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❖ Summary of document:

Exhibit IEU-Ohio # 5



> aluminum intelligence unit
the global leader in aluminum industry analysis and outlook

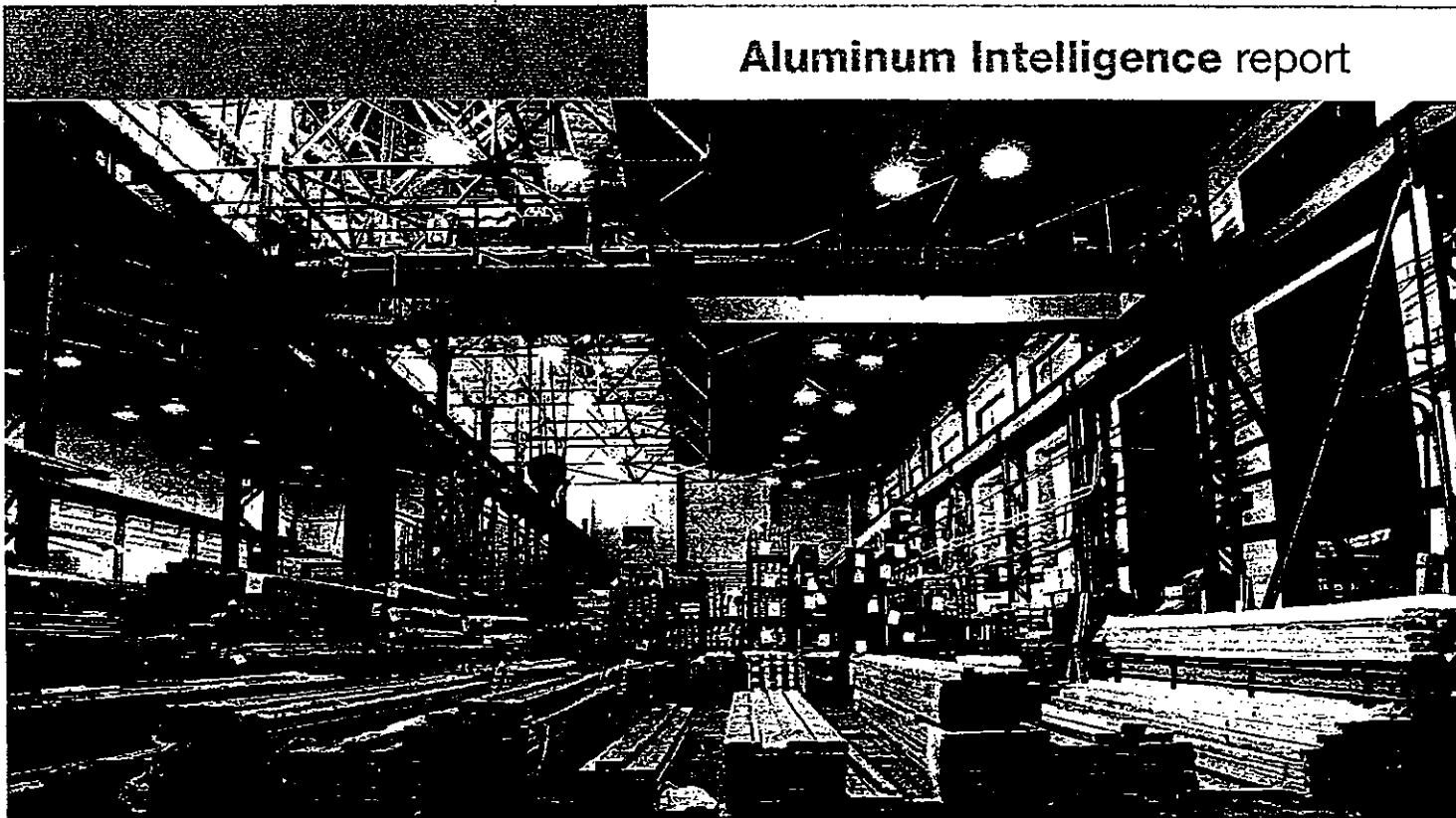
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Aluminum Intelligence report



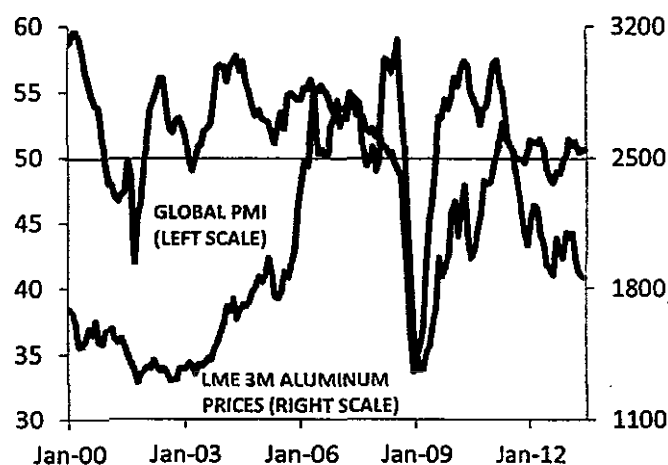
> Record Bearishness Towards Aluminum's Industry Fundamentals

MONTHLY FULL REPORT
June-July 2013

> Record Bearishness Towards Aluminum's Industry Fundamentals

1 Global manufacturing activity (end-user aluminum demand) remains stagnated

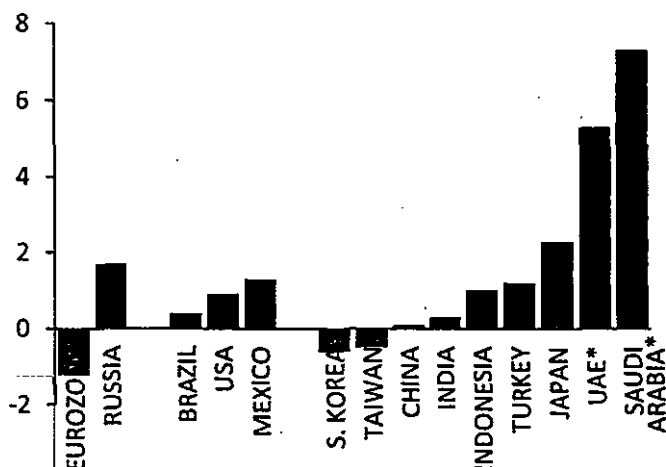
JP MORGAN GLOBAL MANUFACTURING PMI vs LME 3M ALUMINUM PRICES (monthly data)



Source: HARBOR Aluminum with LME and Markit Economics data

2 The Middle East is growing the most, the Americas have some momentum, but Asia (excluding Japan) is not growing

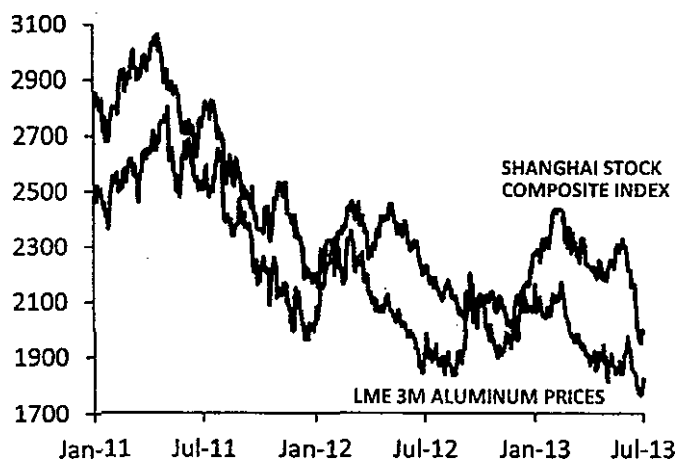
REGIONAL MANUFACTURING ACTIVITY GROWTH IN JUNE (monthly % change)



Source: HARBOR Aluminum with Markit Economics, ISM and CFLP data
*Non-oil producing private sector; May data

3 In fact, mounting concerns over China's economy have pressured down the local stock market and most metals...

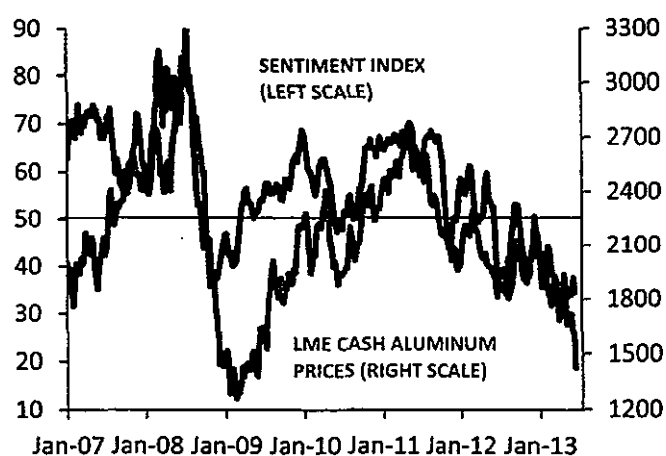
SHANGHAI STOCK COMPOSITE INDEX VS LME 3M ALUMINUM PRICES (index vs \$/mton)



Source: HARBOR Aluminum with LME and Bloomberg data

4 ...which in part have further depressed market sentiment towards the aluminum industry along with...

HARBOR's ALUMINUM MARKET SENTIMENT INDEX* (weekly data; index vs \$/mton)

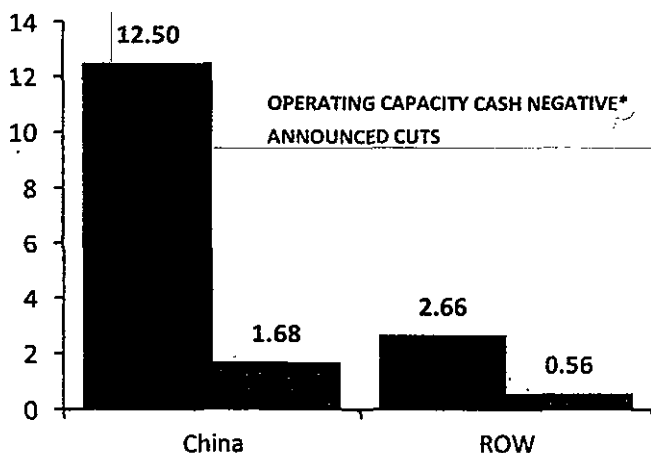


Source: HARBOR Aluminum with LME data
*Index above (below) 50 signals market sentiment is bullish (bearish)

> Record Bearishness Towards Aluminum's Industry Fundamentals

5 ...overproduction, overcapacity and an unprecedented overhang of metal

**PRIMARY ALUMINUM PRODUCTION CAPACITY
UNDERWATER VS ANNOUNCED CUTS** (million mtpy)

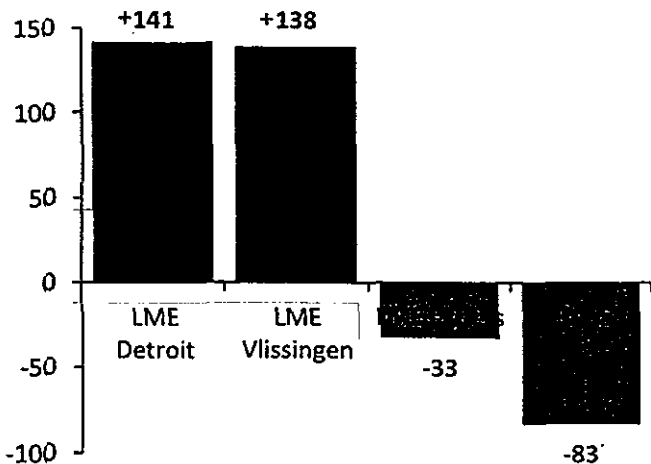


Source: HARBOR Aluminum

*Cash cost after casting; assuming LME prices of \$1,793 per mton and SHFE 1M prices of \$2,355 per mton

7 The producer/trader/warehousing model continued as evident by large inventory buildups/cancellations in Vlissingen and Detroit

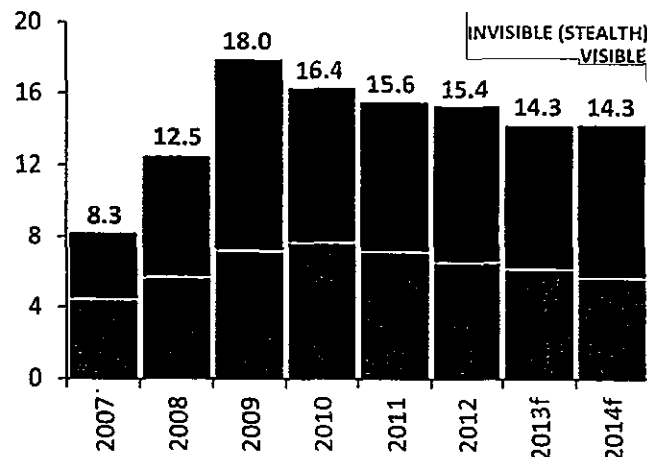
GLOBAL COMMERCIAL INVENTORY CHANGE IN JUNE
(thousand mtons; month-to-date change as of June 26th)



Source: HARBOR Aluminum with LME, SHFE and SMM data.

6 The unprecedented overhang of metal is not likely to be worked out in the short/mid term

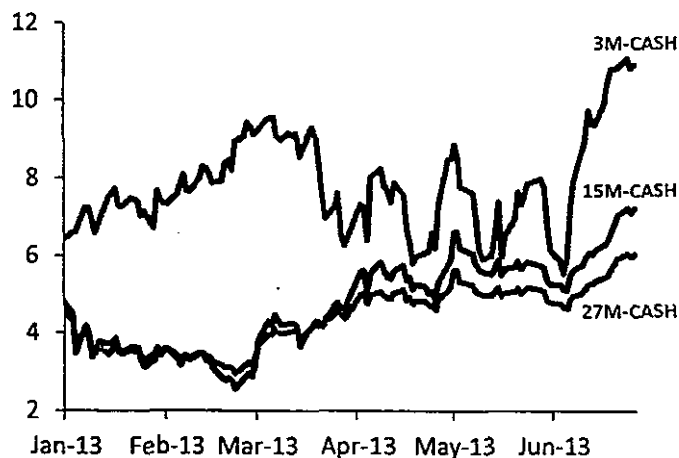
GLOBAL ALUMINUM INVENTORY-DEMAND COVERAGE
(inventories in terms of weeks of consumption)



Source: HARBOR Aluminum

8 A widening contango, has pushed the profitability of cash and carry trade to a 4-year high...

LME ALUMINUM FORWARD CURVE SPREADS
(daily data; % annualized yield)



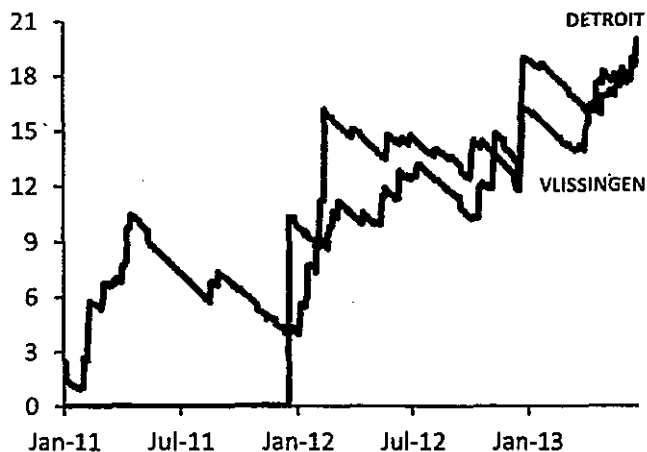
Source: HARBOR Aluminum with LME data

> Record Bearishness Towards Aluminum's Industry Fundamentals

9 ...as a result, load out queues at LME Detroit & Vlissingen warehouses have further lengthened to fresh record highs

QUEUES FROM KEY LME LOCATIONS

(max. delivery time in months for a warrant if canceled today)

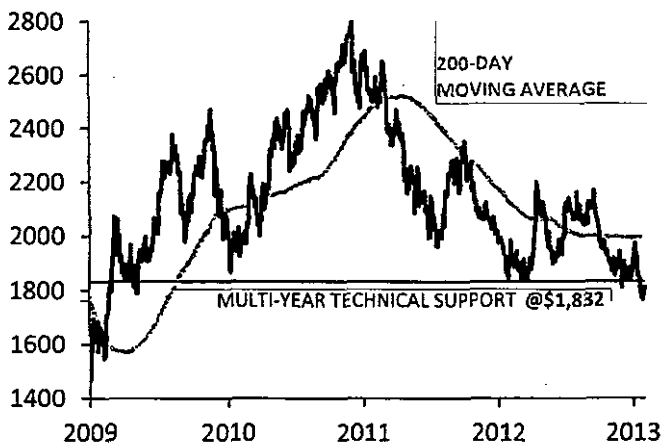


Source: HARBOR Aluminum

11 ...pushing prices below the multi-year long support of \$1,832 per mton and to levels as low as \$1,759 per mton...

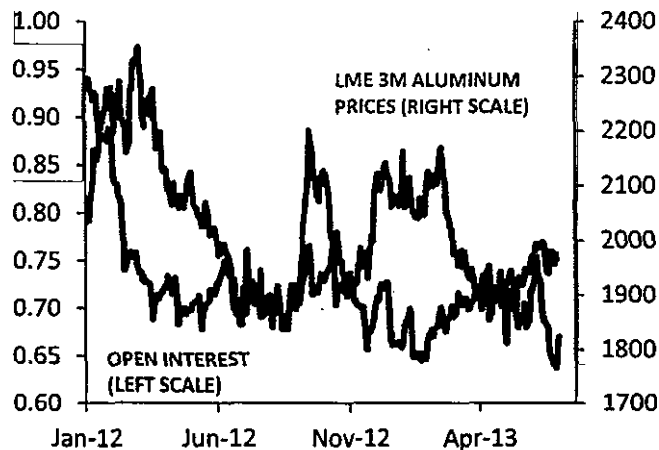
LME 3M ALUMINUM PRICES

(daily data; \$/mton)



Source: HARBOR Aluminum with LME data

10 In this context, a new round of heavy long liquidation by funds and increasing short selling re-emerged...

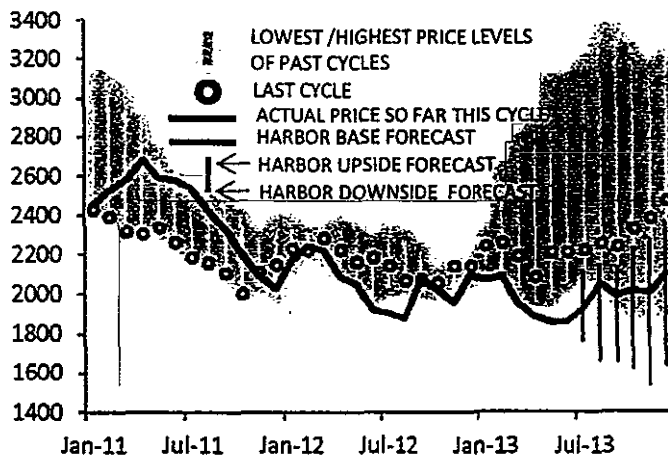
LME 3M ALUMINUM PRICES VS FUTURES OPEN INTEREST
(\$/mton vs million contracts)

Source: HARBOR Aluminum with LME data

12 ...which has opened the downside to \$1,650 per mton (74.8 cent/lb); expect at least slightly higher prices in 2014

HARBOR'S ALUMINUM PRICE CYCLICAL ANALYSIS

(expected price range; monthly averages, \$/mton)



Source: HARBOR Aluminum

> Record Bearishness Towards Aluminum's Industry Fundamentals

Takeaways:

- * Record bearishness amid overproduction, overcapacity & metal overhang
- * Bearish sentiment compounded by rising concerns over China
- * Aluminum demand outlook is positive beyond short term headwinds...
- * ...but global aluminum output growth to accelerate too in China/ROW
- * Metal overhang not likely to diminish in the short/mid term
- * HARBOR downgraded its price forecasts; still sees higher prices in 2014

DEMAND

Market's intense bearish sentiment towards aluminum compounded by mounting concerns over global manufacturing activity and China. Global manufacturing activity in June (end-user aluminum demand) continued roughly stalled with either contraction or stagnation widespread among every major aluminum consuming region. China's manufacturing activity has now more than 12 months in stagnation mode (m/m), which adds to the perception of a structural demand slowdown in China's economy. The US resumed some manufacturing expansion in June, after contracting in May. Growth pace still slower vs Q1. The Eurozone contracted at a slower rate, but still contracted for the twentieth-third consecutive month. India didn't grow for the second month in a row, worst streak since March 2009. Brazil remains stagnated after a positive start of the year, while more resilient markets such as Turkey, Indonesia, South Korea and Mexico are in a clear slowdown mode. The Middle East was practically the only spot still delivering robust manufacturing acceleration. Japan was also an exception as it grew at its fastest pace in twenty-two months, although growth remains far from robust. Once again, the bottom line is that disappointing global end-user demand readings out of China, US, India, Brazil and Europe add to the intense bearish sentiment the market has had towards aluminum given the context of overproduction, overcapacity and unprecedented overhang of metal. HARBOR's proprietary *Aluminum Market Sentiment Index* has dropped to a fresh record low, while overall levels of fear as measured by regional VIX indexes have increased to year highs.

