



aluminum market analysis & price outlook intelligence

Interesting Trends in the Chinese Aluminum Market

China Aluminum Monitor

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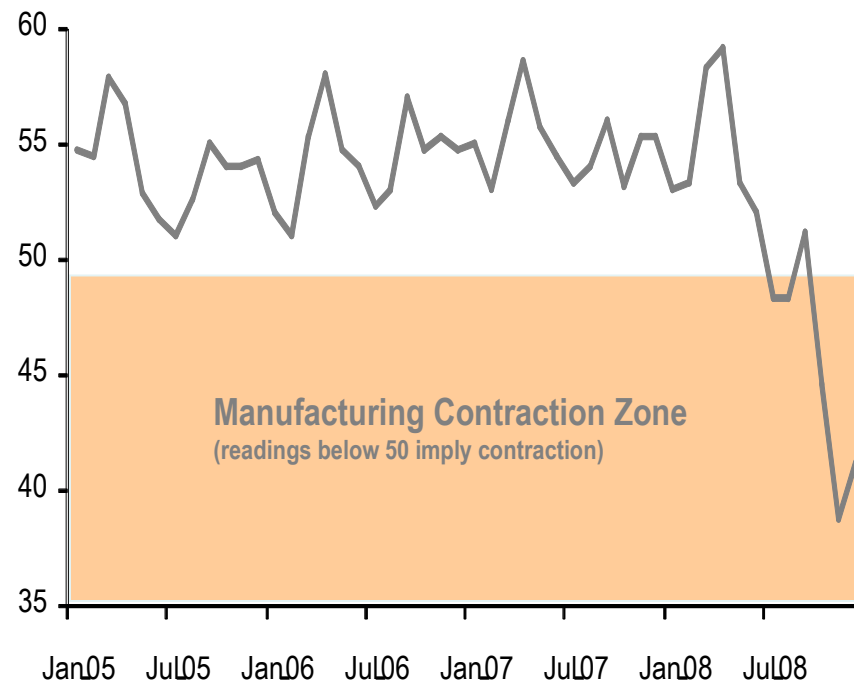
trends in demand, supply, prices & costs



China's manufacturing sector is contracting in a context of a fear-induced global recession

CHINA PMI MANUFACTURING INDEX

(index; monthly data)

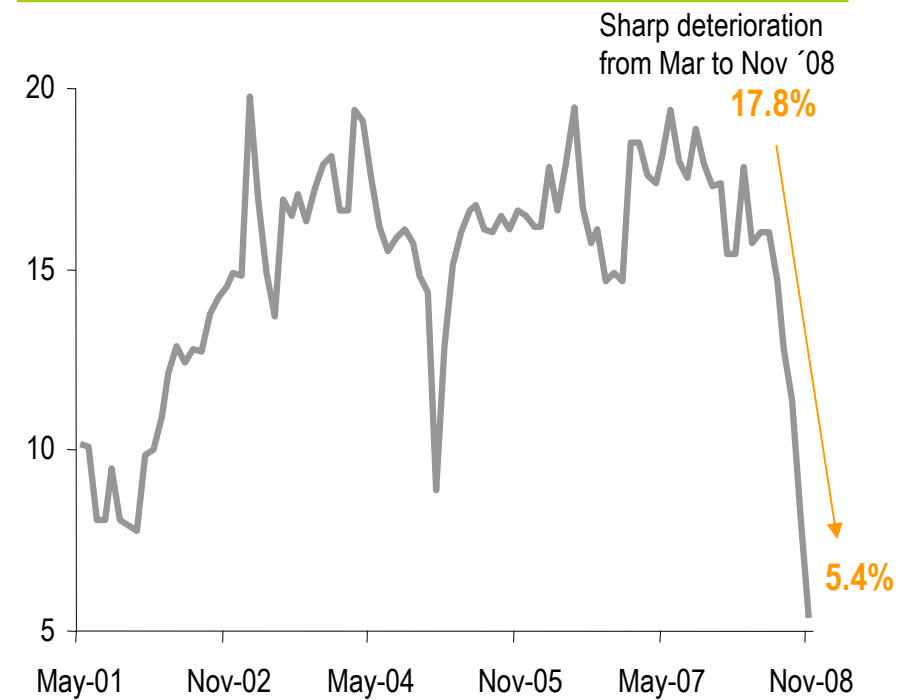


Source: HARBOR intelligence with NBSC data



CHINA INDUSTRIAL PRODUCTION

(annual % change; monthly data)



Source: HARBOR intelligence with NBSC data

...but is contracting at a slower rate than the Western World

ALUMINUM DEMAND TRENDS BY REGION

(from May to November's best estimate)

China + USA + Europe account for 67% for total global aluminum demand

In China...

From May (peak) to November



-10%

monthly aluminum demand

Global Demand...

From May to November



-22%

monthly aluminum demand

In the US + Europe...

In the same period USA + Europe is estimated to have fallen



-31%

monthly aluminum demand

China contracts less Than world and US-Europe

>

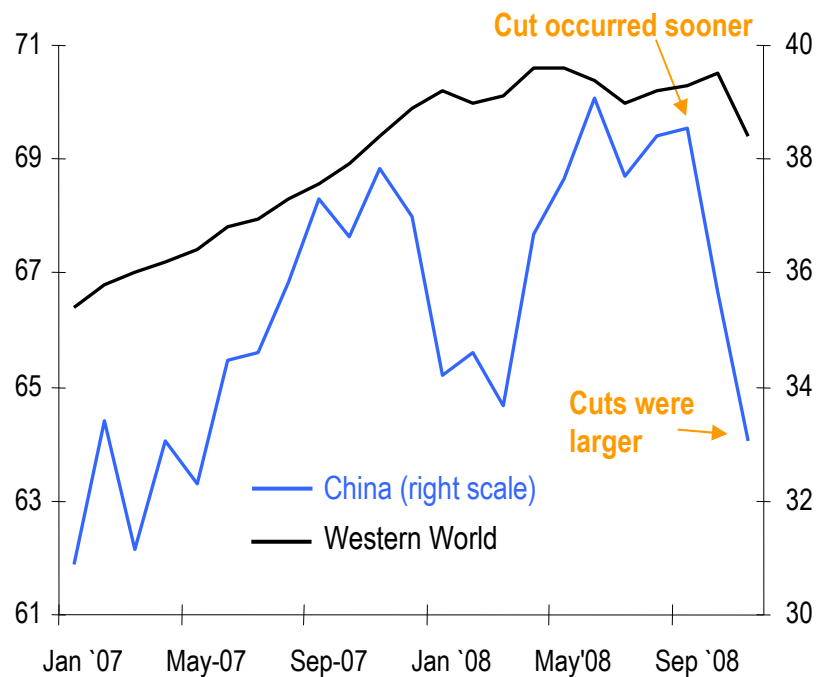
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Source: HARBOR intelligence best estimate

Meanwhile, aluminum output curtailments in China have been larger and have occurred faster than in the Western World...

