New industry trends and focus on production optimization

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2008 crisis in the global aluminium industry is not fully resolved due to high inventories...

- During the 2008 crisis, global aluminum consumption dropped significantly but the production cut was moderate.
- This turned into large level of aluminum stock which rose by 120% between 2008-2010.
- When consumption returned to the pre-crisis level in the beginning of 2011, aluminium production also grew too fast, which did not allow for the existing aluminium stock to be consumed.
- Additional drop in consumption was attributed to the EU debt crisis since July 2011, world stocks, excluding China, hit a record high of 10 million tonnes.
- China is not influencing the market as it is fully self-sufficient in aluminium.

**World ex. China balance is moderating after the crisis but a significant stock overhang remains.**

Source: CRU, LME
...putting pressure on prices and producers’ profitability...

The metal price is well below the pre-crisis level...

...while production costs have risen significantly

Approximately 18-20% of global capacity ex. China is unprofitable at the current aluminium price, depending on premium level

Source: Bloomberg, CRU
Note: (1) Unprofitable production amount varies subject to level of premium paid
...and driving industry restructuring

Production cuts support the price

Largest aluminium asset write-downs in 2012

The current rate of capacity cuts is inadequate for a sustained reduction in global inventories

Source: Bloomberg, CRU, Companies announcements and reports
Notes: (1) UC RUSAL announced production cuts of 300,000 tonnes due in 2013; (2) mostly related to aluminium assets
China is well-balanced in aluminium though a large part of the demand is met with loss-making production

- With the election of the new government in China, new regulation standards have been proposed for the aluminium industry
- MIIT announced new regulatory measures for the aluminium industry, including the elimination of 900Kt of capacity by 2015 and strengthened entrance requirements for the industry
- MIIT plans to publish a list of aluminium smelters that meet its environmental standards, with selected firms receiving help in cutting costs, while those left off could be forced to curb output
- The new head of the NDRC, Zhang Ping, reiterated the concerns about overcapacity in the aluminium industry
- China's Environment Administration (CEA) announced, stricter emission standards for the construction of greenfield projects from 1st March 2013

China's rapid consumption growth is backed by a corresponding production increase…

…even though around one third of the production is below the water…

…currently operating capacities are not growing, new capacity just replaces inefficient and obsolete capacity

China to focus on inefficient capacity curtailment, technology innovation and industry balance achievement starting from 2013

Source: MIIT, Aladdiny, UC RUSAL research
Note: (1) As of 31.12.2012
Despite cheaper power costs NW producers face higher transportation costs and imported bauxite cost.

- Bauxite is shipped ~ 3,000 km from Indonesia to Shandong ports
- Alumina is transported by rail ~ 3,000 km from Shandong to Xinjiang
- Aluminium is transported by rail ~ 3,000 km from Xinjiang to customers
- RMB 0.13km/t for rail transportation
- Xinjiang vs East China = additional cost of RMB1,780/t for aluminium

Developing Xinjiang as a smelting hub increases the overall distance of the bauxite-alumina-aluminium-market supply chain from 3,000 km to 9,000km, 2/3 of which is by rail transport.
...and raw material expenses due to strong dependence on imported bauxite

- Extractable reserves of 539 Mt (2012), sufficient for only 6-7 years of current alumina production
- Inferred resource base of 16.3 bn tons, with Shanxi, Guangxi, Henan and Guizhou accounting for >90%
- Dominantly diaspore, with high alumina content but low Al/Si ratio – expensive to process

- China is still one of the largest world bauxite importers and its bauxite self-sufficiency rate was equal to only 62% in 2012
- China’s bauxite imports rose to 45.2 Mt in 2011, its record high, from just 9.7 Mt in 2006

Termination of Indonesian bauxite exports in 2014 to increase pressure on China’s Al industry

Source: Ministry of Land and Resources, China Non-ferrous Metals Association, Aladdiny, SMM, China Customs, UCR research
Indonesia is the largest bauxite exporter to China (71% of China’s total imports in 2012), followed by Australia (24%) and India (3%)

In May 2012, Indonesia imposed new rules on mining exports, including a 20% export tax and a special permit for further exports. As a result, total bauxite imports to China fell 11% YoY to 40 Mt in 2012

The Indonesian bauxite import price rose by US$12/t since new rules were imposed

Starting from 2014, the Indonesian Government is declaring termination of bauxite export, increasing pressure on the Chinese aluminium industry

*China import prices are CIF, excluding VAT (17%). Source: Ministry of Land and Resources, China Non-ferrous Metals Association, Antaike, SMM, China Customs, UCR research
GCC countries were actively ramping up production since 2009 but capacity growth is limited in the future

Overview of GCC

- The emergence of aluminium smelting across the Gulf, driven by industrial policies and supported by government-set gas prices for the industry, remains a key factor behind soaring gas demand and imports into the region.

- Lack of bauxite reserves poses additional risks for GCC aluminium producers.

- Additionally new GCC smelting capacity may face potential issues with existing financing arrangements problem at current and future low aluminum price environment.

- Only 2 new projects are under construction that will provide additional capacity in the future.

- Despite low cash costs enjoyed by GCC producers, in Q3 2012 Aluminium Bahrain announced a loss of US$35mln, down from an adjusted net income of US$97mln in the 3Q2011, due to lower LME prices and higher gas prices. Further decrease of the LME price will inevitably negatively affect other GCC producers.

GCC countries are limited in new capacity growth over the next 4 years

Source: GAC, CRU, UC RUSAL research
Increasing financial influence on the LME price

- LME trading of aluminium contracts significantly exceeds physical demand
- Currently open positions in aluminium exceed the physically available metal at the warehouses by more than 5 times
- Around 60% of on-warrant aluminium on LME is locked in financial deals
- Current price does not reflect the fundamental supply/demand balance as a lack of transparency on the LME does not allow to point out the trading positions of commercial or non-commercial participants

More transparency is required on the LME to have a full and clear view of the aluminium market:
- Disclosure standards similar to those implemented on the CME and SHFE
- Improved visibility of the LME will mitigate volatility risks and avoid spillover effects on the real economy

Source: CRU, Harbor, LME, UC RUSAL
Conclusion

1. Aluminium demand is set to grow at a healthy rate backed by key consuming industries.

2. Without further capacity curtailments the crisis in the aluminium industry will only gain momentum.

3. The aluminium pricing mechanism on the LME needs transparency in order to better reflect market fundamentals.