Aluminum's mill shipments less discouraging. In China, official data shows no major slowdown in B&C, while the auto sector continues to deliver double-digit annual growth rates and electrical sector demand is heard strong amid power grid projects. However, aluminum semis output fell 2.3% m/m in May, first monthly decline in four months. In annual terms, growth pace remained healthy. In the US, autos continue to be the bright spot in the equation, while B&C recovery path remains on track. However, the growth pace in both sectors has almost halved so far this year vs same period of 2012 with flat rolled products shipments almost stalled (+0.8%) and extrusions marginally contracting (-0.7% ytd). Castings and aluminum conductor shipments (+5.0% ytd) have excelled by far. In West Europe, B&C has yet to find a bottom and extrusions shipments continues to contract y/y. Packaging is flat. Motor vehicles production grew y/y in March and April. However, car registrations were still declining y/y in May. Flat rolled product shipments in the Eurozone have actually delivered some growth in the year (5.6% average annual growth in Jan-Apr). In Japan, extrusion shipments no longer declining y/y after eight months of contraction, while flat rolled products shipments remain in

contraction zone (auto production has improved, but still well inside y/y contraction). The rest of Asia remains as a bright spot. At the margin, rapid rates of growth seen for VAP in South Korea, billet in Taiwan and P1020 and billet in Turkey. Strong growth continues to be cited out of the Middle East region, while Latin America is also adding to the demand equation. In Mexico, castings excelling at the margin, but flat rolled products and extrusions shipments growing less than expected. In fact, construction in the country has contracted y/y in January-April. In Brazil, flat rolled product and extrusion shipments grew 7.5% and 4.4% respectively y/y in Jan-Apr, while wire & cable was off by 30% in Q1.

Primary aluminum demand doing better than last year and expected to gain momentum. Year to date (up to April), HARBOR estimates that global primary aluminum demand has grown by 6.4%, more than the 4.7% registered during Jan-Apr 2012. China grew 7.1% vs 6.2% in the same period of last year, while ROW grew 5.1% vs 3.8% in Jan-Apr 2012. HARBOR expects global primary aluminum demand to grow faster this year vs 2012, although recovery continues to be slower than expected (primary demand probably slowed down in May-June). Beyond the short term, the outlook for aluminum demand is constructive on the back of positive demographics (in the Emerging World excluding China and in the US), pent-up demand, aluminum penetration in transportation, and as manufacturing activity enters in a growth/acceleration mode as the cycle advances. Possible demand/financial shocks in Europe and the US, and a slower-than expected demand recovery in China could lower aluminum demand's growth rate below expectations. We expect global primary aluminum demand to grow 6.1% in 2013 and gain momentum in 2014 by growing 8.2% with Chinese demand growing 7.9% and 9.8% and ROW growing 4.6% and 6.9% respectively.

PRODUCTION & COSTS

Primary output economics worsens further. LME cash prices have fallen 16% from this year's peak and 36% from the peak they reached in early May 2011. Primary aluminum output capacity operating underwater has increased by 41% compared to a month ago. HARBOR now estimates that global primary aluminum production capacity operating underwater on a cash cost basis considering income from regional premiums now adds 15.1 million mtpy vs 10.7 million mtpy a month ago with most of this capacity located in China (12.5 million mtpy). In ROW, capacity losing money on a cash cost basis after considering the effective realized price of aluminum (including premiums given each smelter's casthouse products mix) is today around 2.655 million mtpy (9% of operating capacity) vs 0.6 million mtpy at the end of 2012. Unprofitable capacity in ROW is located mainly in West Europe (37% of total

unprofitable capacity in ROW), Oceania (28%), East Europe (20%) and North America (15%). See HARBOR's *Aluminum Smelting Cash Cost Curve Report* for a detailed smelter by smelter analysis.

Producers unable to cut as needed. The fact is that the average profit margin for aluminum producers was negative in 2012 and remains so today. Nevertheless, a sizable portion of the current cash negative capacity has managed to survive on the back of government subsidies/incentives in the form of electricity tariff discounts and/or low fuel prices mainly in China but also in ROW. So far this year, production capacity cuts in China add up to only 1.68 million mtpy (represents 13% of today's cash negative capacity). In ROW, only 563,000 mtons of capacity have been officially curtailed (21% of capacity currently operating underwater). In fact, global primary output was roughly unchanged in May, decreasing by a marginal 0.2% monthly rate (-0.4% in ROW and +0.1% in China). ROW production fell only by 98,915 mtons annualized dragged down mainly by small cuts in India (*Nalco*), Eastern Europe (*Rusal* and probably other small producers) and North America (*Alcoa Baie-Comeau*). Meanwhile, Chinese production was roughly stalled and near record highs as smelting curtailments mainly in Shaanxi, Guangxi, Henan and Hubei provinces offset increases from the ramping up of new projects in the Northwest. In June, *Chalco* began idling production capacity of 380,000 mtpy while *Xinfa* announced the idling of 200,000 mtpy at Guangxi province also starting this month, while in ROW, *Rusal* and *Alcoa* should have continued to execute planned curtailments, small disruptions were confirmed in Argentina, and profitability pressures continued in Montenegro and Bosnia. Even taking these new expected cuts into account, the bottom line remains that curtailments so far announced seem almost irrelevant given the ongoing record overhang of metal in the industry.

Even more aluminum production coming. Aluminum production is scheduled to boom in the next six months. In ROW, expansions adding up to 1.46 million mtpy are currently on their ramp up stage: *Ma'aden-Alcoa's* smelter in Saudi Arabia, *Hindalco's* Mahan & *Vedanta's* Korba III in India, *Press Metal's* Sarawak II in Malaysia, and *RTA's* AP60 in Canada. Additionally, another three projects adding up to 2.45 million mtpy should begin production in Q4 of this year: *Emal* Phase II in Abu Dhabi, and *Vedanta's* Jharsuguda II along with *Hindalco's* Aditya in India. In China, production in the Northwest is scheduled to accelerate further in the next 12 months and add at least another 4 million tons per year of capacity. Assuming no further curtailments and/or disruptions, HARBOR expects global aluminum production to grow 4.8% (2.3 million tons) in 2013 and to accelerate to 11% or 5.3 million tons in 2014. No lack of aluminum is expected in the next months at all.

BALANCE & INVENTORIES

So far this year the global market has generated a surplus. Between January and April, the global primary aluminum market generated a surplus of 381,000 mtons vs 434,000 in the same period of 2012. HARBOR estimates that in April, total global stocks (visible and stealth) reached 14.43 million mtons (vs 14.09 million tons in April 2012) with visible stocks up by 667 thousand mtons y/y to 8.55 million mtons and stealth stocks down by 371 thousand mtons. In Jan-Apr 2013, China delivered a surplus of 561,412 mtons (vs 176,828 mtons in Jan-Apr 2012), while ROW experienced a deficit of 180,230 mtons (vs a surplus of 256,985 mtons in Jan-Apr 2012).

LME inventories reached a record high in June. LME aluminum inventories registered a buildup of 233,600 mtons in June, reaching a fresh high of 5.45 million mtons. Net inflows were concentrated at Detroit (+136,450 mtons) and Vlissingen (+132,375 mtons) warehouses. Additionally, these locations also experienced a 221,775 mtons combined increase in canceled warrants (metal booked for warehouse withdrawal), lengthening load out queues to record levels above 19 months.

The LME aims to end warehousing model behind premiums bubble. The LME announced early last week plans to tackle the unprecedented lengthy queues to load-out metal from Detroit and Vlissingen warehouses. These unprecedented queues are in HARBOR's view the main reason behind record aluminum premiums. The aim is to revert queues and make sure it doesn't happen again. Plans are under consultation mode. Official approval is due by next October and implementation in next April. HARBOR believes this measure represents the end of the biggest rally ever in spot premiums and, at best, a gradual decline with relevant odds of a sharp adjustment scenario. This represent a robust case in avoiding locking premiums. HARBOR will discuss in detail in our soon-to-be-released *Aluminum Premiums Report (Q3 2013)*.

Without meaningful output curtailments or/and disruptions, expect another surplus next year. HARBOR estimates that the global primary market could end 2013 in a 178,000 mtons marginal deficit (160,000 mtons in China and 18,000 mtons in ROW). As we have been mentioning consistently, this marginal deficit is irrelevant in the context of the record overhang of metal that the industry has generated over the past six years. In fact, assuming no more curtailments and/or disruptions, HARBOR expects this marginal and irrelevant deficit to turn into a surplus of 1.19 million mtons next year (0.24 million mtons in China and 0.95 million mtons in ROW) given the numerous expansions taking place in China and ROW.

PRICE OUTLOOK

Aluminum prices have fallen 15% so far this year and closed on July the 5th at the lowest weekly level since June 2009. LME 3M aluminum prices are trading at \$1,768 per mton (80 cent/lb), the lowest price ever in real terms after adjusting by the cycle. Aluminum is also trading at a record low valuation vs oil. From a technical standpoint, prices are in a short term downward trend and headed towards \$1,650 per mton (75 cent/lb) after multi-year support of \$1,832 per mton (83 cent/lb) failed in June.

HARBOR has downgraded its 2013-2014 price forecasts, although still sees at least slightly higher prices in 2014 amid expectations of a pickup in global manufacturing activity given leading indicators and monetary stimulus, falling aluminum inventories in terms of weeks of consumption (in spite of a nominal surplus) and some fund short covering. HARBOR has downgraded its base scenario for 2013 (odds lowered to 50% from 60%) from \$1,968 (89 cent/lb) to \$1,923 per mton (87 cent/lb) and for 2014 basically unchanged at \$2,294 per mton (104 cent/lb). HARBOR has also downgraded its downside scenario for 2013 (odds raised to 40% from 30%) from \$1,842 (84 cent/lb) to \$1,778 per mton (81 cent/lb) and for 2014 from \$2,100 (96 cent/lb) to \$1,977 per mton (90 cent/lb).

ANNUAL FORECASTS BY REGION: PRIMARY ALUMINUM CONSUMPTION AND PRODUCTION
(thousand mtons)

GLOBAL ALUMINUM CONSUMPTION BY REGION

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013f	2014f
China	5,897	7,094	8,764	12,497	13,126	14,505	17,724	20,047	22,128	23,880	26,210
y/y	15.8%	20.3%	23.6%	42.6%	5.0%	10.5%	22.2%	13.1%	10.4%	7.9%	9.8%
World ex-China (ROW)	24,322	24,537	25,429	25,121	23,990	20,145	23,740	25,411	25,466	26,634	28,461
y/y	10.8%	0.9%	3.6%	-1.2%	-4.5%	-16.0%	17.8%	7.0%	0.2%	4.6%	6.9%
North America	7,182	6,863	6,973	6,090	5,731	4,880	5,292	5,632	5,846	6,136	6,496
of which USA	6,380	6,093	6,180	5,345	5,062	4,112	4,590	4,890	5,120	5,379	5,700
y/y	12.2%	-4.4%	1.6%	-12.7%	-5.9%	-14.8%	8.4%	6.4%	3.8%	5.0%	5.9%
West Europe	6,670	6,652	6,992	7,255	6,097	4,097	5,822	6,331	5,906	5,865	5,950
y/y	4.9%	-0.3%	5.1%	3.8%	-16.0%	-32.8%	42.1%	8.7%	-6.7%	-0.7%	1.4%
East Europe	1,721	1,867	2,011	2,109	2,086	1,825	1,950	2,050	2,130	2,265	2,400
of which Russia	910	960	1,034	1,063	1,031	882	938	990	1,020	1,090	1,144
y/y	0.6%	8.5%	7.7%	4.9%	-1.1%	-12.5%	6.8%	5.1%	3.9%	6.3%	6.0%
Japan	2,427	2,390	2,419	2,270	2,203	1,807	2,095	2,035	1,985	2,015	2,065
y/y	-0.1%	-1.5%	1.2%	-6.2%	-3.0%	-18.0%	15.9%	-2.9%	-2.5%	1.5%	2.5%
Other Asia	3,720	3,982	4,190	4,413	4,668	4,475	5,190	5,802	5,985	6,458	7,125
of which India	868	930	1,020	1,125	1,227	1,428	1,653	1,860	1,882	2,030	2,250
y/y	20.7%	7.0%	5.2%	5.3%	5.8%	-4.1%	16.0%	11.8%	3.2%	7.9%	10.3%
Middle East	648	659	700	760	785	780	817	890	909	1,050	1,390
y/y	28.0%	1.6%	6.2%	8.6%	3.3%	-0.6%	4.7%	8.9%	3.3%	15.5%	32.4%
Latin America	1,171	1,306	1,325	1,348	1,490	1,411	1,660	1,750	1,785	1,895	2,040
of which Brazil	636	743	758	762	939	820	1,040	1,069	1,075	1,130	1,220
y/y	8.7%	11.5%	1.5%	1.7%	10.5%	-5.3%	17.6%	5.4%	2.0%	6.2%	7.7%
Africa	380	410	449	486	530	495	524	541	550	580	622
y/y	16.7%	7.9%	9.5%	8.2%	9.1%	-6.6%	5.9%	3.2%	1.7%	5.5%	7.2%
Oceania	403	408	370	390	400	375	390	380	370	370	373
y/y	3.9%	1.2%	-9.3%	5.4%	2.6%	-6.3%	4.0%	-2.6%	-2.6%	0.0%	0.8%
Global Consumption	30,220	31,631	34,193	37,618	37,116	34,650	41,464	45,458	47,594	50,514	54,671
y/y	10.1%	4.7%	8.1%	10.0%	-1.3%	-6.6%	19.7%	9.6%	4.7%	6.1%	8.2%

GLOBAL ALUMINUM PRODUCTION BY REGION

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013f	2014f
China*	6,589	7,743	9,317	12,598	13,600	13,630	17,600	19,600	22,300	23,720	26,451
y/y	20.6%	17.5%	20.3%	35.2%	8.0%	0.2%	29.1%	11.4%	13.8%	6.4%	11.5%
World ex-China (ROW)	23,198	24,149	24,560	25,543	26,463	24,043	24,926	26,444	25,734	26,616	29,414
y/y	3.2%	4.1%	1.7%	4.0%	3.6%	-9.1%	3.7%	6.1%	-2.7%	3.4%	10.5%
North America	5,110	5,379	5,333	5,643	5,783	4,759	4,689	4,970	4,851	5,004	5,063
of which USA	2,517	2,480	2,281	2,560	2,659	1,727	1,722	1,987	2,070	2,027	2,084
y/y	-7.0%	5.3%	-0.9%	5.8%	2.5%	-17.7%	-1.5%	6.0%	-2.4%	3.2%	1.2%
West Europe	4,295	4,350	4,175	4,306	4,618	3,722	3,808	3,994	3,604	3,613	3,687
y/y	5.6%	1.3%	-4.0%	3.1%	7.2%	-19.4%	2.3%	4.9%	-9.8%	0.3%	2.0%
East Europe	4,533	4,616	4,681	4,948	5,155	4,479	4,661	4,684	4,655	4,363	4,439
of which Russia	3,809	3,855	3,893	4,103	4,284	3,782	3,947	3,992	4,024	3,741	3,785
y/y	20.1%	1.8%	1.4%	5.7%	4.2%	-13.1%	4.1%	0.5%	-0.6%	-6.3%	1.8%
Asia ex. China	1,568	1,623	1,873	2,006	2,181	2,217	2,512	2,682	2,735	3,165	4,736
of which India	861	942	1,105	1,222	1,308	1,412	1,604	1,688	1,699	1,952	3,277
y/y	11.0%	3.5%	15.4%	7.1%	8.7%	1.6%	13.3%	6.8%	2.0%	15.7%	49.6%
Middle East	1,410	1,790	1,867	1,953	2,054	2,467	2,960	3,820	4,005	4,478	5,400
y/y	11.1%	27.0%	4.3%	4.6%	5.2%	20.1%	20.0%	29.1%	4.8%	11.8%	20.6%
Latin America	2,356	2,391	2,493	2,557	2,660	2,508	2,277	2,185	2,053	2,077	2,112
of which Brazil	1,454	1,497	1,604	1,658	1,540	1,535	1,535	1,440	1,436	1,451	1,471
y/y	3.8%	1.5%	4.3%	2.6%	-4.0%	-5.7%	-9.2%	-4.0%	-6.0%	1.2%	1.7%
Africa	1,710	1,748	1,864	1,815	1,715	1,681	1,742	1,803	1,637	1,763	1,804
y/y	19.3%	2.2%	6.6%	-2.6%	-5.5%	-2.0%	3.6%	3.5%	-9.2%	7.7%	2.3%
Oceania	2,216	2,252	2,274	2,315	2,297	2,211	2,277	2,306	2,195	2,154	2,173
y/y	2.5%	1.6%	1.0%	1.8%	-0.8%	-3.7%	3.0%	1.3%	-4.8%	-1.9%	0.9%
Global Production	29,787	31,892	33,877	38,141	40,063	37,673	42,526	46,044	48,034	50,336	55,865
y/y	6.6%	7.1%	6.2%	12.6%	5.0%	-6.0%	12.9%	8.3%	4.3%	4.8%	11.0%
Global Market Balance	-433	261	-316	523	2,947	3,023	1,062	586	440	-178	1,194

Source: HARBOR Aluminum

IMPORTANT NOTES:

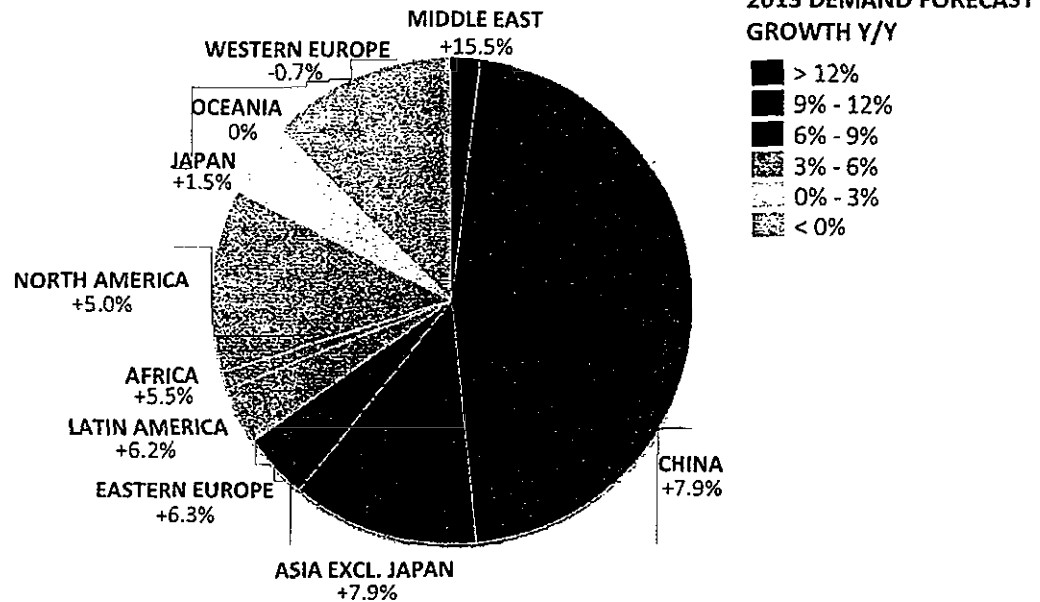
*Production figures for China are official CNIA/IAI reported data up to 2009. From 2010 on, production data incorporates an estimate of non-reported production.