CHINA VS WESTERN WORLD ALUMINUM OUTPUT

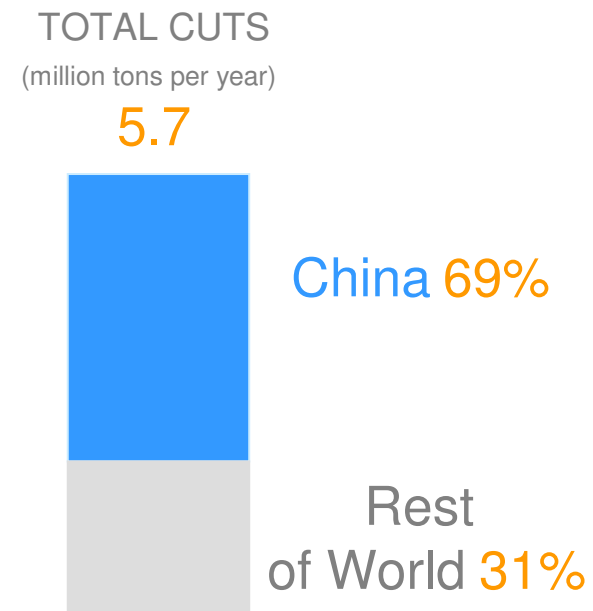
(daily output in thousand tons; monthly data)



Source: HARBOR intelligence with IAI data



GLOBAL ALUMINUM OUTPUT CUTS ANNOUNCEMENTS SINCE AUG '08

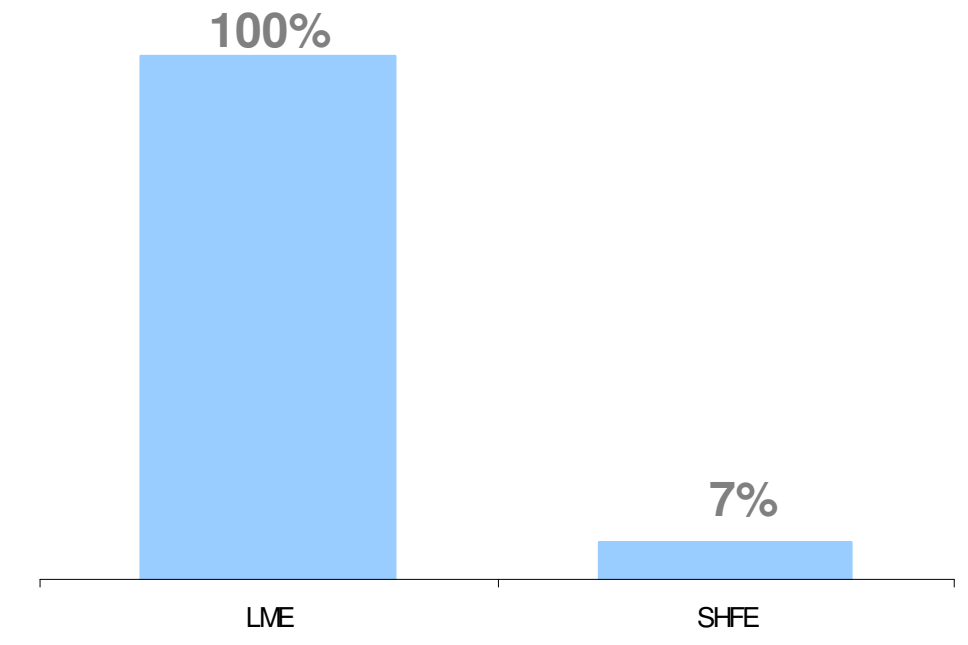


Source: HARBOR intelligence, CBI, MB, company data

...as a result, visible inventory build ups have been much larger in the Western World than in China...

> Visible aluminum inventory buildups in China have been less than in the Western World, this is partially explained by the fact that Chinese aluminum demand in China has contracted less than in the Western World, while aluminum output cuts have been double the ones in the Western World.

SHFE* VS LME VISIBLE ALUMINUM INVENTORY INCREASE (% from August '08 to date)

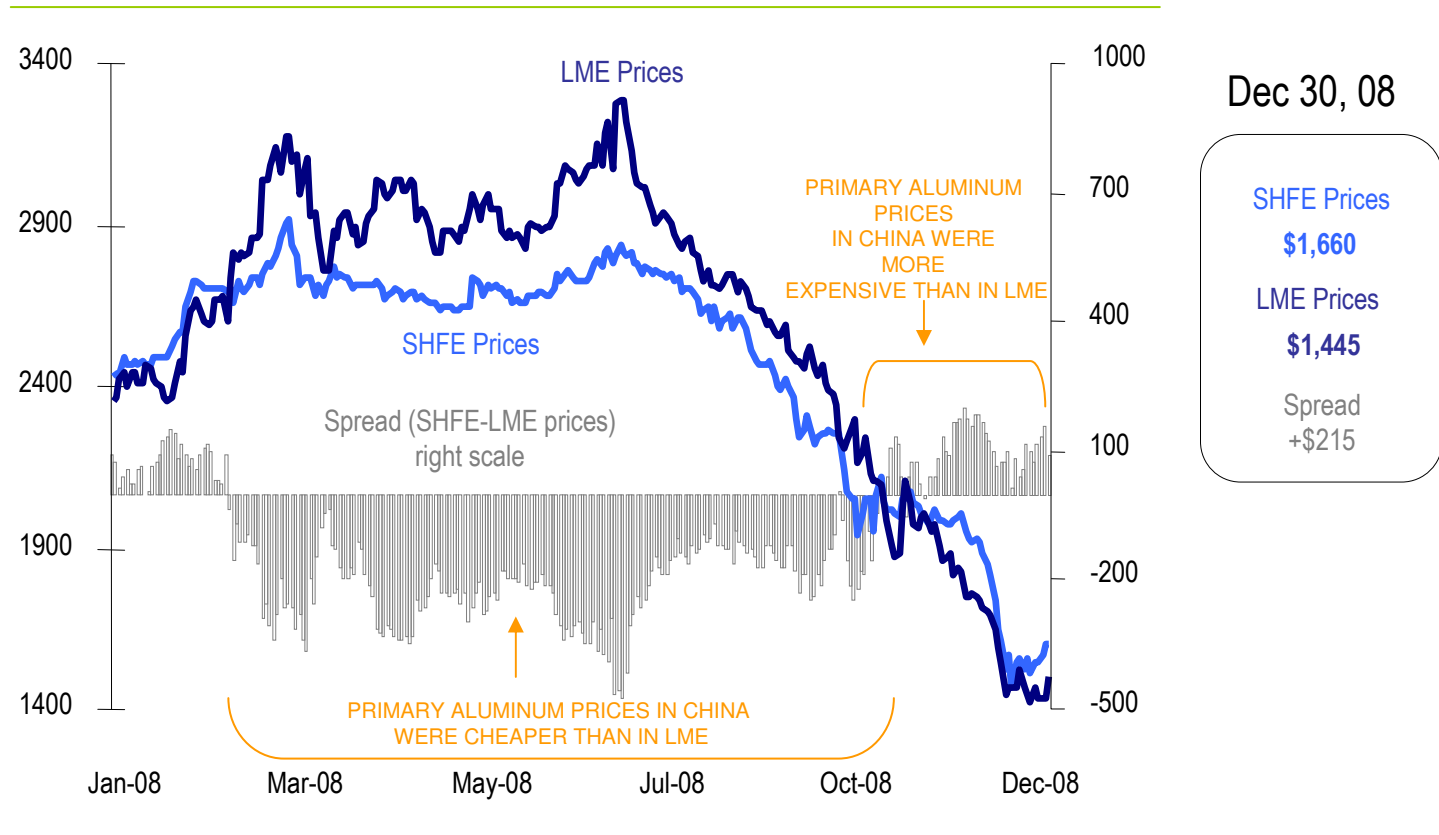


* SHFE= Shanghai Metals Exchange
Source: HARBOR intelligence with LME and SHFE data

