



Bearish sentiment deepens; bounce seen later

> Aluminum Price Outlook / Nov '08

> HARBOR Intelligence / 8409 Crown Wood Dr, Laredo, TX, 78045, USA
(210) 568-7705



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Bearish sentiment deepens; bounce seen later

> **Lower prices, more forecast downgrades.** Aluminum prices are down 45% from their July's peak. In three months, aluminum prices gave back three years of gains. Prices fell as a result of an unprecedented market surplus in a context of plummeting demand volumes, meaningful but insufficient aluminum output cuts and still near record high risk aversion (fear). Spot aluminum prices stand at \$1,700 per mton (77 cent/lb), the lowest deviation vs the consensus long term price forecast of \$2,680 per mton (121 cent/lb). Analysts expect prices to revert to normal levels (at or above the long term price forecast) until the IVQ '09.

> **Pessimism among analysts intensified...** According to our *HARBOR Aluminum Market Sentiment Index*, sentiment among analysts, consumers, producers and traders has deepened into bearish territory, consistent with sliding LME aluminum prices. Of the 14 analysts that updated their '09 aluminum price forecasts in November, only 36% of them expect prices to average above \$2,300 per mton (104 cent/lb), this is way lower than 79% in October. In fact, the average '09 expected aluminum price in November fell to \$2,357 per mton (106 cent/lb) from \$2,553 per mton (116 cent/lb) in October, almost \$200 per mton (4 cent/lb) in just one month. The most bearish analyst expects prices to average \$1,700 per mton (77 cent/lb) next year and the most bullish to average \$2,700 per mton (122 cent/lb).

> **...but consensus long term price forecast remains at \$2,680 per mton (130 cent/lb)** Although analysts have sharply downgraded their '09 aluminum price forecasts, their long term forecast has not been modify considerably. Long term aluminum prices forecasts is seen as the lowest sustainable price for aluminum in the long run. In November, consensus long term price forecast was \$2,680 per mton (121 cent/lb), while spot prices at the close of the month were trading at \$1,700 per mton (77 cent/lb), the sharpest deviation in our records. The above implies that analysts don't see today's prices as sustainable. In fact, consensus expects cash prices to return to long term price forecast levels in the IVQ '09. The LME option market seems to have a similar view as it seems to expect prices to trade within the \$2,000-\$4,000 per mton (90-180 cent/lb) by the end of '09, much higher levels than today.

> **Our View:** Stress experienced on the global financial system has skyrocketed risk aversion (fear) to unprecedented levels. Record risk aversion/fear has greatly intensified the underlying contraction process on global industrial output and sharpened de-stocking in all the supply chain. Demand has fallen so much that aluminum output cuts will not be enough to stop the surplus, especially given Beijing's strategy to support the aluminum industry via export rebates and energy subsidies. We don't see any other way for the aluminum big surplus to stop until demand turns around. Demand will not bounce significantly at least in the IQ '09 judging by leading indicators. We should expect lower lows before experiencing higher highs. We see prices heading toward \$1,600 per mton. Nevertheless, we expect global aluminum demand to experience a "V" form recovery sometime in the IIIH '09 given unprecedented capital injections to the global banking system that should bolster confidence, strong global fiscal spending and stimulus, near record low global interest rates, strong long term global aluminum demand growth especially in emerging countries and heavy global re-stocking needs. It is no time to buy right now...but certainly once our *Aluminum Well Supplied Index* and global interest rates confirm aluminum demand and price have bottomed, it will represent great value to lock in '10 prices.

> **Our Forecasts.** Our '09 price forecast under our recession scenario (45% odds) has been downgraded to \$2,140 per mton (97 cents/lb), under our realistic scenario (45% odds) to \$2,535 per mton (115 cents/lb), and under our risk scenario (10% odds) to \$2,870 per mton (130 cents/lb). We see much higher prices from '10 on.