A) Aluminum production forecasts assume all confirmed brownfield / greenfield projects hit the market as planned (no delays).

B) Aluminum production forecasts assume no cuts in production beyond the ones that have been confirmed so far nor disruptions in operating capacity.

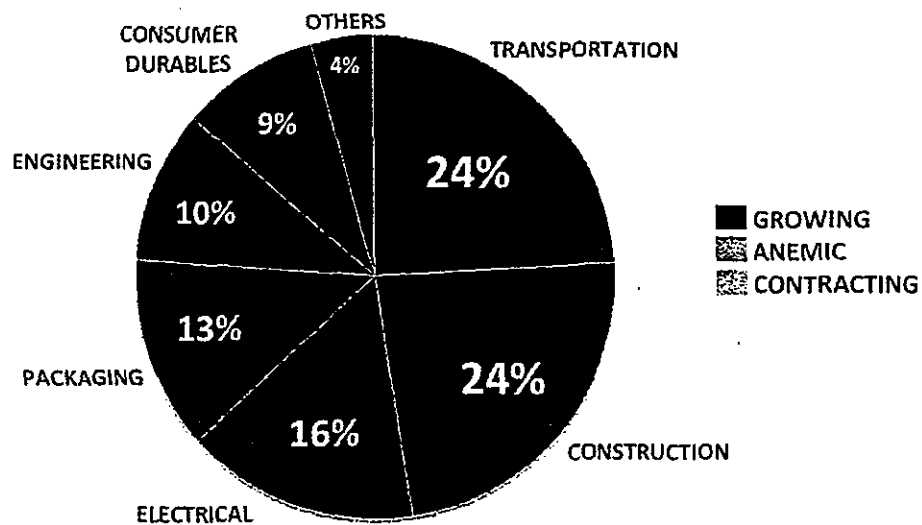
C) Aluminum production forecasts include annual capacity creep of 0.5% per year for all smelters.

GLOBAL PRIMARY ALUMINUM DEMAND BY REGION (share of 2012 global demand and 2013 growth forecast)



Source: HARBOR Aluminum

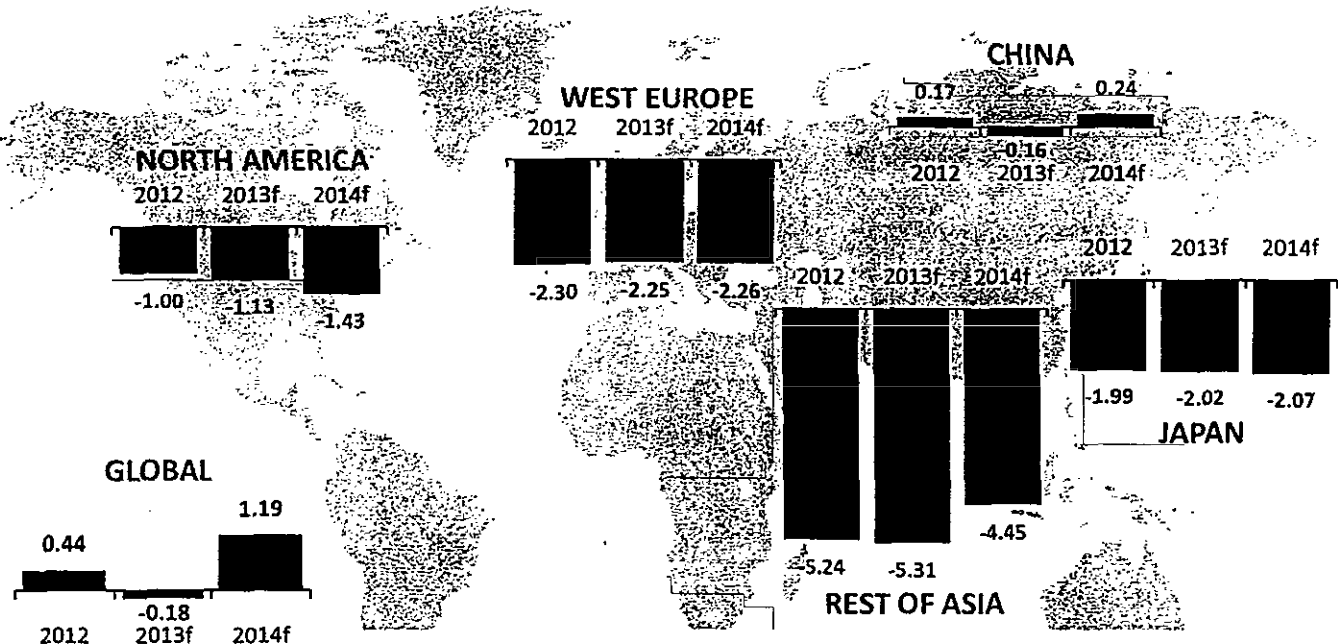
GLOBAL PRIMARY ALUMINUM DEMAND BY MAJOR MARKETS (share of 2012 global demand)



Source: HARBOR Aluminum

PRIMARY ALUMINUM MARKET REGIONAL DEFICITS BY REGION 2012-2014*

(million mtons)



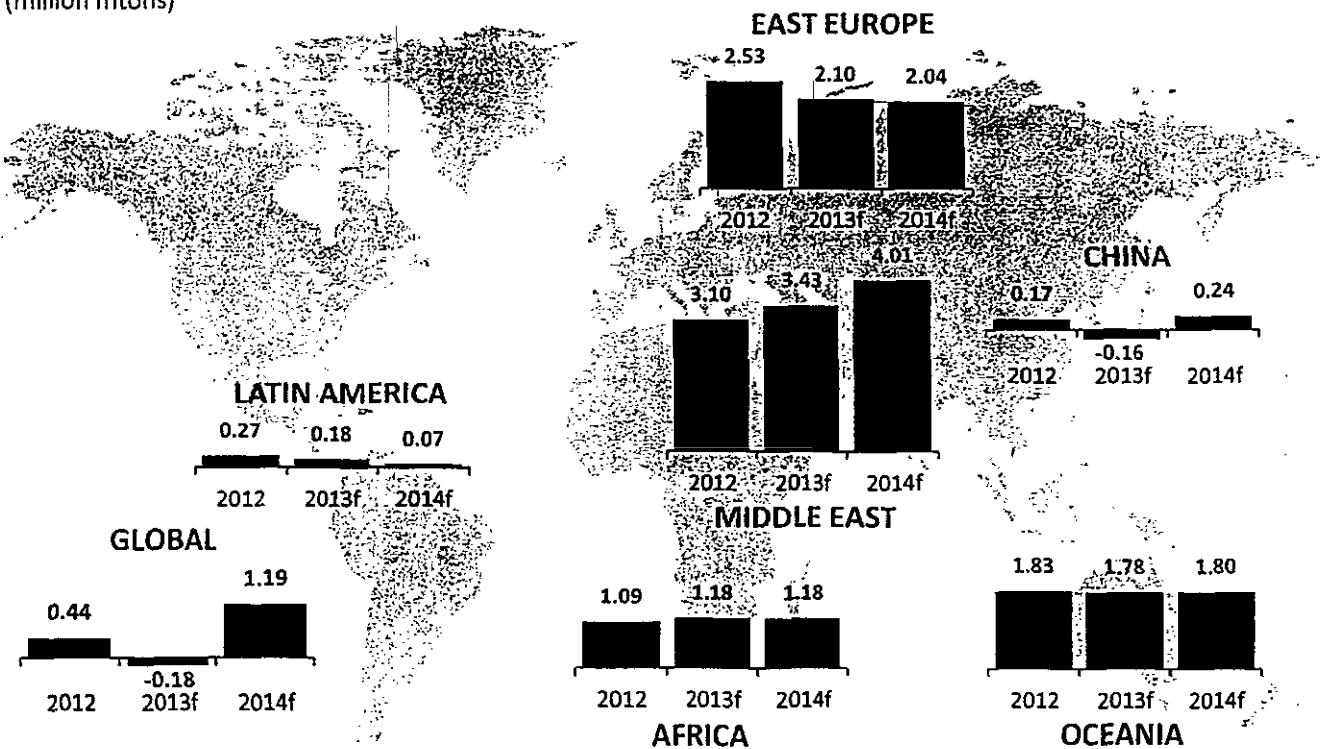
*IMPORTANT NOTES:

- A) Aluminum production forecasts assume all confirmed brownfield/greenfield projects hit the market as planned (no delays).
 B) Aluminum production forecasts assume no cuts in production beyond the ones that have been confirmed so far nor disruptions in operating capacity.
 C) Aluminum production forecasts include annual capacity creep of 0.5% per year for all smelters.

Source: HARBOR Aluminum

PRIMARY ALUMINUM MARKET REGIONAL SURPLUSES BY REGION 2012-2014*

(million mtons)



Source: HARBOR Aluminum

HARBOR'S KEY MARKET BALANCE, INVENTORY MOVEMENTS & LME PRICES

(balance and inventory figures in thousand mtons; prices in \$/mton)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013f	2014f
Global Balance	-433	261	-316	523	2,947	3,023	1,062	586	440	-178	1,194
China Balance	692	649	553	101	474	-875	-124	-447	172	-160	241
Rest of World Balance	-1,124	-388	-869	422	2,473	3,898	1,186	1,033	268	-18	953
Global Visible Inventories*	2,869	2,844	2,599	2,795	4,902	7,181	6,935	7,374	8,065		
Annual Change	-637	-25	-245	196	2,107	2,279	-246	439	691		
Global Invisible (Stealth) Inventories	2,595	2,881	2,810	3,213	4,053	4,797	6,105	6,252	6,001		
Annual Change	204	286	-71	403	840	744	1,308	147	-251		
Weeks of Consumption (Visible Inventories)	4.9	4.7	4.0	3.9	6.9	10.8	8.7	8.4	8.8		
Weeks of Consumption (Total Inventories)	9.4	9.4	8.2	8.3	12.5	18.0	16.4	15.6	15.4		
LME Cash Price Base Forecast (50% odds)									2,020	1,923	2,294
LME Cash Price Downside Forecast (40% odds)									2,020	1,778	1,977
LME Cash Price Upside Forecast (10% odds)									2,020	2,068	2,612

Source: HARBOR Aluminum

*Visible inventories include LME, IAI, SHFE, China SRB, Wuxi and Nanhai, Japanese Ports Stocks, NYMEX and Tocom

ALUMINUM CAPACITY CUTS/DISRUPTIONS

(year to date; thousand mtons per year)

	ROW CONFIRMED CUTS / DISRUPTIONS	ROW AT IMMINENT RISK	ROW RESTARTS	CHINA CONFIRMED CUTS	GLOBAL CASH COST NEGATIVE**
TOTAL	563	837	170	1,675	15,114
% OF 2012 REGION DEMAND	2.1%	3.1%	0.7%	7.4%	32.0%
UC Rusal (RUS)*	KAP (Montenegro)	Alcoa (SPA)	Guangxi		
300	53	25	200		
(Jan-Dec 2013)	(Q3 2013)	(Jan 2013)	(Jun 2013)		
RT Tiwai Point (NZ)	Mostar (BOS)	RT Tiwai Point (NZ)	Yunnan		
21	160	45	250		
(Mar 2013 -)	(H2 2013)	(Jan 2013)	(Mar-Jun 2013)		
Novelis (BRA)	RTA St. Jean (FRA)	Hydro Neuss (GER)	Shaanxi		
20	141	100	115		
(Q1 2013)	(Dec 2013)	(Early 2013)	(Mar-Apr 2013)		
KAP (Montenegro)	Voerdal (GER)		Henan		
20	128		210		
(H1 2013 -)	(2013)		(Jan-Aug 2013)		
Nalco (IND)	Alcoa System		Hubei		
97	355		135		
(May 2013 -)	(2013-2014)		(Mar-Jun 2013)		
Alcoa Baie-Comeau (CAN)			Others		
105			765		
(Aug 2013)			(Jan-Aug 2013)		

Source: HARBOR Aluminum

*Effective annual output decline projected

**Cash-cost basis; assuming LME 3M prices of \$1,793 per mton and SHFE 1M prices of \$2,355 per mton

LME ALUMINUM CASH PRICE ANNUAL FORECASTS (\$/mton)

	2013	2014	2015
AVERAGE FORECAST (updated since Jan 2013)	2,075	2,186	2,333
AVERAGE FORECAST (updated Apr-June 2013)	1,988	2,131	2,268
LOWEST FORECASTED PRICE (updated Apr-June 2013)	1,783	1,836	1,887
HIGHEST FORECASTED PRICE (updated Apr-June 2013)	2,110	2,500	2,963
AVERAGE OF THOSE EXPECTING HIGHER PRICES (updated Apr-Jun 2013)	2,033	2,162	2,318
AVERAGE OF THOSE EXPECTING LOWER PRICES (updated Apr-Jun 2013)	1,969	1,883	2,019
BEST 10 ANALYSTS IN 2012	2,023	2,094	2,246
BEST 5 ANALYSTS IN 2001-2012	2,025	2,185	2,405
HARBOR BASE SCENARIO (50% odds in 2013-2015)	1,923	2,294	2,400
HARBOR DOWNSIDE SCENARIO (40% odds in 2013-2015)	1,778	1,977	1,887
HARBOR UPSIDE SCENARIO (10% odds in 2013-2015)	2,068	2,612	2,913
LAST CYCLE AVERAGE	2,223	2,704	2,937
HIGHEST IN PAST CYCLES	3,018	3,120	3,113
LOWEST IN PAST CYCLES	2,036	2,513	2,716
PREDOMINANT FORECAST	2,076	2,300	2,457

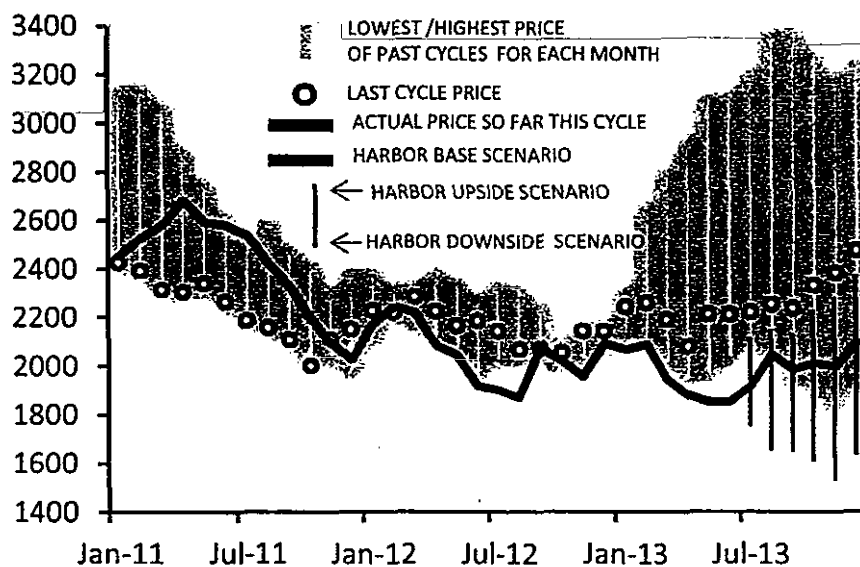
Source: HARBOR Aluminum

ODDS	40%	50%	10%
	Downside Scenario	Base Scenario	Upside Scenario
Jan 2012	2,144	2,144	2,144
Feb	2,204	2,204	2,204
Mar	2,183	2,183	2,183
Apr	2,047	2,047	2,047
May	2,000	2,000	2,000
Jun	1,885	1,885	1,885
Jul	1,874	1,874	1,874
Aug	1,838	1,838	1,838
Sep	2,054	2,054	2,054
Oct	1,975	1,975	1,975
Nov	1,943	1,943	1,943
Dec	2,087	2,087	2,087
Jan 2013	2,038	2,038	2,038
Feb	2,053	2,053	2,053
Mar	1,913	1,913	1,913
Apr	1,857	1,857	1,857
May	1,831	1,831	1,831
Jun	1,816	1,816	1,816
Jul	1,753	1,938	2,122
Aug	1,653	1,904	2,154
Sep	1,649	1,893	2,138
Oct	1,608	1,920	2,231
Nov	1,530	1,906	2,283
Dec	1,634	2,004	2,374
2012	2,020	2,020	2,020
2013	1,778	1,923	2,068
2014	1,977	2,294	2,612
2015	1,887	2,400	2,913

Source: HARBOR Aluminum

LME CASH ALUMINUM PRICE OUTLOOK CYCLICAL PROFILE*

(expected price range; monthly averages, \$/mton)



Source: HARBOR Aluminum

GLOBAL ALUMINUM PREMIUMS DATA & FORECASTS
(quarterly averages)

	2011				2012				2013			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3f	Q4f
US Midwest Premium (prompt delivery; cent/lb)	6.5	8.3	8.2	7.9	8.1	9.7	11.0	11.0				
US Full 6063 Billet Premium (prompt delivery; cent/lb)	17.3	20.0	18.7	18.4	18.9	21.3	22.7	23.2				
Brazil Spot Ingot Premium (delivered; \$/mton)	279	290	293	270	265	280	300	290				
Brazil Spot Billet Premium (delivered; \$/mton)	530	540	545	520	520	540	560	550				
Mexico Spot Ingot Premium (delivered; \$/mton)	188	210	210	180	200	237	264	268				
Mexico Spot Billet Premium (delivered; \$/mton)	421	481	452	436	480	500	520	525				
Europe Spot Duty-Paid Premium (In-Warehouse Rotterdam; \$/mton)	194	198	200	178	190	219	269	285				
Europe Spot Duty-Unpaid Premium (In-Warehouse Rotterdam; \$/mton)	121	125	130	121	123	158	214	216				
Europe Full 6063 Billet Duty-Paid Premium (In-Warehouse Rotterdam; \$/mton)	435	435	435	414	397	400	423	459				
Europe Spot A7E Ingot Premium (In-Warehouse Rotterdam; \$/mton)	121	124	130	119	123	154	205	214				
Japan Ingot Contract Premium (CIF; \$/mton)	113	114	121	119	112	121	205	255				
Japan Ingot Spot Premium (CIF; \$/mton)	113	118	119	116	115	172	247	232				
South Korea Spot Ingot Premium (CIF; \$/mton)	105	111	108	112	135	190	235	239				
India Ingot Premium (FOB; \$/mton)	68	67	71	57	85	163	195	184				
GCC Ingot Premium (delivered; \$/mton)					82	93	160	188				
GCC Billet Premium (delivered; \$/mton)					170	180	380	320				
China LME Ingot Premium (C&F; \$/mton)	108	115	115	115	115	154	235	230				
China Spot Wuxi Ingot Premium (spot price spread to SHFE; \$/mton)	-4	2	21	8	-8	2	-6	-7				
China Spot Nanhai Ingot Premium (spot price spread to SHFE; \$/mton)	1	3	36	13	-11	13	-11	-5				
China Spot Billet Premium (delivered Guangxi; \$/mton)					135	117	180	162				

For full 2013
quarterly
premiums
forecast please
refer to our
**Global
Aluminum
Premiums
Intelligence
Report**