...and aluminum prices in China (SHFE) have been trading above the Western World (LME) since last Oct...and are \$250 per mton higher today

> Primary aluminum in China is no longer cheaper than in the Western World (LME)...which implies the Chinese downstream business has lost price competitive advantage at the margin vs Western World downstream producers.

SHFE VS LME CASH ALUMINUM PRICES & SPREAD
(daily data; \$/mton)

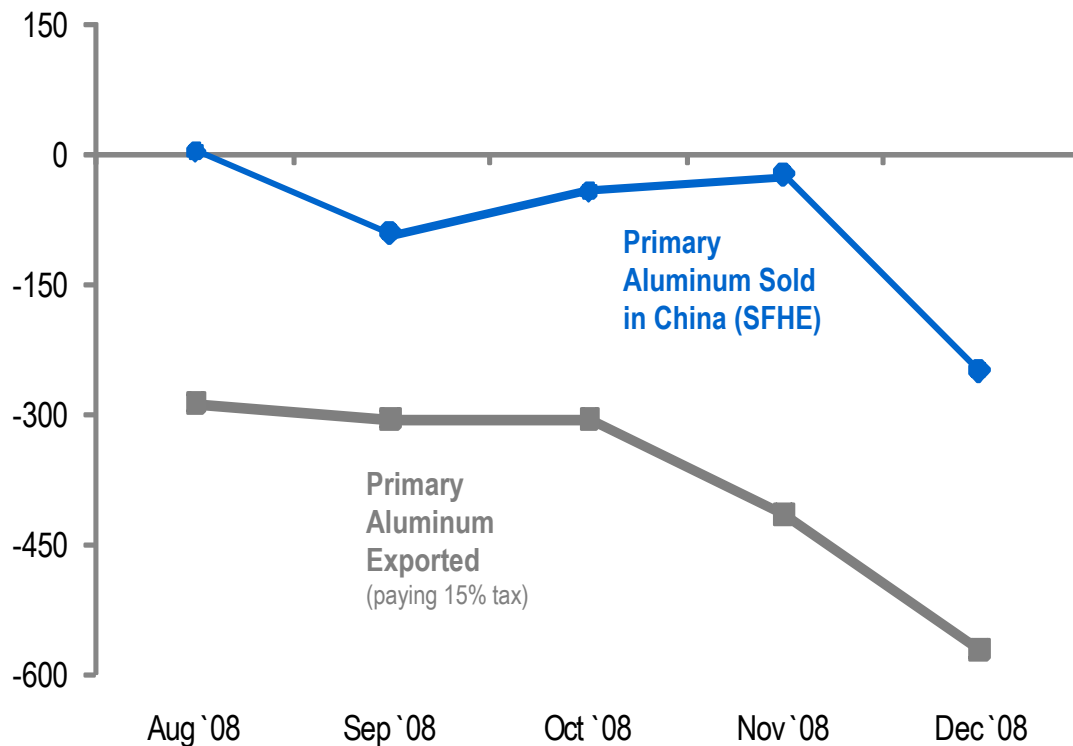


Source: HARBOR intelligence with LME and SHFE data



Even with higher SHFE prices than LME, the entire Chinese primary aluminum industry is underwater (considering lower raw materials and electricity prices)

CHINA AVERAGE PRIMARY ALUMINUM PROFIT MARGIN
(average monthly data; \$ per mton)



ALUMINUM CASH COST VS PRICE
(Dec '08)

CHINA AVERAGE CASH COST	\$1,844
ALUMINUM PRICES IN CHINA (SHFE)	\$1,652
ALUMINUM PRICES IN LME	\$1,460

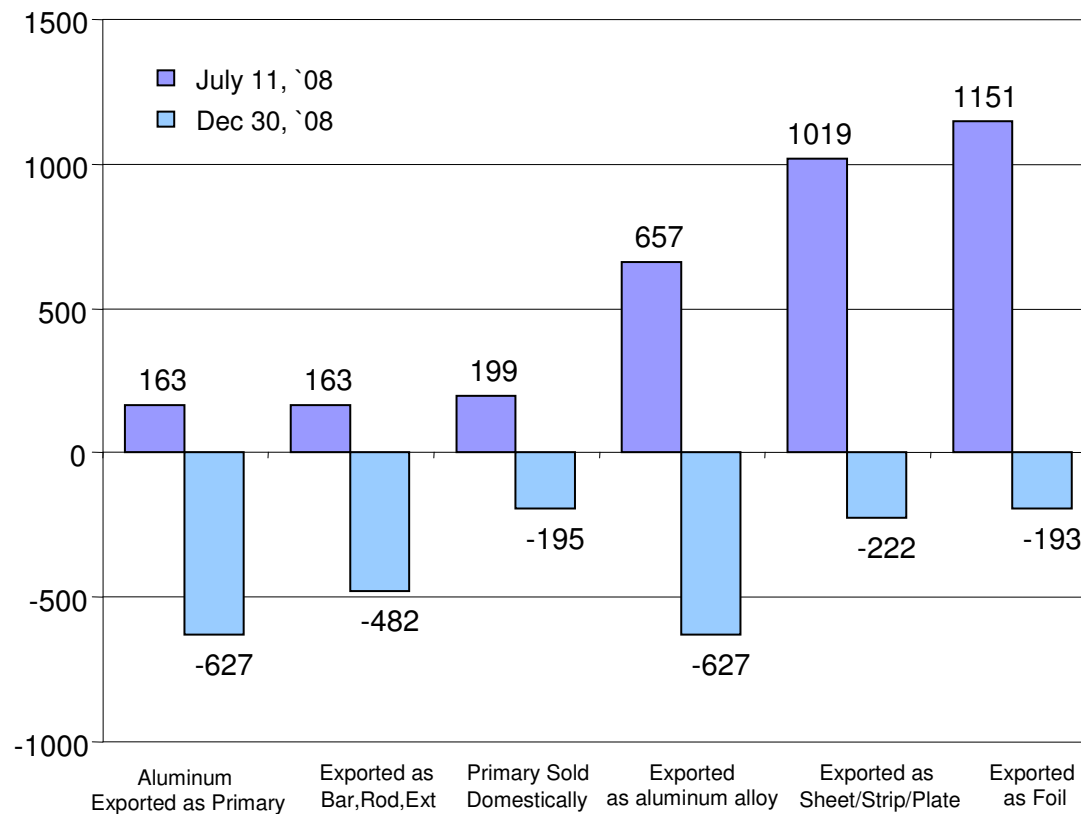
Source: HARBOR intelligence best estimate