Bearish factors have intensified and will continue to drive the global aluminum market...bull factors are mid-long term in nature

HARBOR's VIEW OF THE FACTORS AFFECTING PRICES:

Bearish Factors are strong for short term:

- A) Aluminum market experiencing an unprecedented surplus
- B) Global aluminum demand is on a free fall given that near record high risk aversion has intensified underlying global manufacturing contraction and de-stocking
- C) Global visible inventory levels have increased from 3.25 weeks in IIQ '07 to 4.4 weeks in IIIQ '08 and could increase more in the IV' '08
- D) US dollar has continued to reach record highs
- E) Energy and the entire commodity complex in a downward trend
- F) Risk aversion remains at high levels
- G) Alcoa, Chinese and international spot alumina prices continue to reach new lows
- H) *HARBOR's Aluminum Market Sentiment Index* deepening into bearish territory
- I) Insufficient output cuts in China and the Western World
- J) Unfavorable Chinese export policy modifications (lower export tax to primary and even some export tax rebate increase to aluminum products)

Bullish Factors are mainly mid to long term in nature :

- A) China's plan to buy up to 1.3 million tons to help support industry
 - B) Up to 3.7 million tpy of aluminum output capacity and 9.0 million tpy of alumina have been curtailed
 - C) Unprecedented capital injections to the global financial system, strong global fiscal spending and stimulus plans, near record low global interest rates
 - D) Strong underlying aluminum demand growth from emerging countries (led by China)
 - E) Aluminum undervaluation vs rest of base metals, some substitute materials and energy prices
 - F) Higher structural opex and capex costs
 - G) More pricing power from producers as a result of industry consolidation
 - H) World's dependence on high cost Chinese net aluminum exports
 - I) Expectations of structural gains of the yuan vs the US dollar
 - J) Insufficient global energy supplies
 - K) Delays in mining, refinery and smelting expansions
 - L) More than 35% of global aluminum output is under water
 - M) A reversion in the SHFE-LME aluminum price spread from negative to positive
 - N) Strong restocking needs
-

Aluminum prices have fallen 45% from their historic July's peak....
in three months prices gave back three years of advances

LME 3M ALUMINUM PRICES

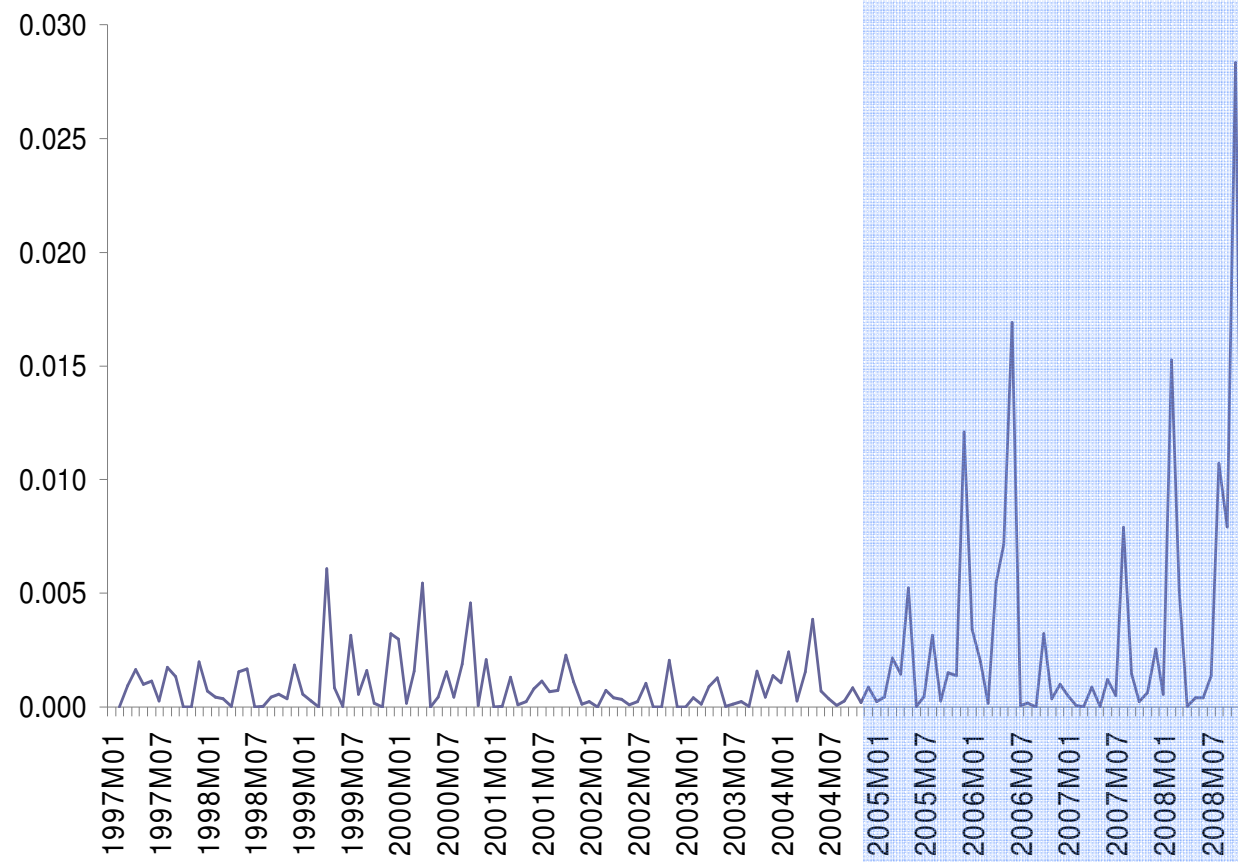
(daily quotes; \$/ton; €/euro)