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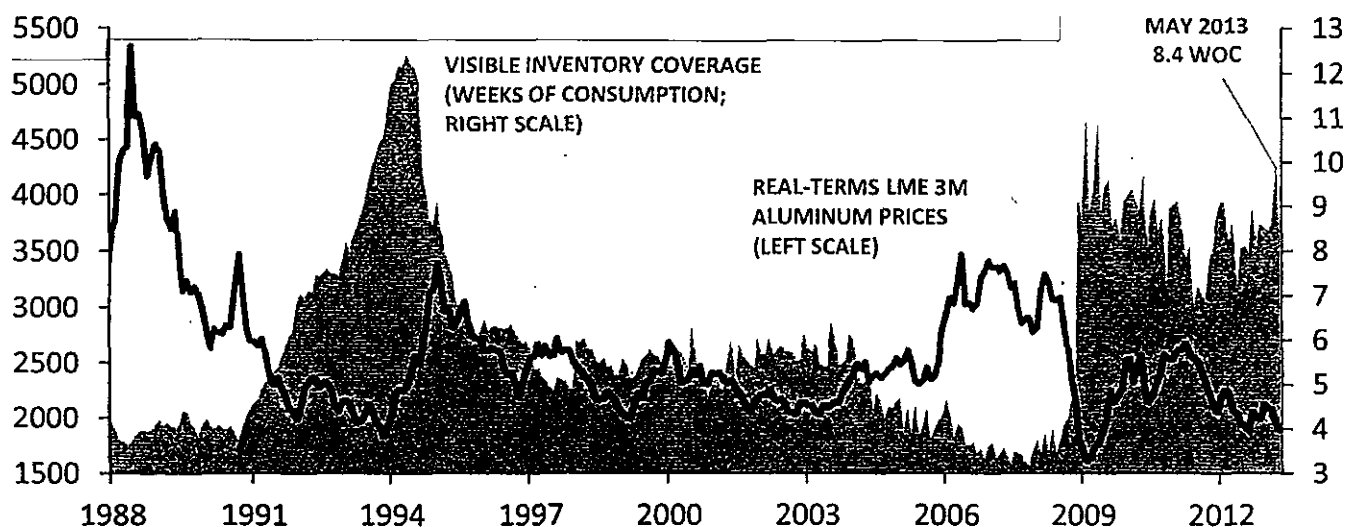
Source: HARBOR Aluminum

GLOBAL SCRAP AND SECONDARY ALUMINUM PRICES DATA & FORECASTS
(quarterly averages; cent/lb unless indicated otherwise)

	2011				2012				2013			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3f	Q4f
MW P1020 Transaction	119	126	117	103	107	97	98	102	102	95	103	106
MW A380.1	119	122	118	110	110	102	99	103	104	103	111	109
US 319	124	128	125	115	115	109	105	108	110	109	117	118
US Sec 356	127	131	127	118	117	111	107	111	112	110	118	120
A413	127	130	127	117	116	111	107	110	111	110	118	119
US Mill Grade MLCCs	94	98	89	77	83	80	78	81	82	79	82	81
US UBCs	92	97	89	78	81	76	76	81	81	77	80	79
US Taint/Tabor (Old Sheet)	81	80	76	70	73	72	67	71	74	71	73	71
US Twitch (HG Auto Shreds)	88	88	85	79	86	81	77	83	84	79	80	80
DIN226/A380 Europe (€ per mton)	2,018	1,878	1,851	1,726	1,801	1,759	1,775	1,745	1,754	1,750	1,842	1,885
EU Fragmentizer Shreds (€ per mton)	1,443	1,395	1,355	1,293	1,298	1,392	1,385	1,365	1,385	1,385	1,340	1,374
China Shredded Tense	94	96	99	95	97	96	92	97	92	93	95	96

Source: HARBOR Aluminum

GLOBAL VISIBLE PRIMARY ALUMINUM INVENTORY / DEMAND COVERAGE VS LME 3M ALUMINUM PRICES IN REAL TERMS (\$/mton in March 2013 US dollar terms vs weeks of consumption)



Source: HARBOR Aluminum with LME data

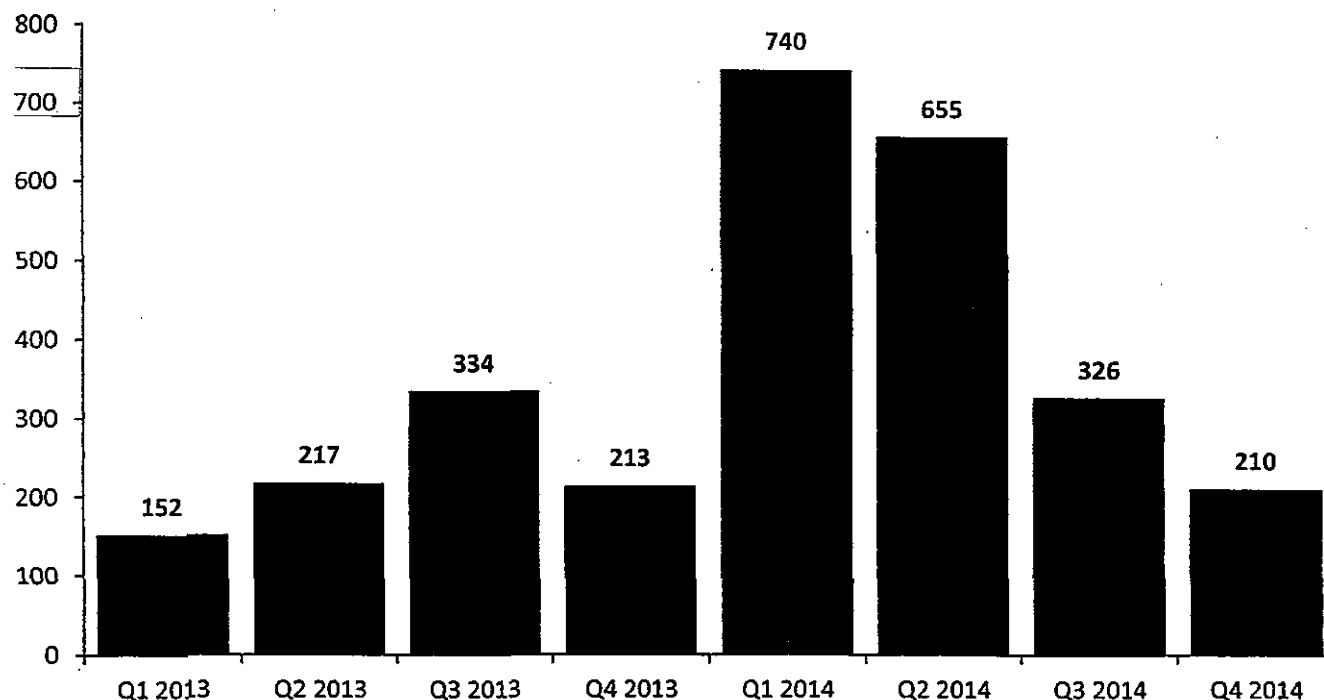
TOTAL GLOBAL ALUMINUM INVENTORIES (VISIBLE & STEALTH) (month-end data)

	2012						2013									
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	
LME TOTAL	5,025	4,919	4,834	4,886	4,870	5,056	5,077	5,207	5,210	5,157	5,162	5,237	5,158	5,202	5,436	
North America	2,189	2,129	2,078	2,041	1,972	2,133	2,013	1,982	1,974	1,938	1,900	1,869	1,765	1,724	1,833	
Europe	1,936	1,934	1,963	2,098	2,188	2,233	2,388	2,516	2,531	2,518	2,579	2,682	2,727	2,816	2,942	
Asia	890	856	793	717	710	691	674	709	712	701	683	686	666	662	661	
LME CANCELED WARRANTS	1,636	1,773	1,776	1,716	1,691	1,594	1,728	1,766	2,230	2,059	1,913	1,955	2,028	2,065	2,256	
North America	658	750	785	794	756	774	775	846	1,089	1,027	971	1,058	1,069	1,063	1,104	
Europe	853	882	893	851	876	788	935	891	1,058	975	901	868	944	988	1,137	
Asia	122	141	97	72	58	31	18	29	92	58	41	29	15	14	15	
IAI PRIMARY PRODUCERS	1,453	1,431	1,314	1,363	1,343	1,316	1,300	1,241	1,260	1,312	1,295	1,238	1,223	1,192	-	
North America	325	324	272	325	256	258	245	261	286	282	297	293	285	260	-	
Europe	451	438	413	409	437	423	377	355	381	417	381	375	334	325	-	
Asia	355	351	330	336	337	332	328	337	324	349	331	295	321	316	-	
RoW (excluding China)	322	318	299	293	313	303	350	288	269	264	286	275	283	291	-	
MAIN JAPANESE PORTS	235	223	233	235	268	274	258	273	284	316	286	267	279	272	-	
CHINA SHFE TOTAL	349	320	313	325	369	396	445	465	447	425	482	505	468	438	400	
SHFE CANCELED WARRANTS	238	254	265	266	304	287	307	299	273	240	264	247	209	191	218	
CHINA WUXI & NANHAI	378	328	316	385	444	442	490	468	385	404	622	684	648	509	410	
CHINA SRB	376	376	376	376	376	376	376	376	476	476	476	776	776	776	776	
GLOBAL VISIBLE INVENTORIES	7,816	7,597	7,386	7,570	7,670	7,860	7,946	8,030	8,062	8,081	8,323	8,707	8,551	8,389	-	
Monthly Change	-89	-219	-211	185	100	190	86	84	32	19	242	384	-156	-162	-	
WEEKS OF CONSUMPTION	8.3	7.6	7.3	8.5	8.3	8.8	8.6	8.7	8.6	8.4	8.9	9.9	8.5	8.4	-	
GLOBAL INVISIBLE INVENTORIES	6,247	6,013	6,404	6,246	6,132	6,228	6,063	5,904	5,980	6,004	5,911	5,865	5,876	-	-	
Monthly Change	150	-234	392	-158	-114	96	-165	-159	76	24	-93	-46	11	-	-	
GLOBAL TOTAL INVENTORIES	14,094	13,610	13,790	13,816	13,802	14,088	14,009	13,934	14,042	14,085	14,234	14,572	14,427	-	-	
Monthly Change	61	-484	180	26	-14	286	-79	-75	108	43	149	339	-145	-	-	

Source: HARBOR Aluminum with LME, IAI, SHFE, SMM and Manubeni data

ROW's PRIMARY ALUMINUM PRODUCTION CAPACITY EXPANSIONS SCHEDULE FOR 2013-2014

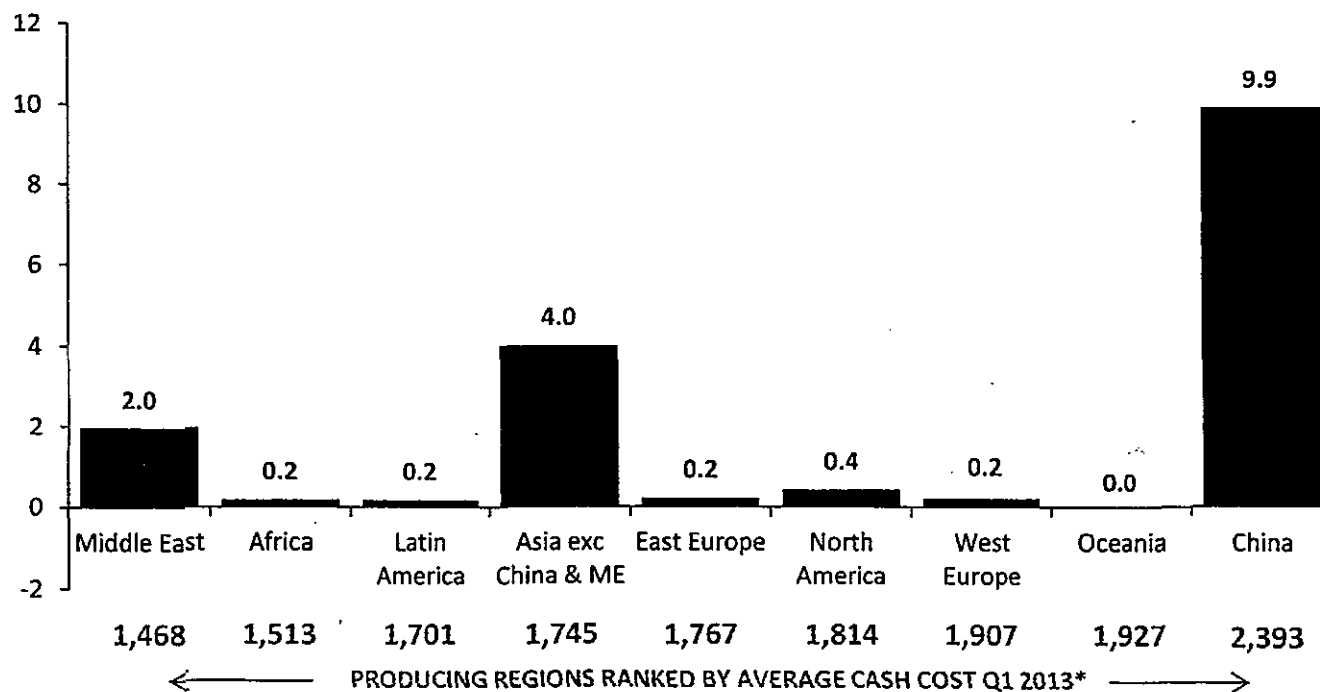
(thousand mtons of annualized capacity in ramping-up process net of announced capacity cuts)



Source: HARBOR Aluminum

PRIMARY ALUMINUM PRODUCTION EXPECTED CHANGE 2016 VS 2012

(figures in million mtons; cash costs in \$/mton)



Source: HARBOR Aluminum *Before casting

ROW's UPCOMING PRIMARY ALUMINUM EXPANSION PROJECTS 2013-2020 (thousand mtons)

REGION	COUNTRY	COMPANY	SMELTER	CAPACITY	FIRST METAL	INVESTMENT (USD MILLION)	CAPEX (USD '000 per mton)	TYPE	STATUS
Asia exc India and ME	Malaysia	Press Metal - Sumitomo	Sarawak	300	Q2 2013	600	2.5	Greenfield	1
Asia exc India and ME	Malaysia	Chalco - GIG Holdings	Sarawak	370	2016-7	1,600	4.3	Greenfield	2
East Europe	Russia	UC Rusal	BEMO Phase I	147	Q3 2013	795	5.4	Greenfield	1
East Europe	Russia	UC Rusal	BEMO Phase II	151	2015	817	5.4	Greenfield	1
East Europe	Russia	UC Rusal	Taishet Phase I	375	2015-7	1,772	4.7	Greenfield	2
India	India	Hindalco	Mahan	359	Apr 2013	2,000	5.6	Greenfield	1
India	India	Hindalco	Aditya	359	Late 2013	2,000	5.6	Greenfield	1
India	India	Hindalco	Hirakud	52	Q2 2013	na	na	Brownfield	1
India	India	Vedanta	Xorba III	325	Q3 2013	1,800	5.5	Greenfield	1
India	India	Vedanta	Jharsuguda II	1,250	Q4 2013	2,900	5.8	Brownfield	1
India	India	Hindalco	Jharkhand	359	2015	2,174	6.1	Greenfield	1
Middle East	Saudi Arabia	Ma'aden and Alcoa	Ras Al Khair	740	Dec 2012	7,500	10.1	Greenfield	1
Middle East	Saudi Arabia	Ma'aden and Alcoa	Ras Al Khair Phase II	740	2017-7	na	na	Brownfield	2
Middle East	UAE	Emirates Aluminum	Al Taweelah Phase II	520	Q4 2013	4,580	8.8	Brownfield	1
Middle East	Oman	Sohar Aluminium	Sohar Phase II	700	2016-7	5,600	8.0	Brownfield	2
Middle East	Oman	Oman Oil & Others	Oman Oil & Others	360+	2017-7	na	na	Greenfield	2
Middle East	Bahrain	Aluminium Bahrain	Ras Zurrayd (Line 6)	400	Late 2016	2,500	6.3	Brownfield	2
Middle East	Qatar	Norsk Hydro - Qatar Petroleum	Qatallum Phase II	585	2017-7	na	na	Brownfield	2
North America	Canada	Rio Tinto Alcan	AP60	60	Q2 2013	758	12.6	Greenfield	1
North America	USA	Noranda	New Madrid	16	2013	38	2.4	Brownfield	1
North America	Canada	Rio Tinto Alcan	Kitimat	135	End 2014	800	5.9	Brownfield	1
North America	Canada	Alcoa	Deschambault	25	2016	na	na	Brownfield	1
North America	Canada	Alcoa	Baie-Comeau	160	2019	175	1.1	Brownfield	1
West Europe	Iceland	Century Aluminum	Grundartangi	50	2013-2016	90	1.8	Brownfield	1
West Europe	Iceland	Rio Tinto Alcan	ISAL	15	2013-7	487	12.2	Brownfield	1
West Europe	Iceland	Century Aluminum	Helgufvuk Phase I	90	2015-7	567	6.3	Greenfield	2
West Europe	Germany	Norsk Hydro	Neuss	100	Early 2013	na	na	Restart	1

Source: HARBOR Aluminum

*Status: (1) Confirmed, (2) High odds, (3) Low odds, (4) Remote odds

ROW's POTENTIAL PRIMARY ALUMINUM EXPANSION PROJECTS 2014-2020 (thousand mtons)

REGION	COUNTRY	COMPANY	SMELTER	CAPACITY	FIRST METAL	INVESTMENT (USD MILLION)	CAPEX (USD '000 per mton)	TYPE	STATUS
Africa	Algeria	Sonatrach and Emal	Beni Saf	500	na	5,000	10.0	Greenfield	4
Africa	Algeria	Sonatrach and Emal	Beni Saf Phases II-III	1,000	na	na	na	Brownfield	4
Africa	Angola	Alcoa	Angola	750	2020-7	na	na	Greenfield	4
Africa	Cameroon	Hydromine	Cameroon	500	2017-7	2,800	5.6	Greenfield	4
Africa	Cameroon	Rio Tinto and Cameroon	Kribi	1,000	2017-7	na	na	Greenfield	4
Africa	Libya	Klesch Group - LAP	Ubaya	725	na	na	na	Greenfield	4
Asia exc India and ME	Indonesia	Abu Dhabi Port Authority	West Kalimantan	na	na	4,500	na	Greenfield	3
Asia exc India and ME	Indonesia	Beijing Shuangzhongli	West Kalimantan	600	2018	7,100	na	Greenfield	3
Asia exc India and ME	Indonesia	Nalco	East Kalimantan	500	2015	2,900	5.8	Greenfield	3
Asia exc India and ME	Indonesia	Ras Al Khaima Investment Authority	East Kalimantan	na	na	5,500	na	Greenfield	4
Asia exc India and ME	Malaysia	Rio Tinto and Cahya Mata	SALCO (Phase II)	950	na	na	na	Greenfield	4
Asia exc India and ME	Malaysia	Rio Tinto and Cahya Mata	SALCO (Phase I)	550	na	2,000	3.6	Greenfield	4
Asia exc India and ME	Malaysia	Mubadala and IMDB	Sarawak	na	na	7,000	na	Greenfield	3
Asia exc India and ME	Vietnam	Vinacomin and Dongyang Gangchui	Nhan Co	300	na	na	na	Greenfield	4
East Europe	Russia	UC Rusal	BEMO Phase III	290	2017-7	na	na	Brownfield	3
East Europe	Russia	UC Rusal	Taishet Phase II	375	2017-7	na	na	Brownfield	3
India	India	Nalco	Angul Phase III	105	2015-7	na	na	Brownfield	3
India	India	Nalco	Sundergarh	500	2018-7	2,900	5.8	Greenfield	3
India	India	Anrak	Visakapatnam	250	2018-7	na	na	Greenfield	4
Latin America	Brazil	Alcoa	Parana	300	na	3,000	10.0	Greenfield	4
Latin America	Paraguay	Rio Tinto Alcan	Paraguay	674	2017	4,000	5.9	Greenfield	4
Middle East	Iran	SALCO and NFC China	Larnard	276	2015-7	1,200	4.3	Greenfield	3
Middle East	Iran	NALCO and Aluminum Paras	Kerman	310	2016	2,000	6.5	Greenfield	3
Middle East	Saudi Arabia	Emar and EMAL	King Abdullah Economic City	700	2017-7	5,000	7.1	Greenfield	3
Middle East	Saudi Arabia	Saudi Binladin Group - Chalco - MMC	Sino Saudi Jazan	1000	2017-7	4,500	4.5	Greenfield	3
North America	Canada	Rio Tinto Alcan	AP60 Phases II-III	400	2017-7	na	na	Brownfield	3
North America	USA	Glencore	Columbia Falls Aluminum	72	2014-7	na	na	Restart	3
North America	USA	Century Aluminum	Ravenswood	170	2014-7	na	na	Restart	3
North America	Canada	RTA - Norsk Hydro - AMAG - Marubeni	Alouette Phase III	355	2016-7	1,500	4.2	Brownfield	3
West Europe	Norway	Norsk Hydro	Karmoy	70	2015-7	na	na	Brownfield	3
West Europe	Iceland	Century Aluminum	Helgufvuk Phases II-IV	270	2016-7	1,283	4.8	Brownfield	3
West Europe	Iceland	Alcoa	Fjarðdal	180	2018-7	724	4.0	Brownfield	3