...while downstream business economics have also deteriorated considerably

> Aluminum downstream producers in China had two advantages over their Western World counterparts: a) cheaper primary aluminum prices (SHFE<LME) and b) export rebates. Today, the +\$300 per mton primary aluminum price advantage has turned into a \$250 per mton disadvantage

AVERAGE PROFIT FOR INTEGRATED CHINESE PRIMARY PRODUCERS*

(\$/ton) *does not include profit from conversion



Source: HARBOR intelligence best estimate



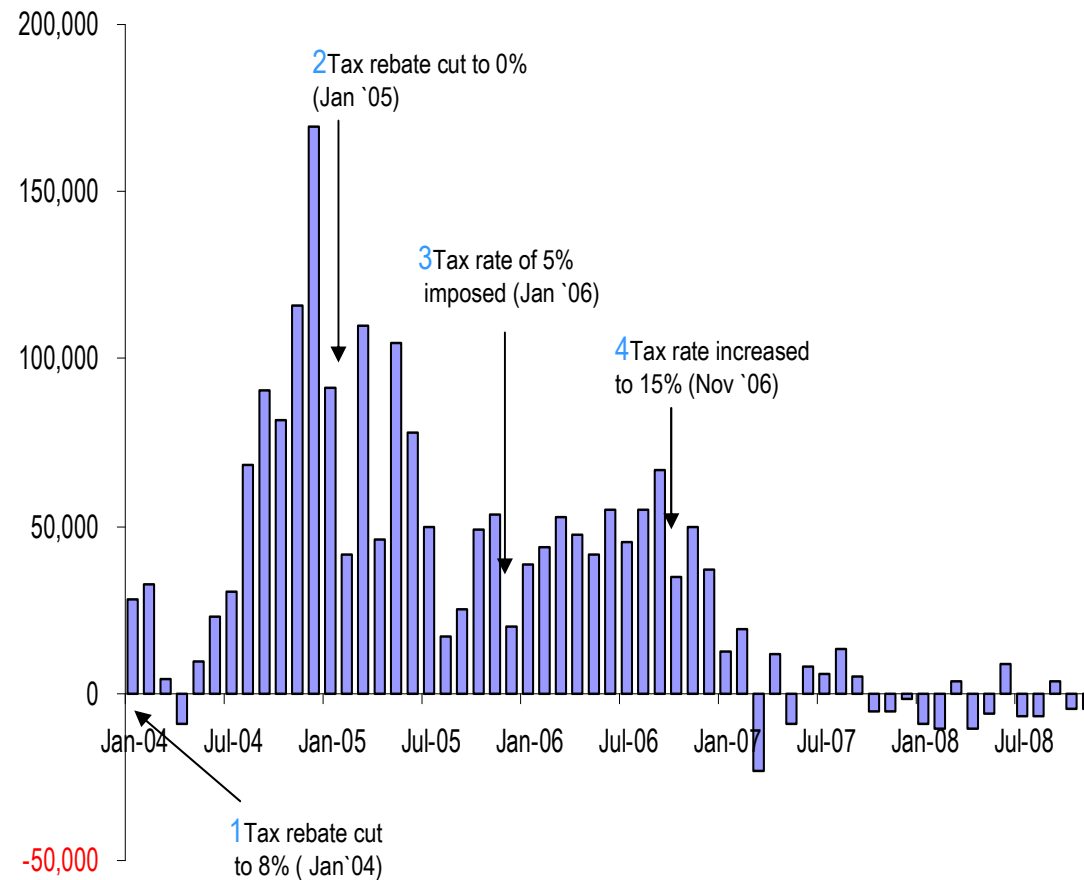


trends in China's aluminum trade

China is now a slight net importer of primary aluminum, which is in line with China's desire for energy security over aluminum self-sufficiency

CHINA NET EXPORTS OF PRIMARY ALUMINUM

(thousand tons; monthly figures)



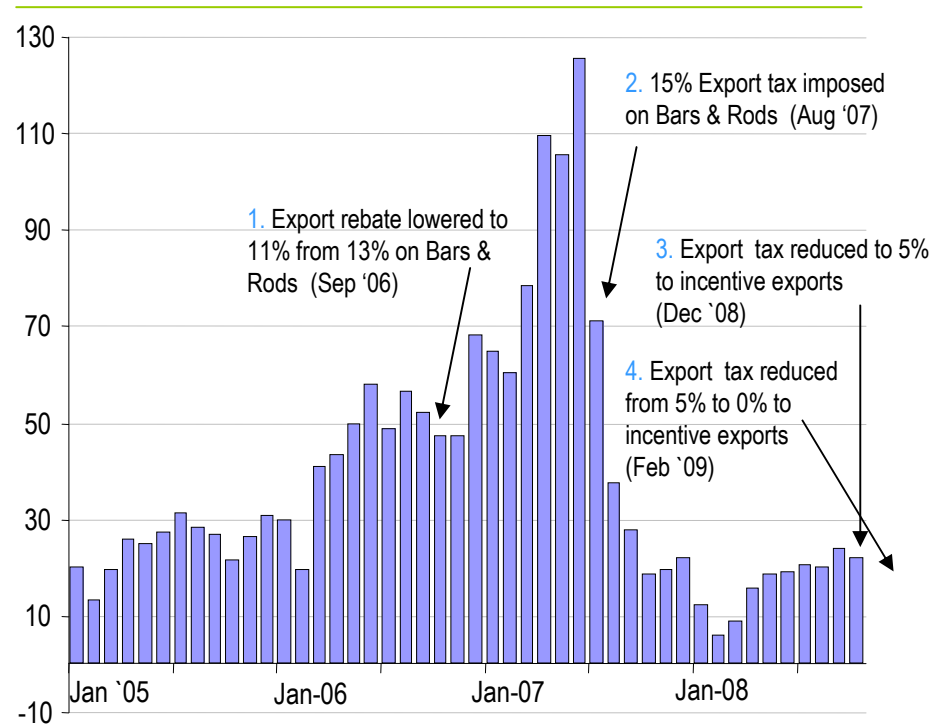
Source: HARBOR intelligence with China Customs data

Smelters found ways to export primary aluminum...but the loopholes were closed by Beijing

> Net exports of low value added aluminum semis (bars, rods & profiles) skyrocketed in '06-'07 given double digit VAT tax rebates vs export tax of 15% on primary aluminum. Smelters were just changing the shape of primary aluminum ingots and managing to qualify them as bars, rods & profiles. The government closed the loophole on Aug '07 via elimination of rebates in bars, rods & profiles. Some smelters then changed the strategy and started to modify shape of ingots to look like tubes and pipes. Beijing closed the loophole on Mar '08 by tightening classification standards for tubes and pipes.

