132.5**	**142.7**	**168.3**	**146.7**

*PT Timah & PT Koba only, this figure does not take account of smuggled concentrates

Table 2: Average tin prices (US$/lb)	
1993	2.34
1994	2.48
1995	2.82
1996	2.8
1997	2.56
1998	2.51
1999	2.45
2000	2.46
2001	2.03
2002	1.84
2003(f)	2.15

f: Forecast

Table 3: Western World Supply/Demand balance in Refined Tin ('000 t)						
	1997	**1998**	**1999**	**2000**	**2001(p)**	**2002(e)**
Mine Production	141.4	134.4	132.5	142.7	168.3	146.7
DLA Sales	12	12	12	12	6.5	11
Net E. Bloc Exports	30	30	47	45	35	35
Total Supply	183.4	176.4	191.5	198.2	209.8	192.7
Demand	180	182	185	188	182	183

p: provisional, e: estimated

Table 4: Chinese Tin Exports 2002	
	(t)
January	2,719
February	4,364
March	2,268
April	2,586
May	2,903
June	4,486
July	4,714
August	4,482
September	3,184
October	2,373
November	4,842
December	3,679
Total	**42,600**
*unwrought tin and tin alloys	
(based on reported customs figures)	