Source: HARBOR Aluminum

*Status: (1) Confirmed, (2) High odds, (3) Low odds, (4) Remote odds

CHINA IDENTIFIED UPCOMING & POTENTIAL PRIMARY ALUMINUM EXPANSION PROJECTS 2012-2020 (thousand mtons)

COMPANY	LOCATION	CAPACITY	FIRST METAL	STATUS
Shaanxi Nonferrous Metals	Shaanxi Yulin	650	2012	1
Chalco	Gansu Hualu	500	2012	1
JISCO Dongxing	Gansu (Phase I)	450	2012	1
Xinjiang Qiya Aluminum	Xinjiang	450	2012	1
Yunnan Yongxin Aluminum	Yunnan	330	2012	1
Huangguoshu Aluminum	Guizhou	65	2012	1
Guangxi Yinhai Aluminum	Laibin	40	2012	1
CLI-XinRen Aluminium Holdings	Xinjiang	447	2012	1
Xinjiang Shenhua	Xinjiang	130	2012	1
Xinjiang Jiarun	Xinjiang (Phase I)	400	2012	1
Sanmenxia Tianyuan Aluminum	Qinghai	500	2013	1
Huomei-Hangzhou Jinjiang Group	Inner Mongolia	500	2013	1
Zhongwang Group	Yingkou (Phase I)	400	2013	1
Henan Shenhua Aluminium	Henan	350	2013	1
Xinshan Guangxi Aluminium	Guangxi	300	2013	1
Songjuehuarong-Chongqing Wujiang	Qianjiang	200	2013	1
Xinjiang Tianshan	Xinjiang (Phases 1-2)	900	2013	1
Gansu Hongtai Aluminum	Gansu	400	2013	1
Guangxi Suyuan Investment	Guangxi	300	2013	1
Henan Yulian Group	Xinjiang	1,200	2014	1
JISCO Dongxing	Gansu (Phase II)	550	2014	1
Chalco	Inner Mongolia	500	2014	1
Qinghai West Hydropower Company	Qinghai (Phase II)	250	2014	1
East Hope Group	Guizhou	400	2014	1
Chongqing Qineng Power & Aluminum	Qijiang	500	2014	1
CPI Chongqing Tiantai Aluminum	Chongqing (Phase II)	100	2014	1
Chalco	Baotou	650	2015	1
Tianrui Group	Qinghai	600	2015	1
Shandong Innovation Group	Inner Mongolia	800	2015	1
China Huaneng Group	Gansu	1,000	2015	1
Xinjiang Tianshan	Xinjiang (Phases 3-4)	1,140	2015	2
Zhongwang Group	Yingkou (Phase II)	400	2015	2
Chalco-Jiaozuo Wanfang Aluminum	Xinjiang	1,000	2016	1
Shandong Xinfu Group	Guizhou	na	2017	3
Chalco	Ningxia	900	na	1
Chalco	Qinghai	500	na	2
Guizhou Qiya Aluminum	Guizhou	400	na	2
Gansu Hongtai Aluminum	Gansu (Phase II)	600	na	2
Qinghai Material Industry Group	Qinghai	300	na	2
Chalco	Gansu	na	na	3
Xinjiang Jiarun	Xinjiang (Phase II)	1,200	na	3
China Power Investment (CPI)	Wuzhengdao	400	na	3

Source: HARBOR Aluminum

*Status: (1) Confirmed, (2) Under study - high odds, (3) Under study - low odds, (4) Remote odds

AVERAGE GLOBAL PRIMARY ALUMINUM OUTPUT COSTS*

(\$/mton; annual data until 2010, monthly data from 2011)

PERIOD	CASH COSTS	TOTAL COSTS	TOTAL + PROFIT
1970	388	477	517
1971	404	498	538
1972	429	524	564
1973	481	574	614
1974	564	653	691
1975	716	799	834
1976	788	869	903
1977	876	981	1,025
1978	973	1,084	1,131
1979	1,073	1,186	1,233
1980	1,231	1,361	1,416
1981	1,280	1,425	1,486
1982	1,207	1,354	1,417
1983	1,166	1,310	1,370
1984	1,124	1,257	1,314
1985	1,083	1,219	1,276
1986	1,002	1,170	1,241
1987	1,007	1,172	1,243
1988	1,131	1,298	1,369
1989	1,201	1,391	1,469
1990	1,376	1,597	1,685
1991	1,277	1,499	1,597
1992	1,156	1,373	1,476
1993	1,084	1,305	1,415
1994	1,136	1,360	1,472
1995	1,226	1,437	1,546
1996	1,231	1,437	1,551
1997	1,235	1,438	1,556
1998	1,223	1,421	1,540
1999	1,270	1,465	1,584
2000	1,321	1,536	1,665
2001	1,247	1,521	1,678
2002	1,204	1,473	1,630
2003	1,238	1,508	1,665
2004	1,395	1,659	1,814
2005	1,493	1,750	1,903
2006	1,681	1,939	2,090
2007	1,732	1,989	2,138
2008	1,980	2,230	2,374
2009	1,615	1,875	2,035
2010	1,802	2,106	2,200
Jan-11	2,027	2,255	2,456
Feb-11	2,027	2,255	2,532
Mar-11	2,027	2,255	2,585
Apr-11	2,168	2,401	2,691
May-11	2,168	2,401	2,610
Jun-11	2,168	2,401	2,593
Jul-11	2,214	2,399	2,534
Aug-11	2,214	2,399	2,569
Sep-11	2,214	2,399	2,569
Oct-11	2,081	2,330	2,500
Nov-11	2,081	2,330	2,500
Dec-11	2,081	2,330	2,500
Jan-12	2,116	2,378	2,548
Feb-12	2,116	2,378	2,548
Mar-12	2,116	2,378	2,548
Apr-12	2,055	2,315	2,485
May-12	2,055	2,315	2,485
Jun-12	2,055	2,315	2,485
Jul-12	2,017	2,274	2,444
Aug-12	2,017	2,274	2,444
Sep-12	2,017	2,274	2,444
Oct-12	2,011	2,268	2,438
Nov-12	2,012	2,270	2,440
Dec-12	2,031	2,296	2,474
Jan-13	2,044	2,310	2,480
Feb-13	2,023	2,288	2,458
Mar-13	1,985	2,250	2,420
Apr-13	1,840	2,102	2,272
May-13	1,807	2,121	2,191

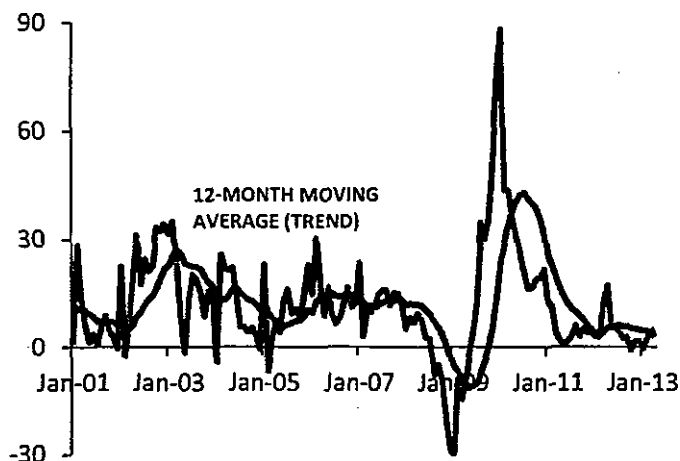
Source: HARBOR Aluminum

*After-casting cost excluding depreciation, sustained capital expenses, working capital and amortization.

Total cost = cash cost + depreciation, sustained capital expenses, working capital and amortization.

1 Global automotive production growing slower y/y than a year ago amid more sustainable rates in the US, China and Japan...Europe improving and Brazil strong

GLOBAL AUTOMOTIVE SECTOR OUTPUT*
(annual % change)



Source: HARBOR Aluminum

*USA, Europe, Japan, China and Brazil weighted by share of total aluminum consumption.

2 Construction sector resilient amid sustained growth in China; elsewhere, the US a bit slower, Japan growing, Brazil modest growth...Europe deep inside contraction

GLOBAL CONSTRUCTION SECTOR ACTIVITY*
(annual % change)

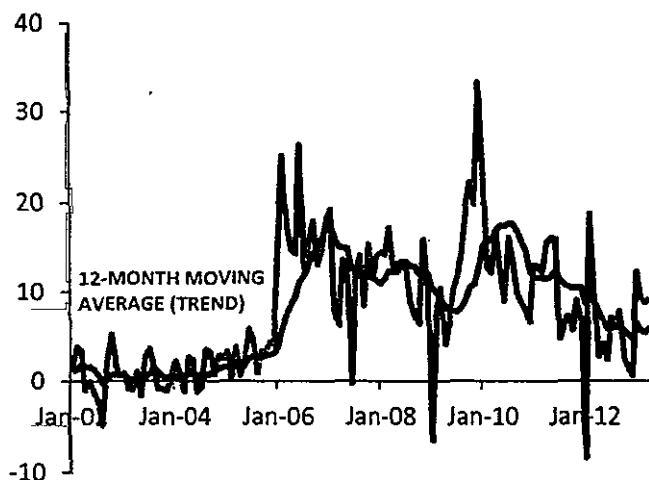


Source: HARBOR Aluminum

*USA, Europe, Japan, China and Brazil weighted by share of total aluminum consumption.

3 Packaging sector being a drag in the US, muted in Europe, Japan now contracting and even Brazil now declining y/y, practically all the growth delivered by China & Southeast Asia

GLOBAL ALUMINUM PACKAGING SECTOR OUTPUT*
(annual % change)

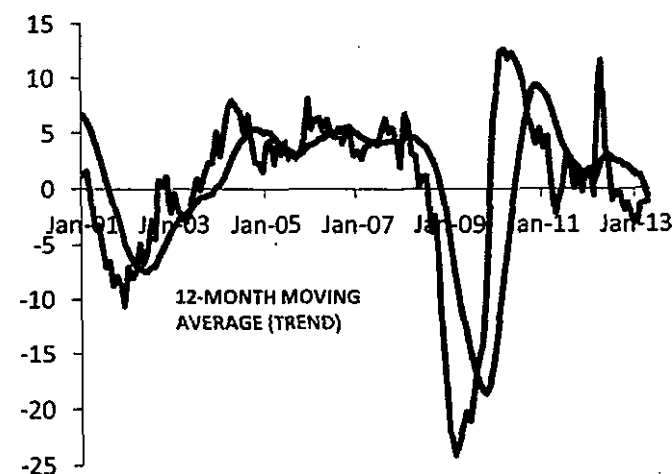


Source: HARBOR Aluminum

*USA, Europe, Japan, China and Brazil weighted by share of total aluminum consumption.

4 ROW's durable goods sector contracting in annual terms for almost a year now mainly pulled down by declines out of Japan & Europe...US & the Emerging World growing

ROW DURABLE GOODS SECTOR OUTPUT*
(annual % change)



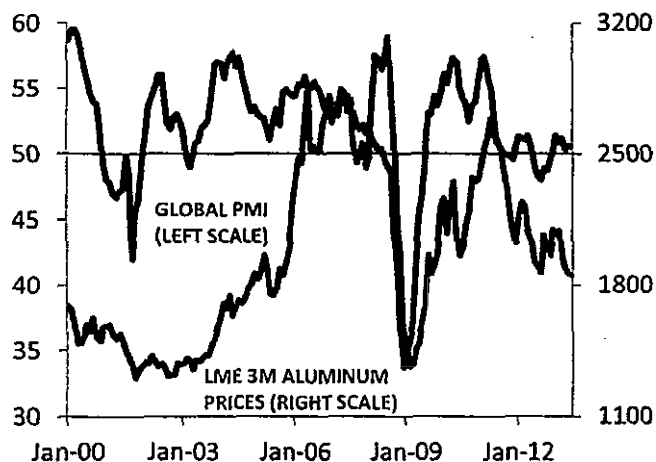
Source: HARBOR Aluminum

*USA, Europe, Japan, China and Brazil weighted by share of total aluminum consumption.

Aluminum Intelligence report

5 Global manufacturing activity (end-user aluminum demand) continued roughly stalled in May with either slower growth rate or stagnation/contraction in almost every region

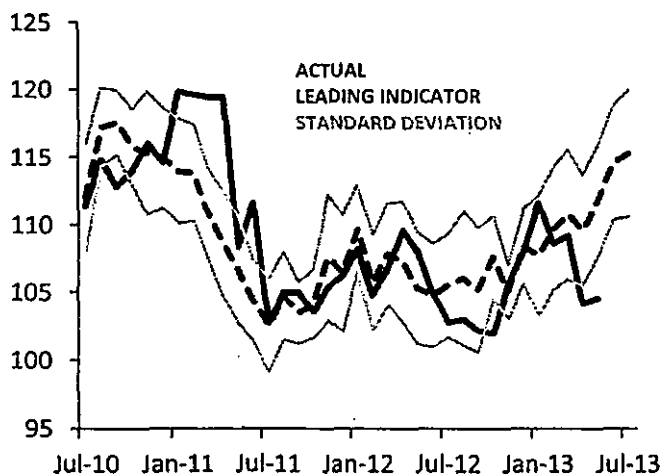
JP MORGAN GLOBAL MANUFACTURING PMI vs LME 3M ALUMINUM PRICES (monthly data)



Source: HARBOR Aluminum with LME and Markit Economics data

7 From a cyclical standpoint, HARBOR's US manufacturing leading indicator signals some kind of manufacturing recovery as the H2 of the year advances...

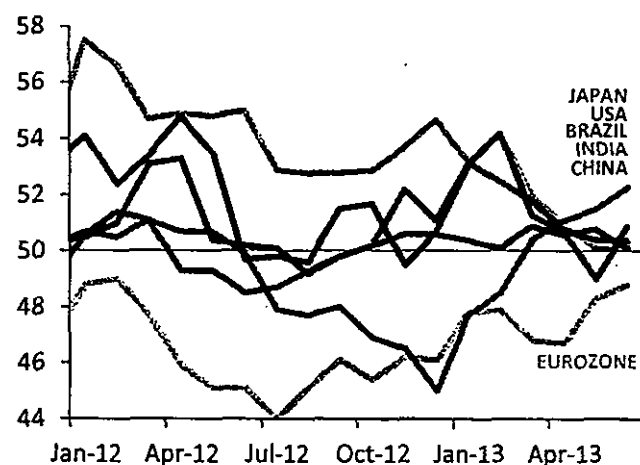
HARBOR's US MANUFACTURING LEADING INDICATOR (monthly data; index, 100 = no growth)



Source: HARBOR Aluminum

6 Main takeaways: China stagnated again (could contract in June), the US entered contraction (and decline at the fastest pace since July 2009) and India didn't grow

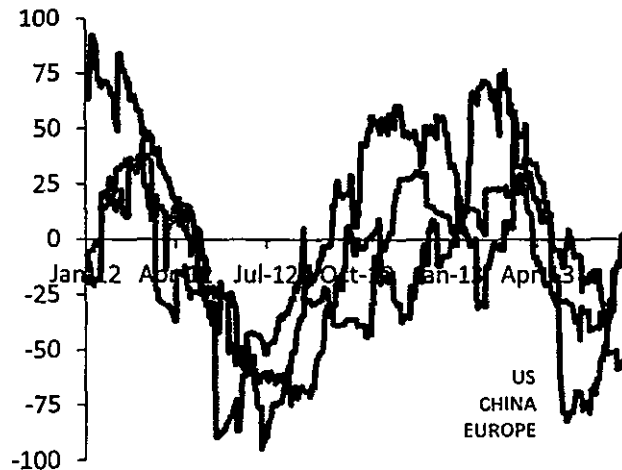
GLOBAL MANUFACTURING ACTIVITY INDEXES (monthly data; index*)



Source: HARBOR Aluminum with Markit Economics and ISM data
*Index above/below 50 signals monthly expansion/contraction

8 ...although concerns over China's credit crunch and monetary stimulus tapering could derail expected recovery in the short term; economic data is still underperforming

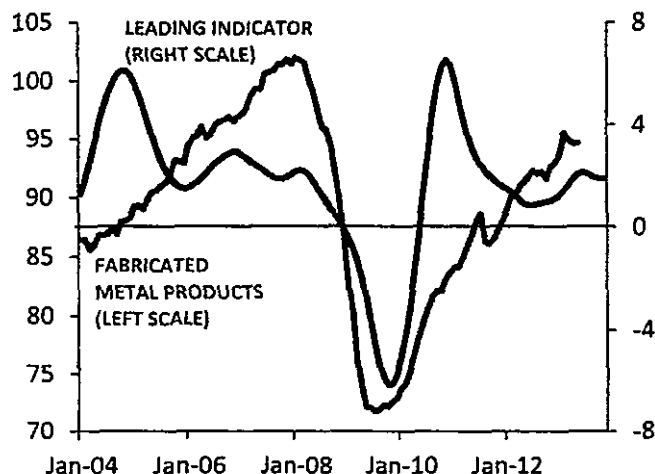
CITIGROUP ECONOMIC SURPRISE INDEX (daily data; index)



Source: HARBOR Aluminum with Bloomberg data

9 US leading indicators are consistent with the US resuming manufacturing growth, although not much acceleration expected ahead

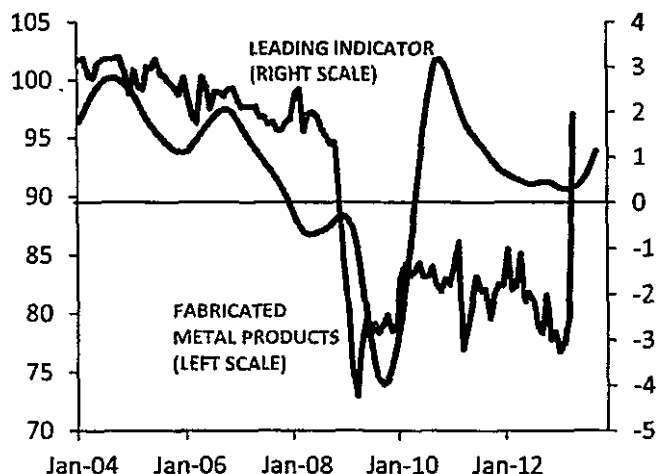
US LEADING ECONOMIC INDICATOR* VS FABRICATED METAL PRODUCTS OUTPUT (index vs annual % change)



Source: HARBOR Aluminum with OECD and Fed data.
*Leading indicator graphed six months forward.

11 According to leading indicator readings, it is reasonable to expect end-user aluminum demand in Japan to continue to gather momentum in H2...

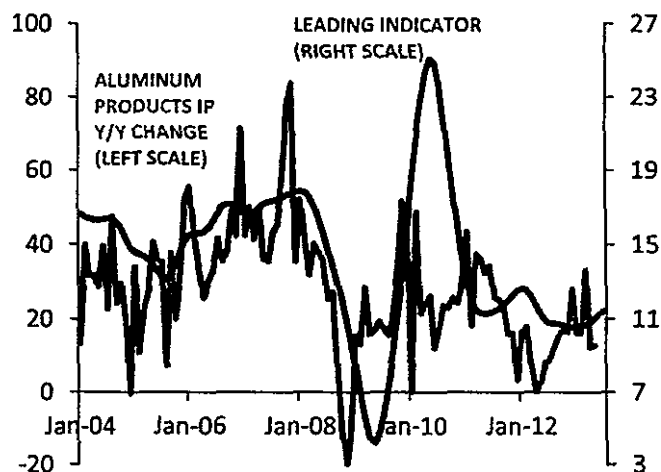
JAPAN LEADING ECONOMIC INDICATOR* VS FABRICATED METAL PRODUCTS OUTPUT (index vs annual % change)



Source: HARBOR Aluminum with OECD and Eurostat data.
*Leading indicator graphed six months forward.