BARS, RODS & PROFILES NET EXPORTS

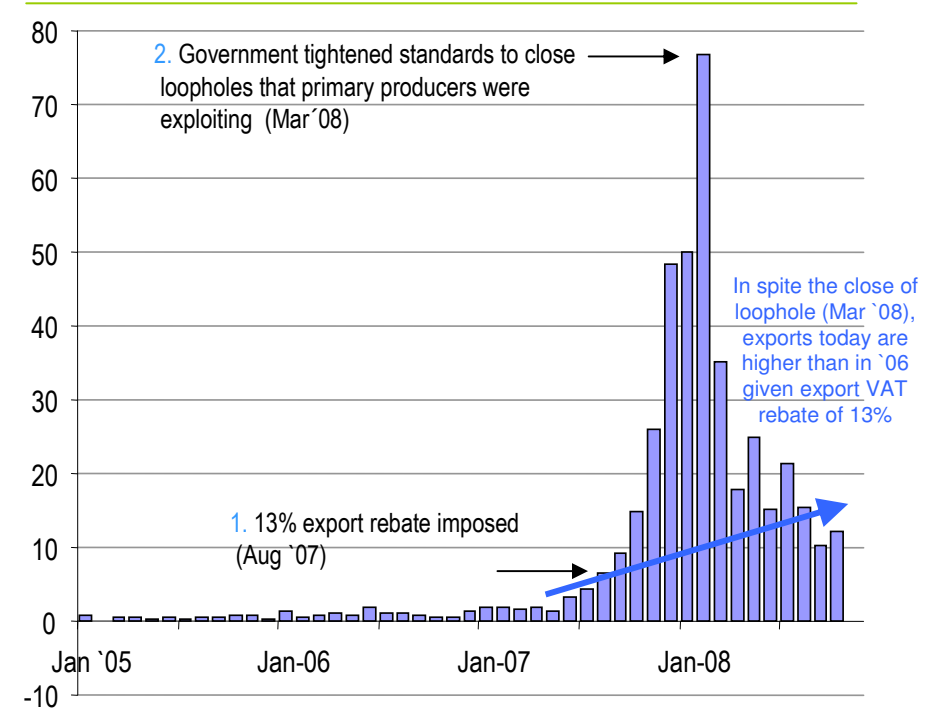
(thousand tons; monthly data)



Source: HARBOR intelligence with China Customs data

TUBES & PIPES NET EXPORTS

(thousand tons; monthly data)

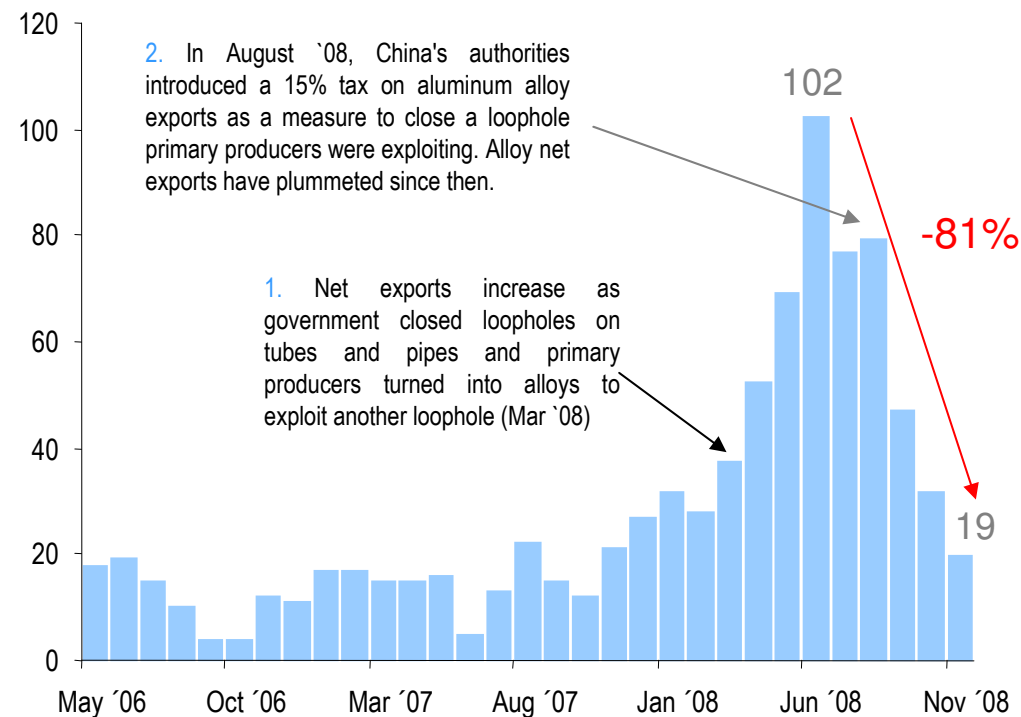


Source: HARBOR intelligence with China Customs data

China's net exports of aluminum alloys have sunk as a result of imposition of export tax of 15% in Aug `08 and deteriorated Western World demand

> When the bar, rod, profile loophole was closed on Aug `07 with imposition of 15% export tax, and the tube and pipe loophole was closed on Mar `08 with tightening characteristic standards, primary aluminum producers found another loophole which was in the form of aluminum alloy. Producers were managing to export primary aluminum as aluminum alloys by adding some minimal materials. This loophole was also closed on Aug `08 with an imposition of 15% export tax. As a result, alloy net exports fell dramatically to prior levels.

CHINA NET EXPORTS OF ALUMINUM ALLOYS (thousand tons; monthly figures)

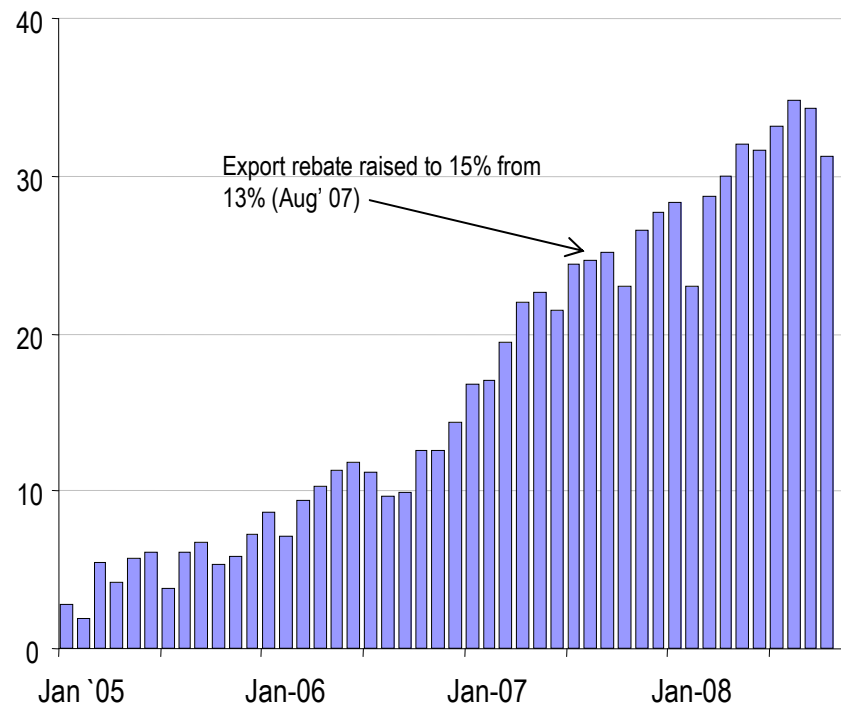


The upward trend in net exports of high-value semis remains in place given double digit VAT tax rebates...China will gain more market share

> It is clear Beijing wants to promote the development of a high value downstream aluminum export industry (more emphatically in the case of foil, sheet, plate and strips). They will continue to do this via export tax rebates that at the end will translate in price competitiveness for Chinese producers. As a result, we believe China will continue to gain market share in the Western World in these segments.