10 In the same line, leading indicators for China suggest modest aluminum demand y/y growth rate acceleration as this year advances

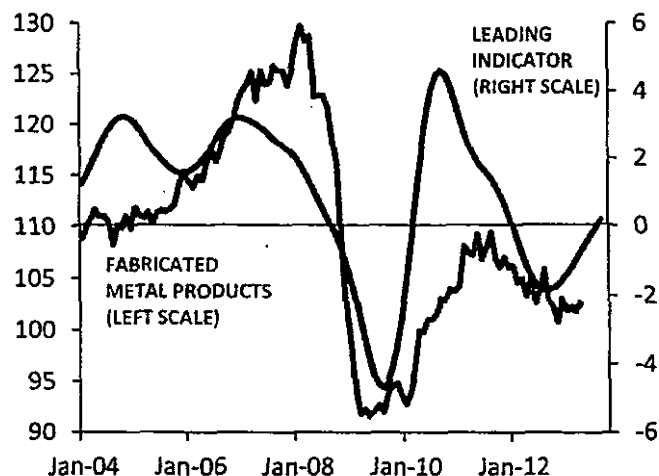
CHINA LEADING ECONOMIC INDICATOR VS ALUMINUM PRODUCTS OUTPUT (annual % change)



Source: HARBOR Aluminum with OECD and NBS data.
*Leading indicator graphed six months forward.

12 ...while Europe has yet to get out from contraction territory, albeit a consistent easing in the pace of contraction could be seen for the remainder of the year

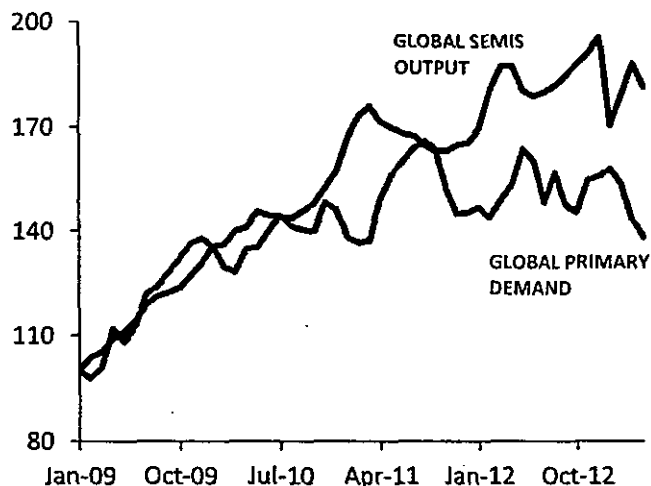
EUROPE LEADING ECONOMIC INDICATOR* VS FABRICATED METAL PRODUCTS OUTPUT (index vs annual % change)



Source: HARBOR Aluminum with OECD and METI data.
*Leading indicator graphed six months forward.

13 Global semi-finished aluminum products shipments roughly stalled in the last two quarters in line with end-user demand...primary demand more than reflecting (de-stocking)

GLOBAL SEMIS OUTPUT* VS APPARENT PRIMARY DEMAND
(index Jan '09=100; seasonally adjusted 2M moving averages)

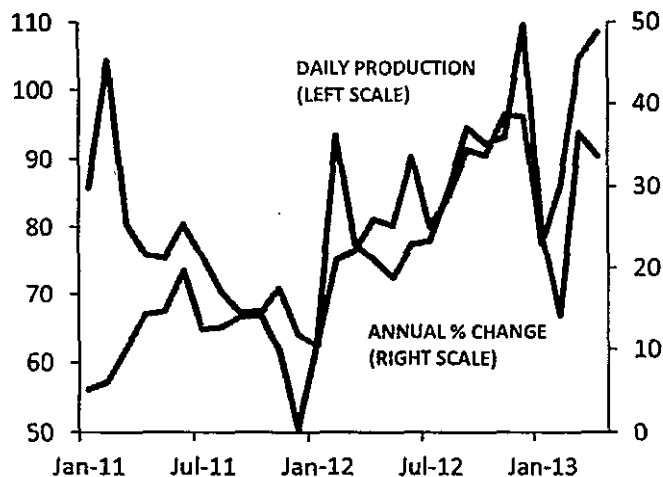


Source: HARBOR Aluminum

*USA, Europe, Japan, China and Brazil weighted by share of total aluminum consumption.

15 In China, official data shows aluminum semis is still reaching new highs amid no major slowdown in B&C and auto sector delivering double-digit annual growth

CHINA TOTAL SEMIS PRODUCTION
(daily production in thousand mtons* vs annual % change)

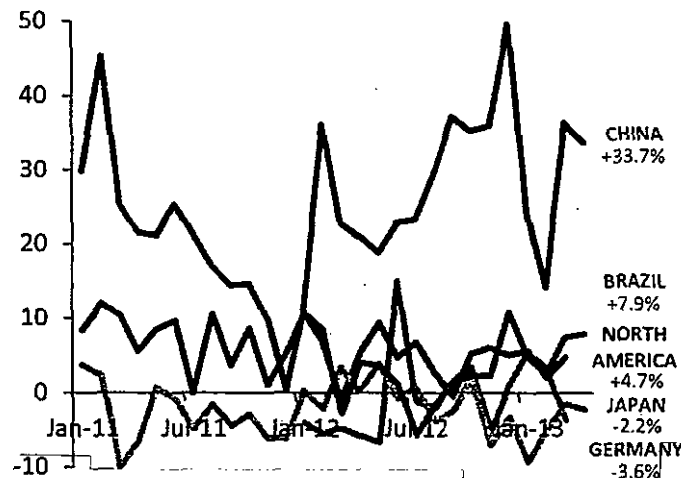


Source: HARBOR Aluminum with CNIA data

*Jan-Feb monthly breakdown estimated by HARBOR

14 In annual terms, all regions other than West Europe and Japan are still delivering growth...although the growth pace has slowed down in the US

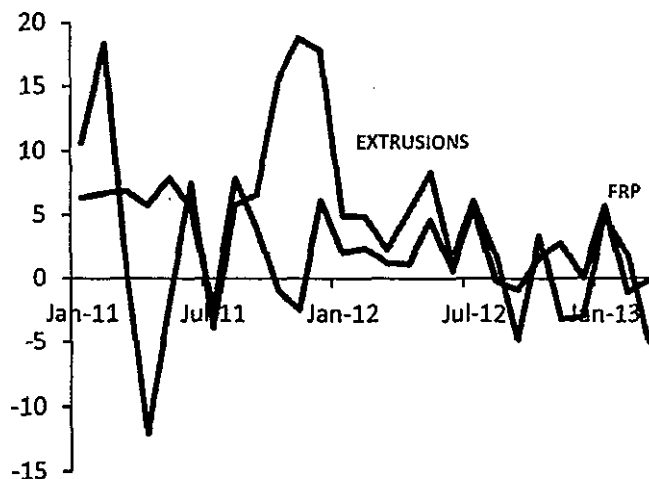
ALUMINUM SEMIS SHIPMENTS GROWTH BY REGION
(annual % change)



Source: HARBOR Aluminum with AA, JAA, GDA and CNIA data

16 Latest official data for North America showed flat rolled products almost stalled y/y (packaging being a drag) in January-May and extrusions barely growing

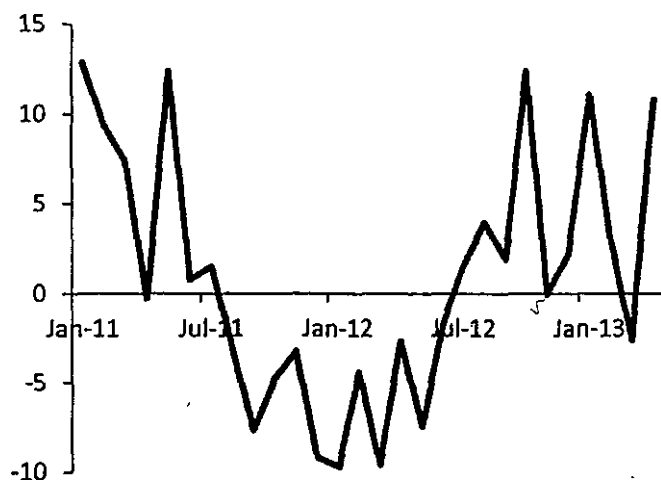
NORTH AMERICA FRP & EXTRUSIONS SHIPMENTS
(annual % change)



Source: HARBOR Aluminum with AA data

13 Latest data from Europe shows flat rolled product shipments have actually delivered some growth in the year partly as transportation has been resilient and packaging not a drag

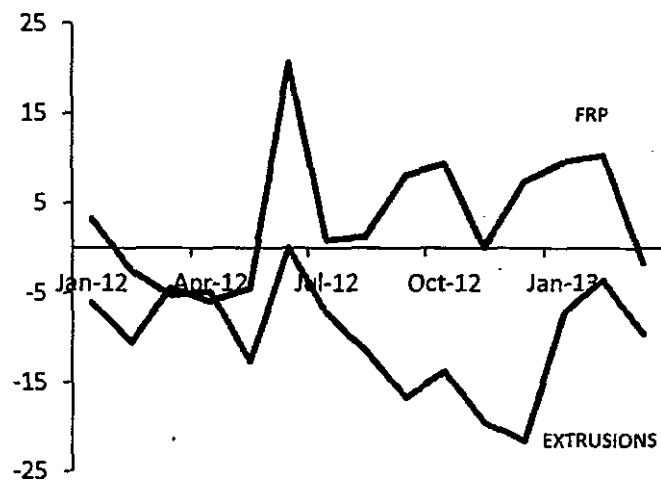
EUROPE ALUMINUM FRP SHIPMENTS
(annual % change)



Source: HARBOR Aluminum

14 However, building & construction sector has yet to find a bottom and extrusions market continues deep into annual contraction zone

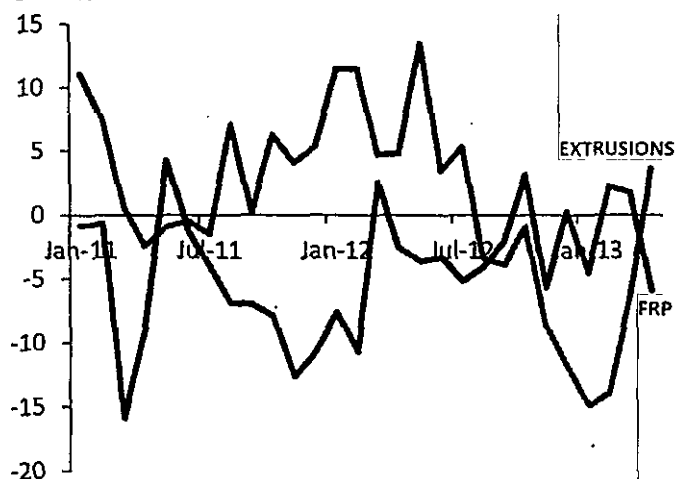
GERMANY ALUMINUM FRP & EXTRUSIONS PRODUCTION
(annual % change)



Source: HARBOR Aluminum with GDA data

15 In Japan, extrusion shipments no longer declining y/y after eight months of contraction, while flat rolled products seem not close to exit contraction zone in the short term

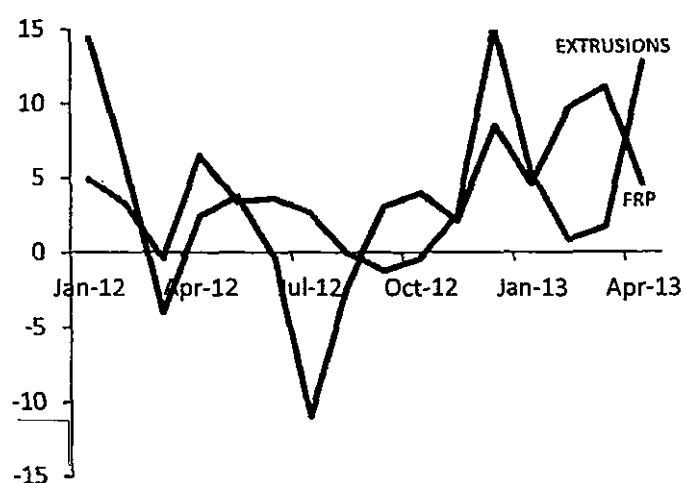
JAPAN FRP & EXTRUSIONS SHIPMENTS
(annual % change)



Source: HARBOR Aluminum with JAA data

16 In Brazil, flat rolled product and extrusion shipments are showing annual growth. FRP have shown some slowdown (packaging a drag), while extrusions have accelerated

BRAZIL FRP & EXTRUSIONS SHIPMENTS
(annual % change)

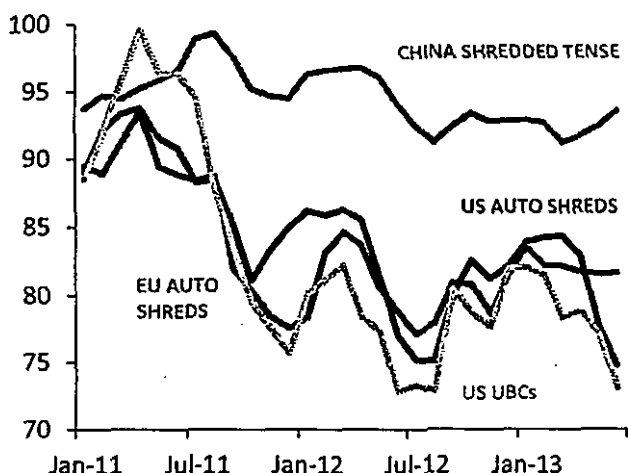


Source: HARBOR Aluminum

Aluminum Intelligence report

17 Aluminum scrap prices were mixed during June, falling in the US, while increasing in China and remaining well supported in Europe ...

REGIONAL ALUMINUM SCRAP PRICES*
(USD cent/lb)



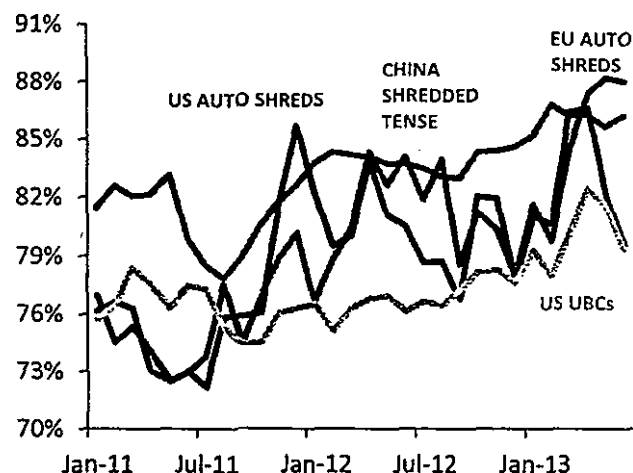
Source: HARBOR Aluminum

*Floated fragmentizer shreds for US and Europe; Shredded Tense Guangdong for China

**June 2013 data estimated

18 ...which resulted in less tight scrap – P1020 transaction price spreads in the US, at the time that spreads in China and Europe sustained near multi-year highs

REGIONAL ALUMINUM SCRAP-P1020 PRICE SPREADS*
(regional scrap price as a % of P1020 transaction price)



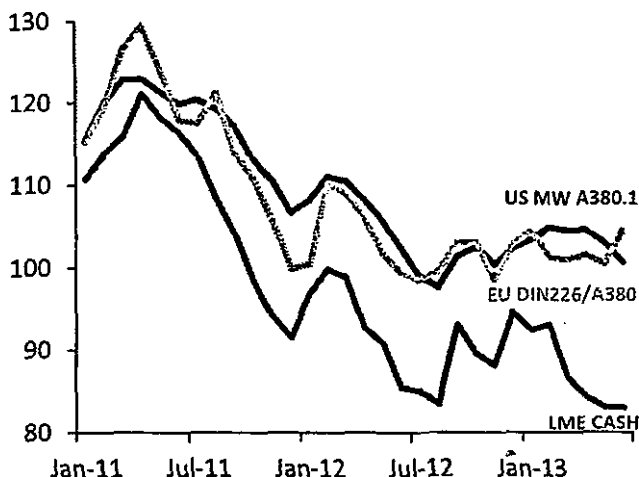
Source: HARBOR Aluminum

*Floated fragmentizer shreds for US and Europe; Shredded Tense Guangdong for China

**June 2013 data estimated

19 In the same tone, secondary alloy prices in the US shed further ground along with the LME, however prices in Europe actually increased during June

REGIONAL ALUMINUM ALLOY PRICES VS LME HIGH-GRADE CASH PRICE (USD cent/lb)

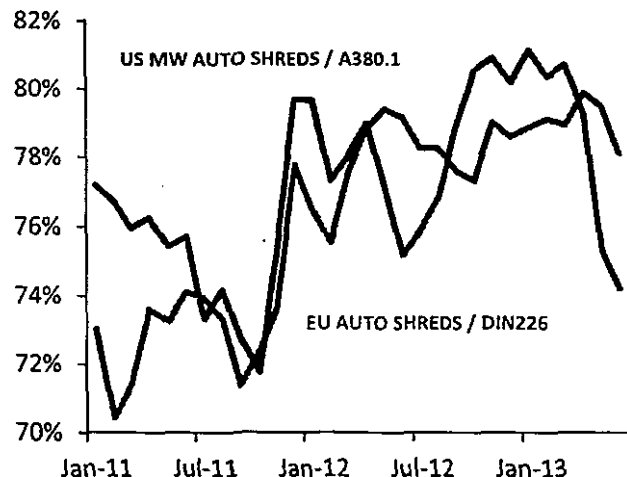


Source: HARBOR Aluminum

**June 2013 data estimated

20 This translates into some relief for secondary producer margins in the US, but more tightness in Europe causing concerns over potential producer bankruptcies

REGIONAL ALUMINUM ALLOY-SCRAP PRICE SPREADS
(regional scrap price as a % of alloy price)



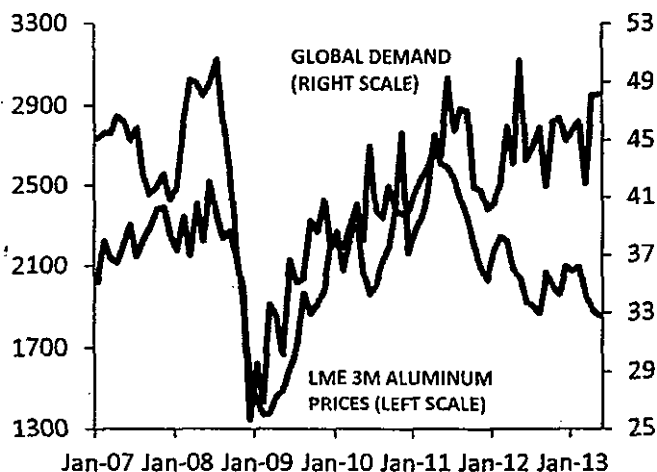
Source: HARBOR Aluminum

**June 2013 data estimated

Aluminum Intelligence report

21 Global primary aluminum consumption grew by 2.8% m/m sa in May, but contracted 4.5% in y/y terms; In Jan-May, demand grew by an average annual rate of 3.5%

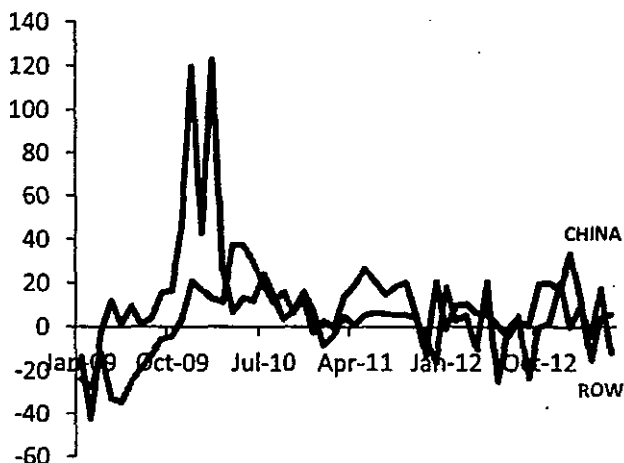
GLOBAL PRIMARY ALUMINUM DEMAND VS LME 3M ALUMINUM PRICES (\$/mton vs annualized million mtons)



Source: HARBOR Aluminum with LME data

22 All the monthly growth registered in May came from China (after a poor Q1), while primary demand in ROW have been nearly stalled since February

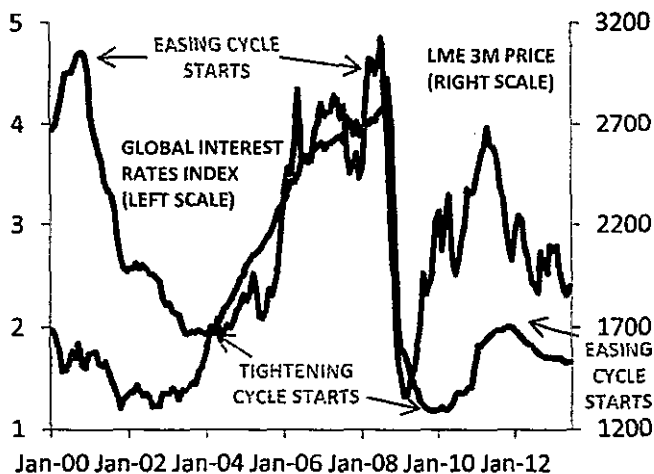
CHINA VS ROW PRIMARY ALUMINUM DEMAND (annual percentage change)



Source: HARBOR Aluminum with IAI, LME, SHFE and China Customs data

23 Odds have risen for the US Fed to start unwinding some of its monetary stimulus (QE) soon, although the start of a tightening cycle (bull for prices) not in the foreseeable future

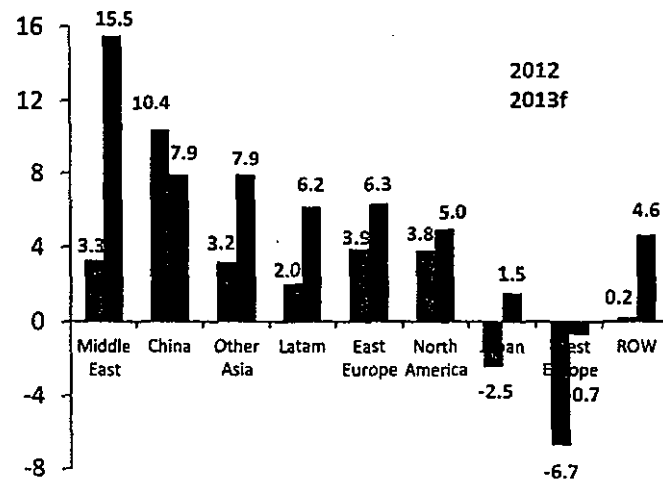
GLOBAL INTEREST RATES vs LME 3M ALUMINUM PRICES (percentage points vs \$/mton)



Source: HARBOR Aluminum with Bloomberg data

24 Headwinds for global aluminum demand are partially cyclical-related and are not structural outside China and Europe; demand outlook still positive. We expect a 6.1% growth this year

PRIMARY ALUMINUM DEMAND GROWTH FORECASTS (annual % change)



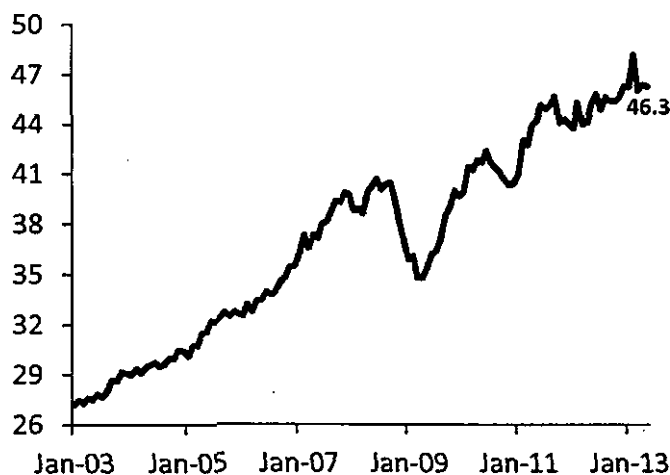
Source: HARBOR Aluminum

Aluminum Intelligence report

25 Global primary output was roughly unchanged in May, decreasing by a marginal 0.2% monthly rate; producers still unable to react enough to negative economics

GLOBAL PRIMARY ALUMINUM DAILY PRODUCTION

(annualized million mtons; monthly data)

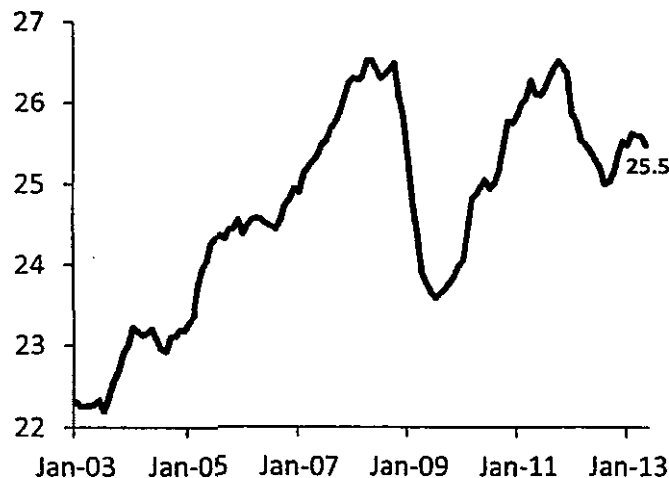


Source: HARBOR Aluminum with IAI data

27 ROW production down 0.4% m/m mainly pulled down by cuts in India (Nalco), Eastern Europe (Rusal and probably other small producers) and North America (Alcoa Baie-Comeau)

NON-CHINA REPORTED PRIMARY ALUMINUM DAILY PRODUCTION

(annualized million mtons)

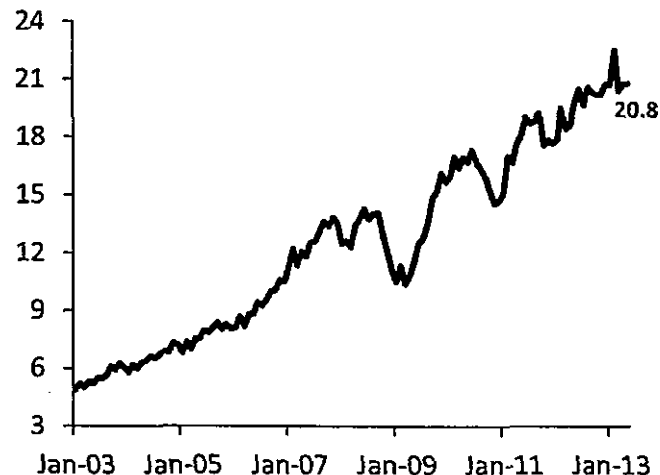


Source: HARBOR Aluminum with IAI data

26 Chinese production was roughly stalled as curtailments mainly in Shaanxi, Guangxi, Henan and Hubei offset increases in the Northwest

CHINA PRIMARY ALUMINUM DAILY PRODUCTION

(annualized million mtons)

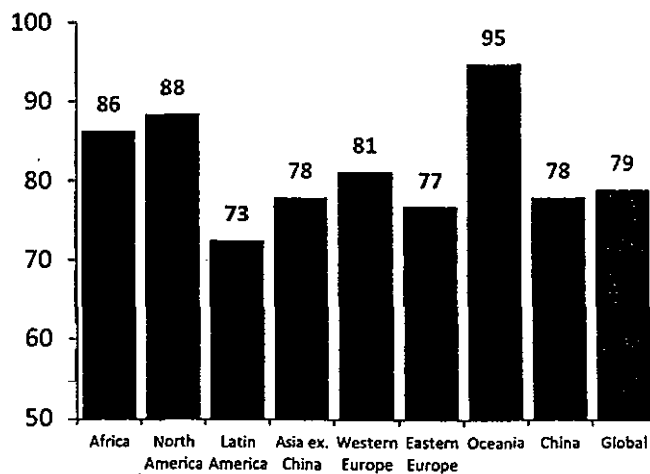


Source: HARBOR Aluminum with IAI data

28 Production is far from falling enough to help reduce the ongoing record overhang of metal in a context of ample idled capacity waiting to come back as soon as prices go back up

ALUMINUM PRODUCTION CAPACITY UTILIZATION RATE BY REGION

(% of capacity utilization; April 2013)

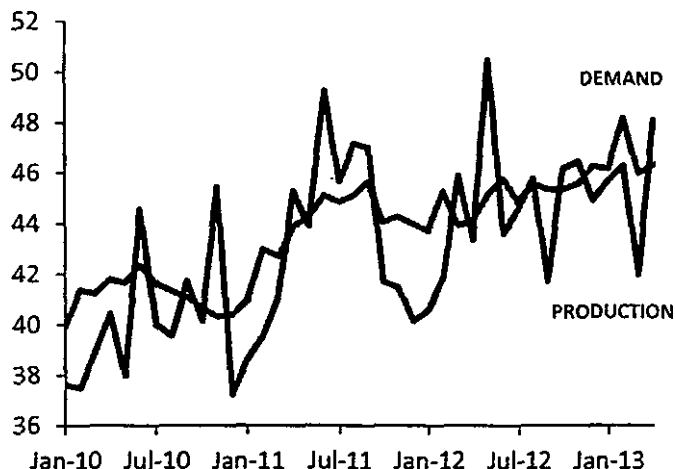


Source: HARBOR Aluminum

Aluminum Intelligence report

29 Global primary aluminum consumption increased in April, recovering from a significant decline experienced the prior month...

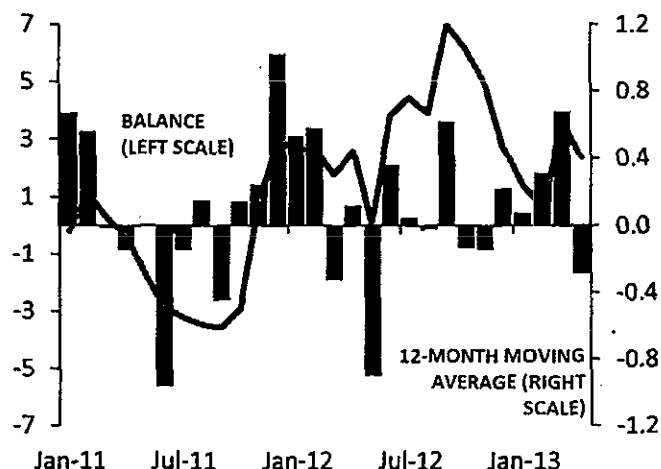
GLOBAL PRIMARY ALUMINUM PRODUCTION & DEMAND
(annualized million mtons)



Source: HARBOR Aluminum

30 ...leading the global primary aluminum market out of monthly deficit, after being in monthly surplus since last December...

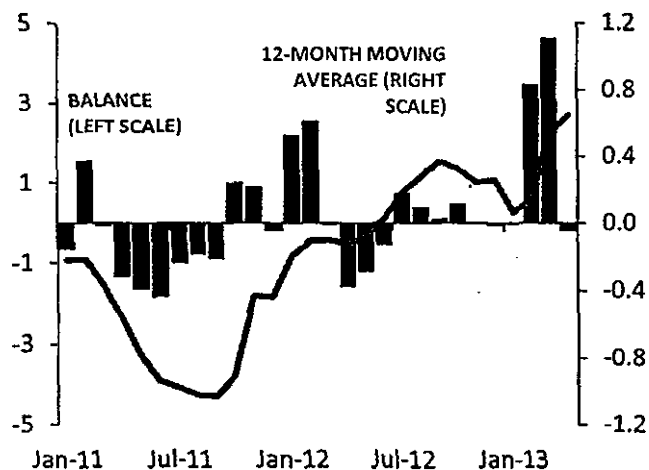
GLOBAL PRIMARY ALUMINUM MONTHLY MARKET BALANCE (annualized million mtons)



Source: HARBOR Aluminum

31 ...mainly as China came back into balance as primary consumption started to recover...

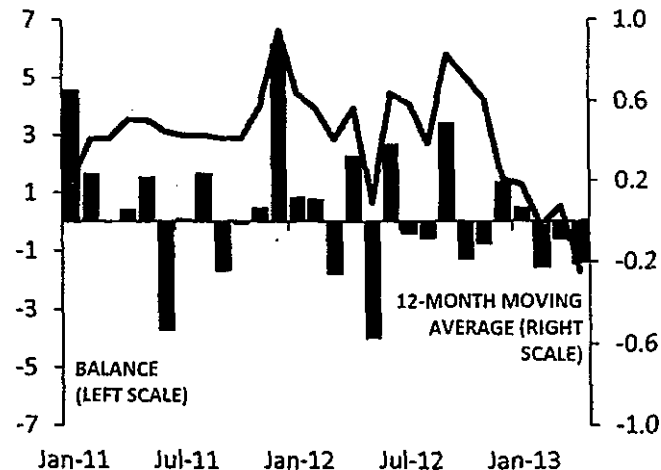
CHINA PRIMARY ALUMINUM MONTHLY MARKET BALANCE (annualized million mtons)



Source: HARBOR Aluminum

32 ...and as ROW's continued to experience small monthly deficits on the back of some demand growth and modest production decline

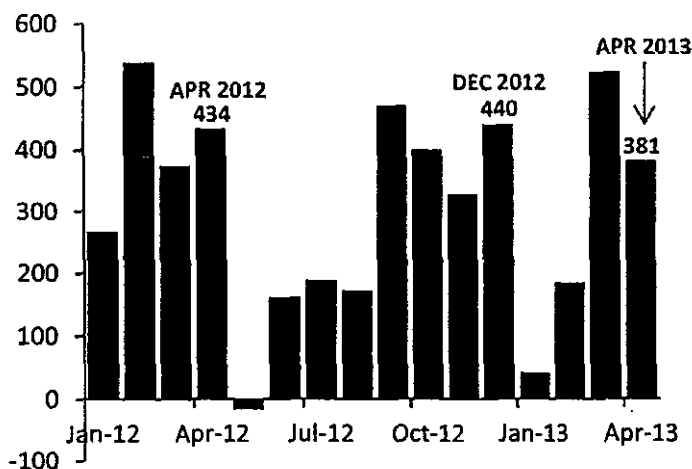
NON-CHINA PRIMARY ALUMINUM MONTHLY MARKET BALANCE (annualized million mtons)



Source: HARBOR Aluminum

29 In January-April 2013, the global primary aluminum market accumulated a surplus of 381 ktons, down by 12.2% vs the same period of 2012

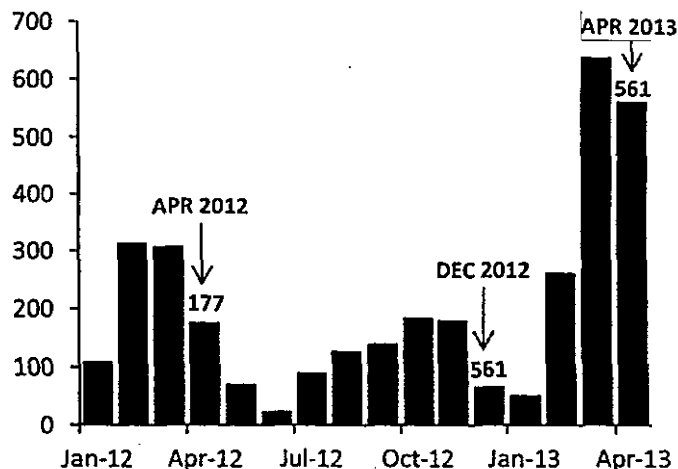
GLOBAL PRIMARY ALUMINUM YEAR-TO-DATE MARKET BALANCE (thousand mtons)



Source: HARBOR Aluminum

30 China delivered a surplus of 561,412 tons (vs 176,828 tons in Jan-Apr 2012)...

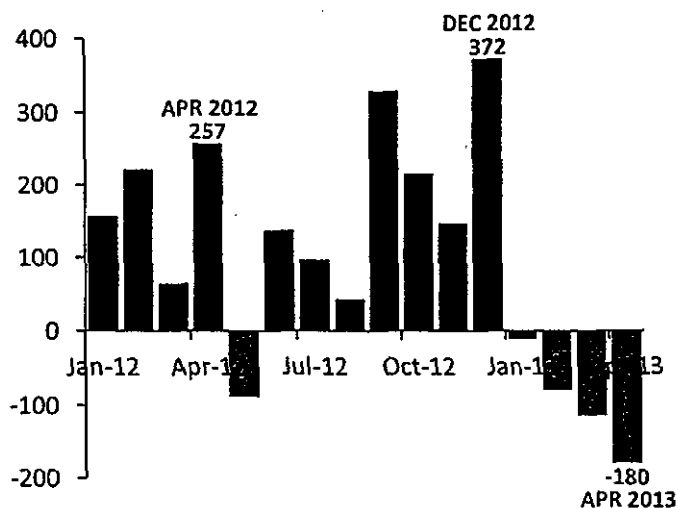
CHINA PRIMARY ALUMINUM YEAR-TO-DATE MARKET BALANCE (thousand mtons)



Source: HARBOR Aluminum

31 ...while ROW experienced a deficit of 180,230 tons (vs a surplus of 256,985 tons in Jan-Apr 2012)

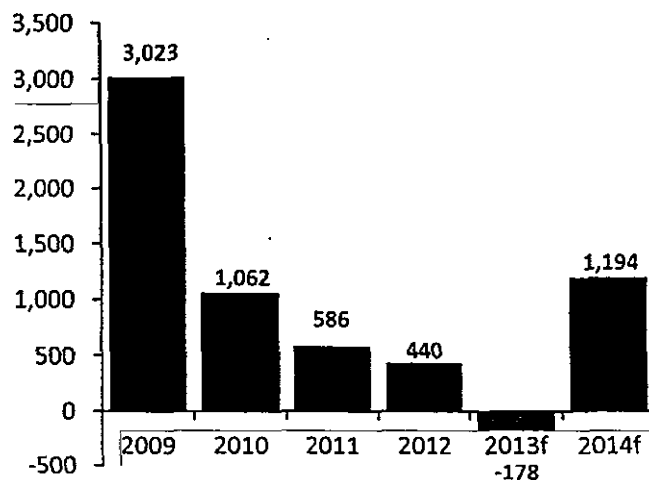
NON-CHINA PRIMARY ALUMINUM YEAR-TO-DATE MARKET BALANCE (thousand mtons)



Source: HARBOR Aluminum

32 However, the unprecedented overhang of metal not likely to be worked out in the short/mid term. We estimate a deficit of 178,000 mtons in 2013 and 1.1 million tons surplus in 2014

GLOBAL PRIMARY ALUMINUM MARKET BALANCE FORECASTS (thousand mtons)

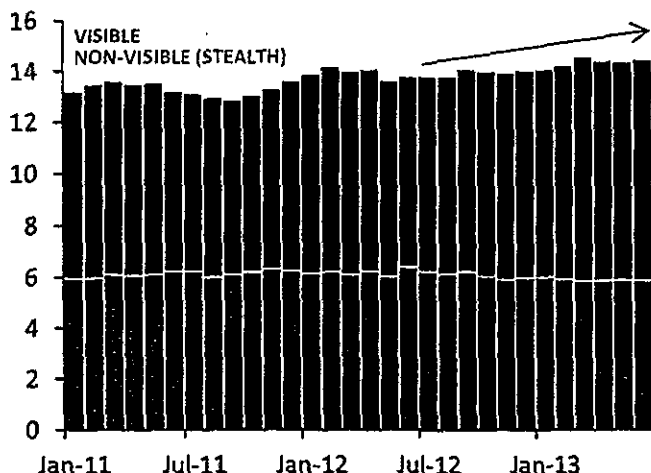


Source: HARBOR Aluminum

Aluminum Intelligence report

33 After a slight decline in May, global primary aluminum inventories (visible + stealth) are set to increase again near to all-time highs in June...