FOIL NET EXPORTS

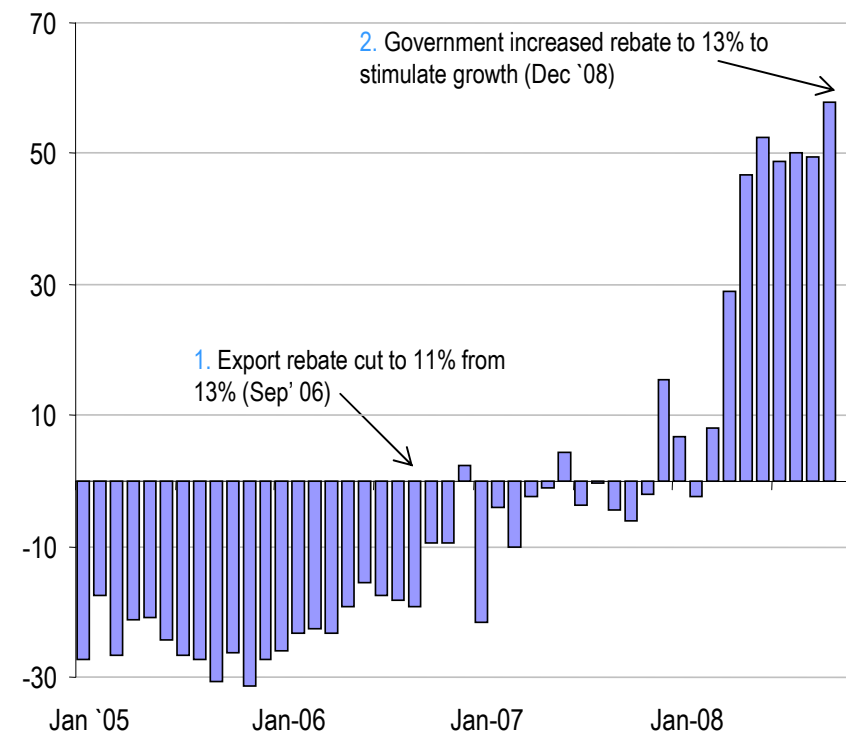
(thousand tons; monthly data)



Source: HARBOR intelligence with China Customs data

SHEET, PLATE & STRIPS NET EXPORTS

(thousand tons; monthly data)

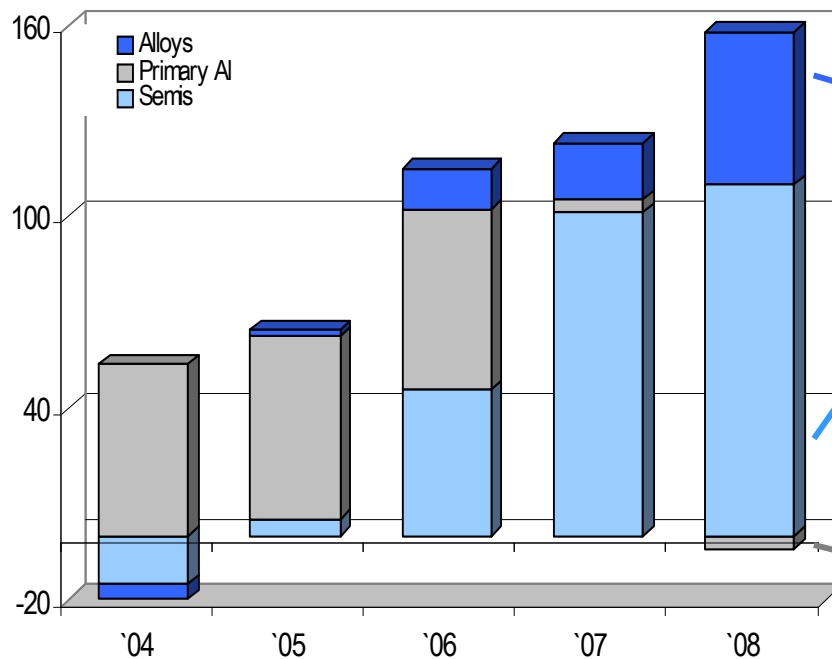


Source: HARBOR intelligence with China Customs data



Beijing's long-term core policy hasn't changed: Lower exports of primary and low-value semis, and increase exports of high-value semis (gain mkt share)

CHINA PRIMARY, SEMI AND ALLOY NET EXPORTS (monthly average; thousand tons)



EXPECTED '09 TREND

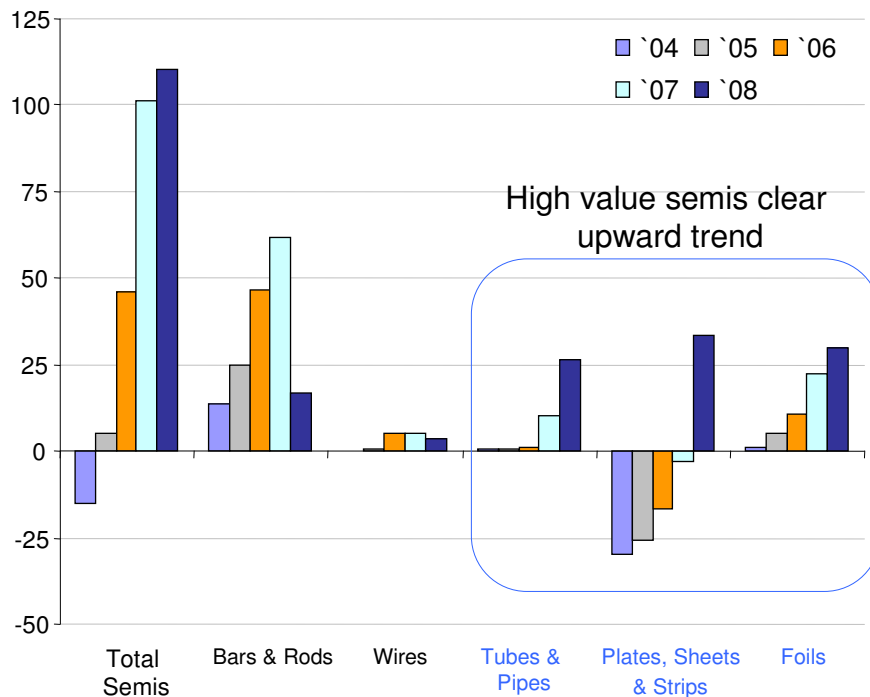
- 1 Net exports of alloys will trend down given export tax of 15% and higher SHFE prices than LME
- 2 Net exports of semis will trend up, with over performance of foil, sheet, plate, strip & extrusions (given tax rebate), followed in lower magnitude by tubes and pipes. Net exports of low value added semis like bars, rods, and billet will remain from stable to down given absence of rebate and higher SHFE vs LME prices
- 3 Net imports of primary aluminum will trend up given higher SHFE vs LME, 15% export tax, and higher cost of production

Source: HARBOR intelligence with China Customs data

So far, Beijing has successfully managed to affect export trends according to long term goals...

ALUMINUM SEMIS NET EXPORT TRENDS

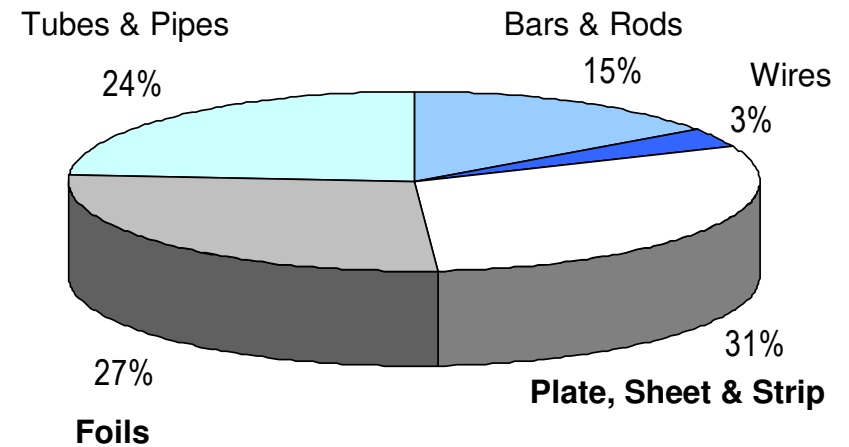
(thousand tons; monthly average)



Source: HARBOR intelligence with China Customs data

ALUMINUM SEMIS NET EXPORT PARTICIPATION IN '08

(as % of total net exports)