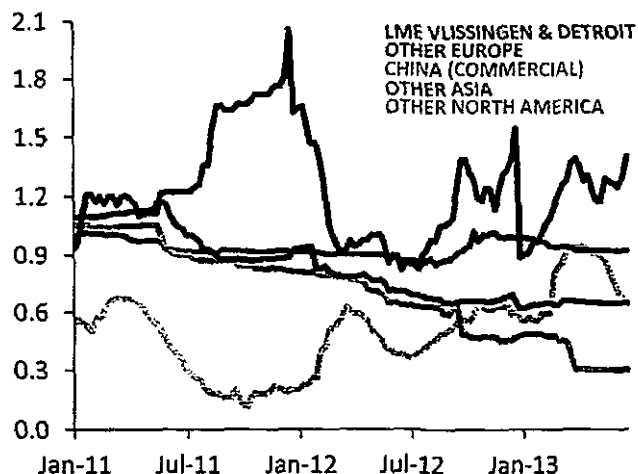
GLOBAL TOTAL PRIMARY ALUMINUM INVENTORIES
(million mtons)



Source: HARBOR Aluminum
*June 2013 data estimated

35 It is worth to note that visible aluminum inventories are not increasing outside of these two locations. In China, inventories should decline for a third consecutive month

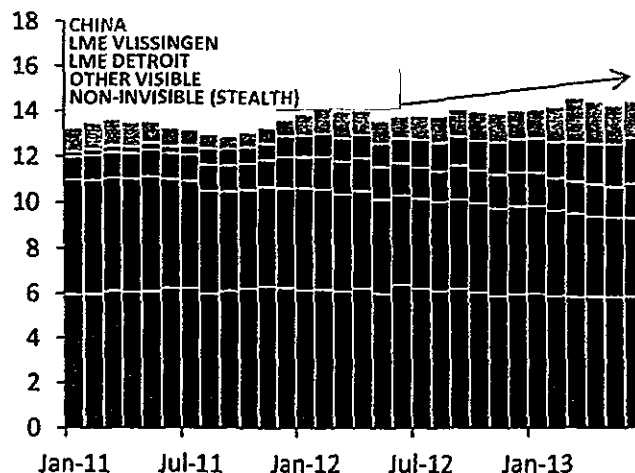
COMMERCIAL PRIMARY ALUMINUM INVENTORIES
ON-WARRANT BY REGION (weekly data; million mtons)



Source: HARBOR Aluminum with LME, SHFE and SMM data

34 ...given net inflows in June of 136,450 mtons in Detroit (HARBOR understands mainly two traders put metal in) and 132,375 mtons in Vlissingen (Netherlands)

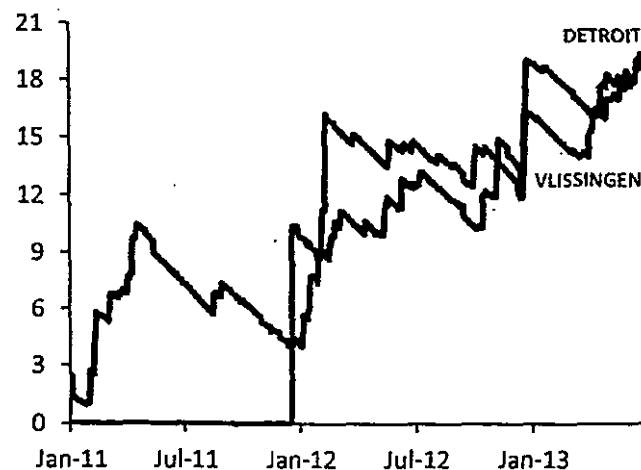
GLOBAL TOTAL PRIMARY ALUMINUM INVENTORIES
(million mtons)



Source: HARBOR Aluminum with LME, IAI, Marubeni, SHFE and SMM data.
*LME, primary producers reporting to IAI, Japanese ports, SHFE, SRB, Wuxi & Nanhai.
***June 2013 data estimated

36 Load out queues at LME Detroit & Vlissingen warehouses have lengthened to new record highs (20 months in Vlissingen and 19 months in Detroit)

QUEUES FROM KEY LME LOCATIONS
(max. delivery time in months for a warrant if canceled today)

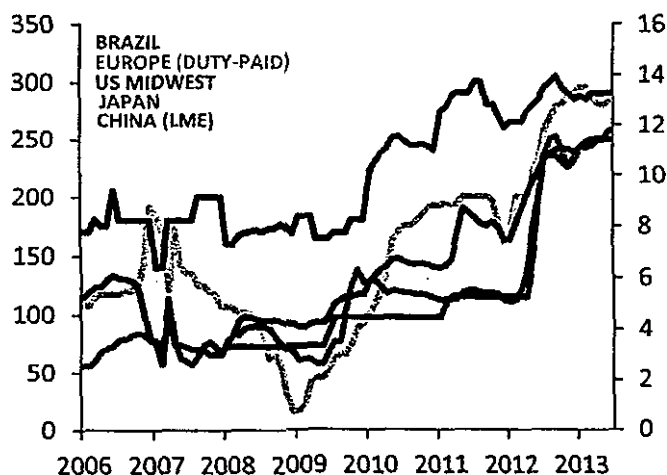


Source: HARBOR Aluminum

Aluminum Intelligence report

37 Lengthening queues= further upward pressure for global spot aluminum premiums. Spot premiums for ingot in the US Midwest are now quoted at a record 12.00-13.00 cent/lb range

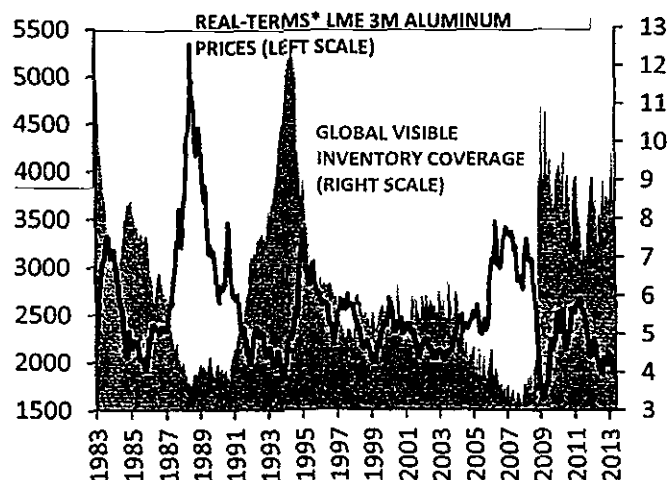
GLOBAL SPOT ALUMINUM P1020 INGOT PREMIUMS
(monthly averages in \$/mton vs cent/lb; equivalent scales)



Source: HARBOR Aluminum

38 LME prices will hardly exit the lower end of the typical cycle range if inventories in terms of weeks of consumption don't decline notably and consistently (not likely in the short term)

VISIBLE INVENTORY / DEMAND COVERAGE VS REAL-TERMS* LME 3M PRICES (\$/mton vs weeks of consumption)

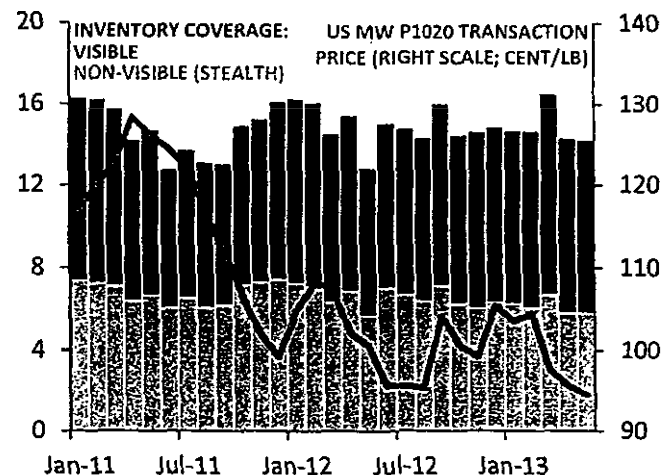


Source: HARBOR Aluminum with LME data

*Inflation-adjusted prices in March 2013 US dollar terms

39 Global total inventories (visible + stealth) in terms of week of consumption roughly stalled at 14.7 weeks in May....metal overhang not being worked out

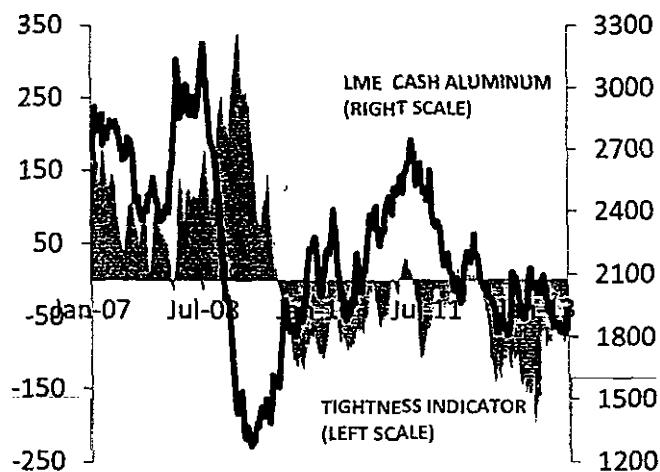
GLOBAL PRIMARY ALUMINUM INVENTORY DEMAND COVERAGE VS MW P1020 (inventories in woc vs cent/lb)



Source: HARBOR Aluminum with LME data

40 HARBOR's proprietary measure suggests at the margin the physical market remains tight, but not enough in a context of the ongoing record metal overhang.

HARBOR'S ALUMINUM MARKET TIGHTNESS INDICATOR* VS LME CASH ALUMINUM PRICES (index vs \$/mton)

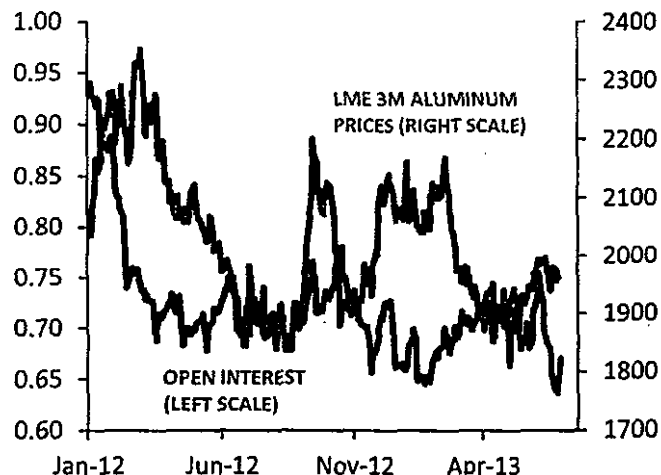


Source: HARBOR Aluminum

*Index below (above) zero signals market conditions tightening (loosening) at the margin. Considers inventory movements, forward curve spreads, regional premiums, alumina price trends, and SHFE-LME arbitrage, among other factors.

41 Prices have touched levels as low as \$1,762 per mton (not seen since mid 2009) in June as a new round of heavy long liquidation by funds and increasing short selling emerged....

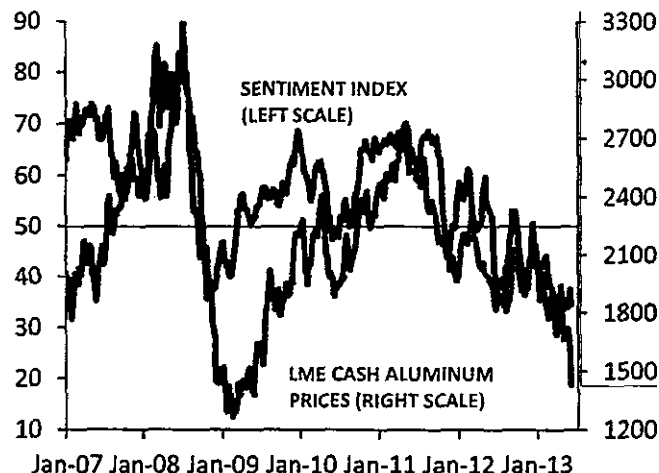
LME 3M ALUMINUM PRICES VS FUTURES OPEN INTEREST
(\$/mton vs million contracts)



Source: HARBOR Aluminum with LME and Bloomberg data

42 ...as market sentiment towards aluminum continues to be strongly bearish given overproduction, overcapacity and an unprecedented overhang of metal ...

HARBOR's ALUMINUM MARKET SENTIMENT INDEX*
(weekly data; index vs \$/mton)

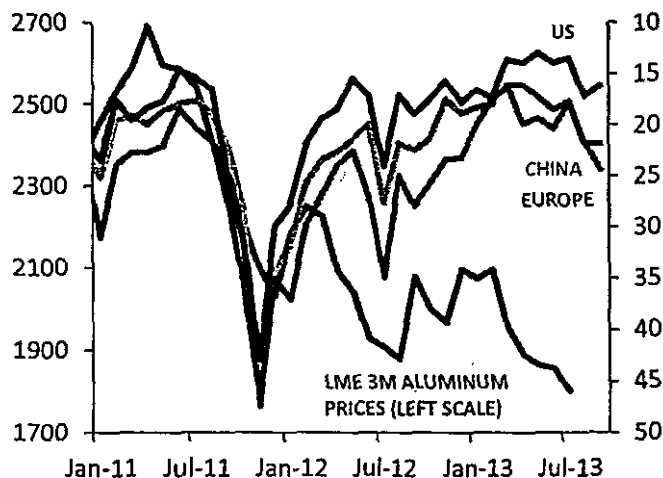


Source: HARBOR Aluminum with LME data

*Index above (below) 50 signals market sentiment is bullish (bearish)

43 ...in a context of rising global market fear amid rising concerns over economic growth (mainly in China), and the Fed potentially starting to taper its monetary stimulus

LME 3M ALUMINUM PRICES VS MARKET CONFIDENCE INDEXES
(monthly averages; \$/mton vs volatility indexes*)

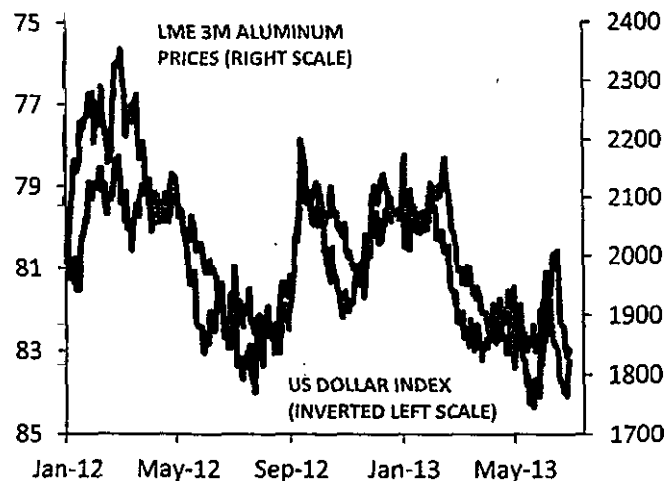


Source: HARBOR Aluminum with LME and Bloomberg data

*Volatility indexes graphed two months forward; inverted right scale

44 ...which prompted the US dollar to strengthen in the second half of June (bearish for prices) after having reached a four-month low earlier in the month

LME 3M ALUMINUM PRICES VS US DOLLAR INDEX
(\$/mton vs index)



Source: HARBOR Aluminum with LME and Bloomberg data

Aluminum Intelligence report

45 The LME futures banding report shows open positions roughly balanced for July but still with a bearish bias for August-September...

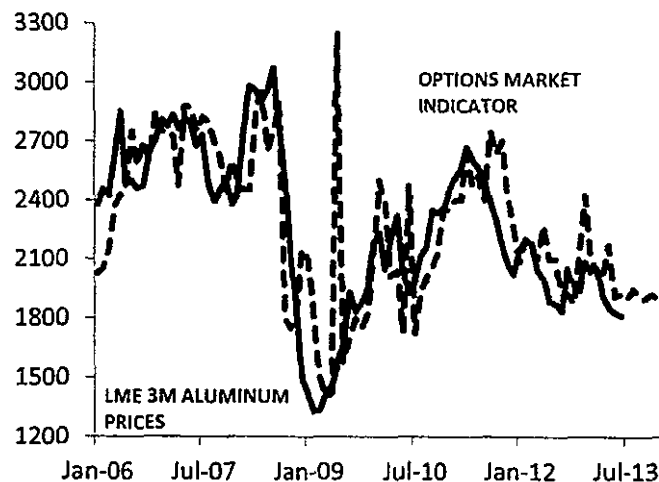
LME FUTURES BANDING REPORT (number of players with open positions as % of total open interest prompt each month)

POSITION	%	JUL	AUG	SEP
Long	5 - 9%	3	4	4
Long	10 - 19%	0	0	0
Long	20 - 29%	1	0	0
Long	30 - 39%	0	0	0
Long	40% >	0	0	0
Short	5 - 9%	1	4	0
Short	10 - 19%	2	1	1
Short	20 - 29%	0	0	0
Short	30 - 39%	0	0	0
Short	40% >	0	0	0

Source: HARBOR Aluminum with LME data
*As of June 27, 2013.

43 ...which is in line with LME options market no longer pricing on any meaningful aluminum price recovery for the balance of the year

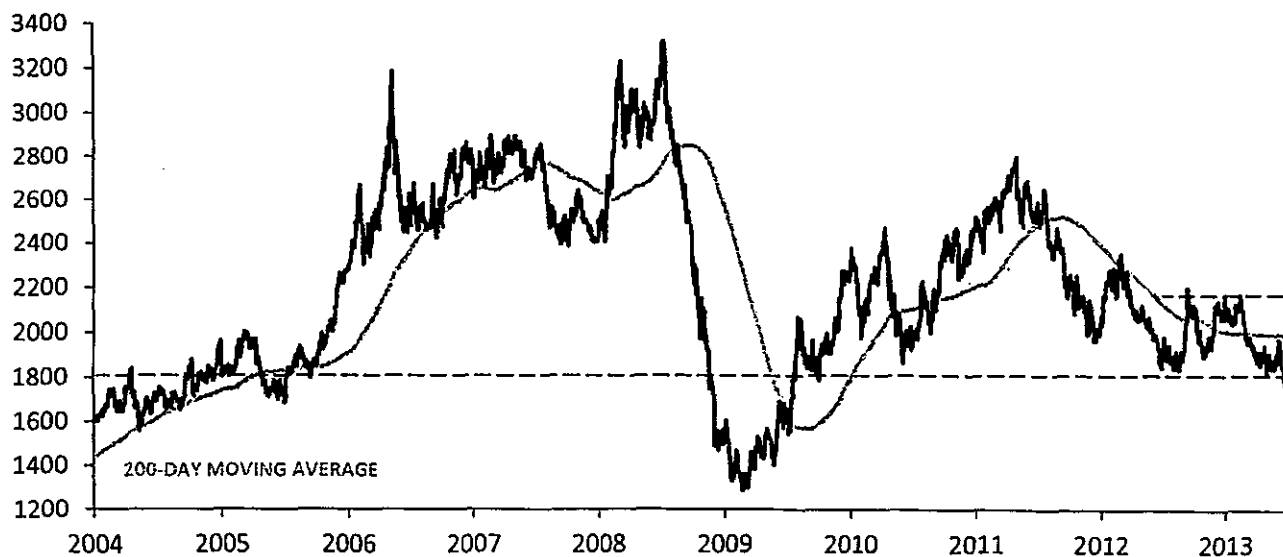
HARBOR'S LME OPTIONS MARKET PRICE INDICATOR (\$/mton)



Source: HARBOR Aluminum

47 A new leg down is possible in the short term if prices don't bounce back above \$1,832 per mton (83 cent/lb). From a technical standpoint, aluminum prices have confirmed failure of the multi-year long support of \$1,832 per mton (83 cent/lb) which opens the downside to \$1,650 per mton (74.8 cent/lb) or lower. A cyclical-related bottom more likely as the year advances.

LME 3M ALUMINUM PRICE TECHNICALS
(\$/mton; daily data)



Source: HARBOR Aluminum with LME data