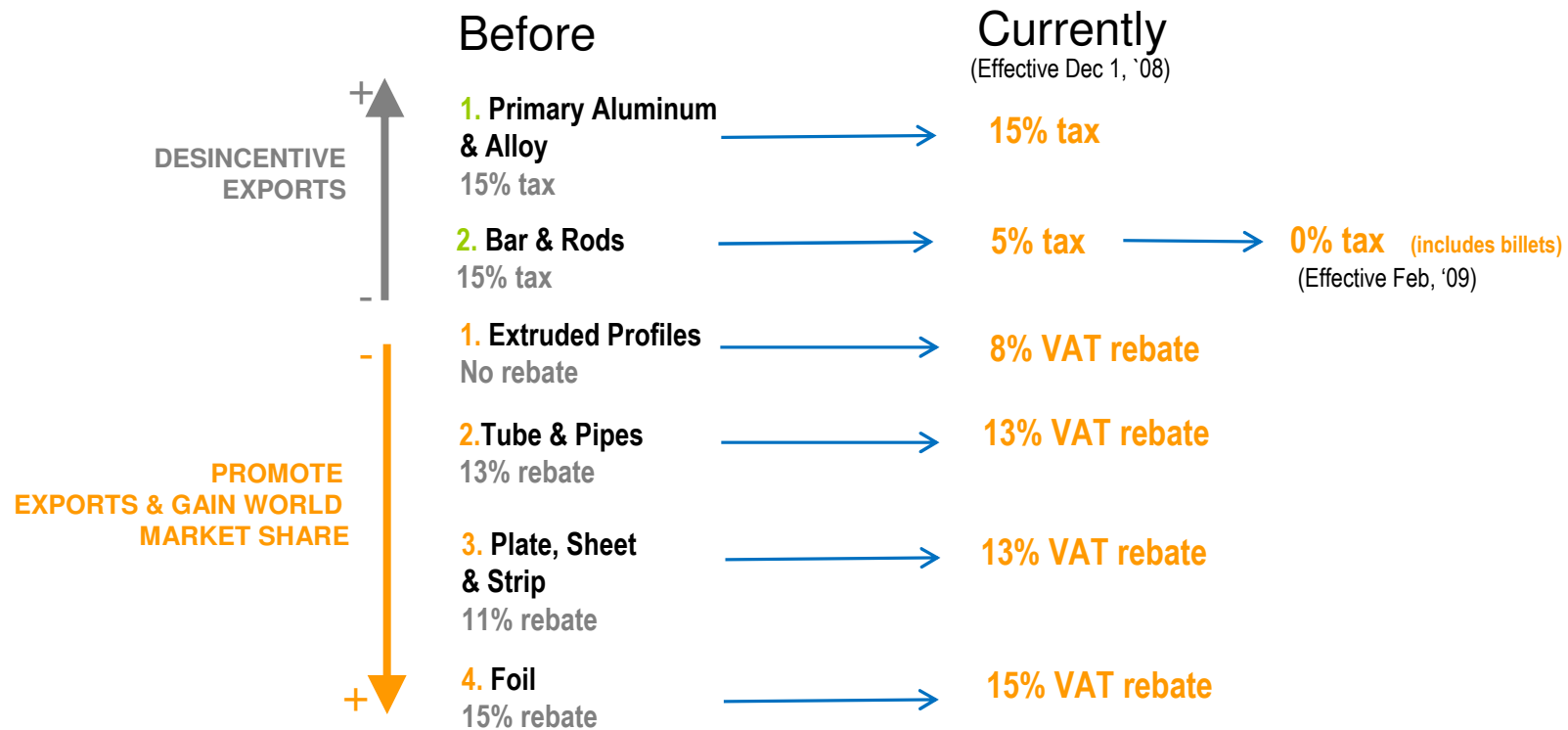


Source: HARBOR intelligence with China Customs data



...using its export tax/rebate policy as the main tool

PAST AND CURRENT REBATES/TAXES ON PRIMARY, SEMIS AND ALLOYS EXPORTS



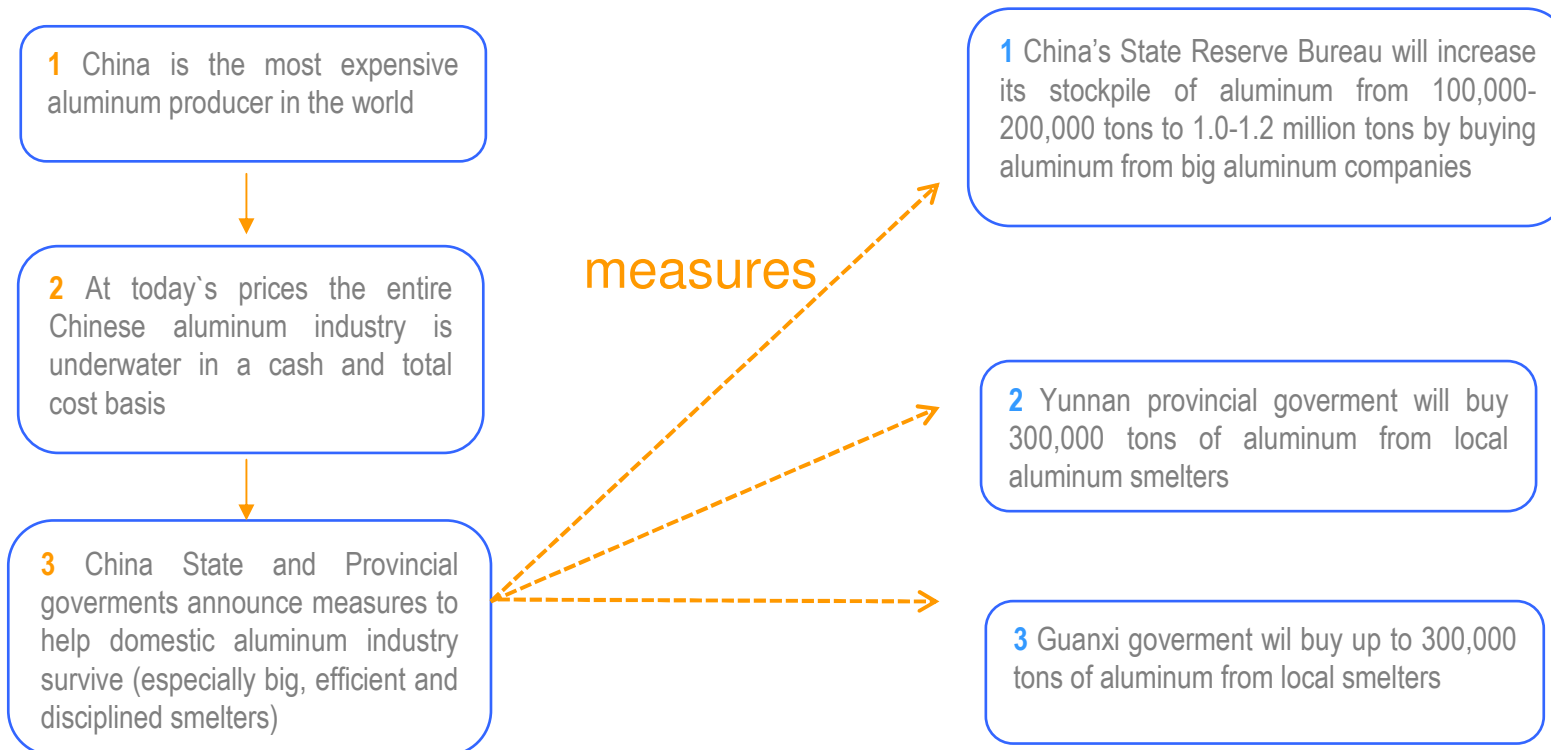
Source: HARBOR intelligence

helping big and efficient smelters survive



Chinese government is helping big and more efficient aluminum smelters to survive via buying aluminum from them

CHINESE STATE AND PROVINCIAL GOVERNMENTS AID THE ALUMINUM INDUSTRY



Source: HARBOR intelligence, CBI, Antaika, MB

Chinese government is helping big and more efficient aluminum smelters to survive via buying aluminum from them

GOVERNMENT ALUMINUM STOCKPILE PROGRAM PROGRESS

- > **China's State Reserve Bureau** → Government buys 290,000 tons at a price of \$1,800 per mton from 8 aluminum smelters: *Ningxia Aluminum, Inner Mongolia Huomei Hongjun Aluminum, Yunnan Aluminum, Henan Wanji Aluminum, Qinghai Aluminum, Henan Shenhua, Shanxi Guanlv Aluminum* and *Chalco* and 20,000 tons from *Yunnan Aluminum*
- > **Yunnan government** → Yunnan provincial government allows *Yunnan Aluminum* to keep a corporate reserve of 180,000 tons at most for the next 13 months.
- > **Guanxi government** → No confirmation of acquisitions have been made.

Source: HARBOR intelligence, CBI, Antaike, MB.

Chinese government is helping big and more efficient aluminum smelters to survive via buying aluminum from them

TOTAL PLANNED ACQUISITION OF ALUMINUM BY STATE AND PROVINCIAL GOVERNMENT

	Plans to Buy	Bought Already
> <i>China's State Reserve Bureau</i> (current stockpile 100,000-200,000 tons)	1 million tons	310,000 tons
> <i>Yunnan government</i>	300,000 tons	0 tons
> <i>Guanxi government</i>	300,000 tons	0 tons
Total	1.6 million tons	310,000 tons

Source: HARBOR intelligence, CBI, Antaika, MB

Conclusions

> [Primary aluminum prices in China are now 15% higher than in the Western World.](#)

For most of '07-'08, primary aluminum prices in China (SHFE) traded between 2 and 14% below prices in the Western World (LME). This gave the Chinese aluminum downstream business a significant price advantage over their counterparts in the Western World that was further amplified with Beijing's export VAT tax rebate policy. Today, the Chinese primary aluminum price advantage for local downstream industry has turned into a 15% disadvantage as SHFE prices are now trading \$250 per mton above the LME. In our opinion, the main reason behind the dramatic change in pricing between SHFE-LME is that the visible market surplus is much less intense in China than in the Western World, as demand in China has contracted less sharply than in the Western World while aluminum output curtailments have been much larger (4.0 million tpy in China vs 1.7 tpy in Western World). We see China's price disadvantage lasting as long as the Western World oversupply lasts. At least IH '09.

> [Chinese net exports of foil, sheet, plate and strip will continue to gain market share in spite of global manufacturing recession given Beijing's trade strategy.](#)

Beijing's core goal is to develop a robust and growing high value added downstream aluminum industry while discouraging exports of primary aluminum, alloy and low value added semis. This is evident in its export tax structure. Today's global manufacturing recession has helped Beijing's agenda advance. China remains a slight net importer of primary aluminum, net exports of aluminum alloys have tumbled (export tax of 15%), net exports of bars & rods (export tax lowered to 0%) and tubes & pipes have stabilized at levels close to zero (export VAT rebate of 13%), while the upward trend in net exports in sheet, plate, strip and foil remains well positioned (export VAT rebate of 13-15%). In our opinion, China will continue to gain global market share in these high value added segments.

> [Chinese government committed to help survive big and efficient primary aluminum producers.](#)

China is the most expensive primary aluminum producer in the world given high energy costs and high dependence on imported alumina and bauxite. Today, the entire Chinese smelting industry is underwater in a cash and total cost basis. State and Provincial governments are helping especially big and more efficient aluminum companies to survive by buying up to 1.6 million tons of aluminum from them.