Source: HARBOR intelligence with LME Data

This type of price movements is part of the structural change prices underwent in '05...prices go up and down with more violence than before

LME 3M ALUMINUM PRICE VOLATILITY*



*calculated by applying the monthly squared change of the natural logarithm of prices

Source: HARBOR intelligence

Aluminum prices are in a long term upward trend has been derailed by plummeting demand and record risk aversion

ALUMINUM 3M LME PRICES

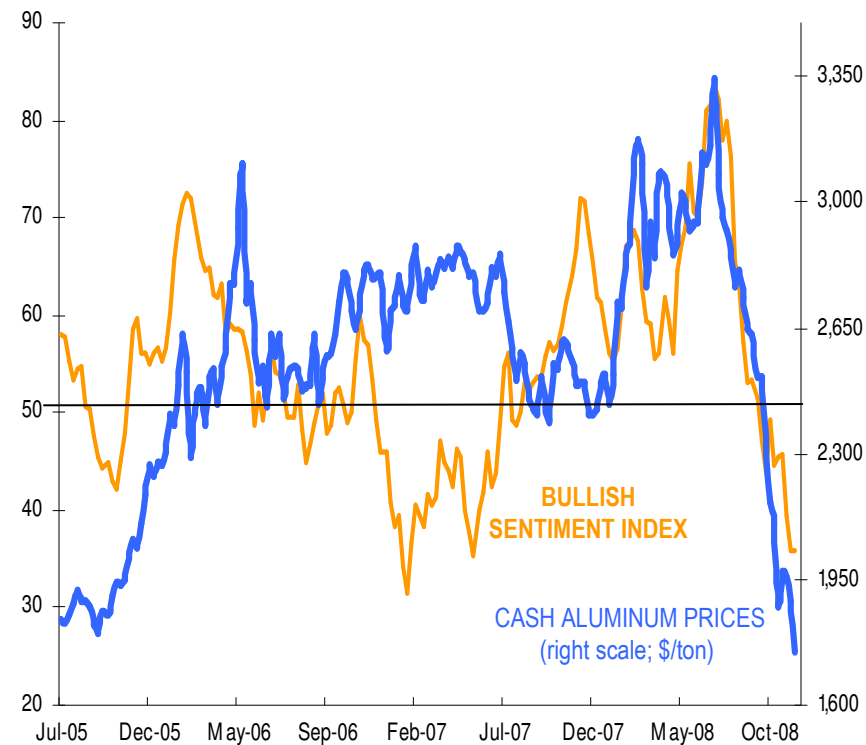
(MONTHLY CLOSE; \$/ton)



Bearish sentiment has deepened...

HARBOR'S ALUMINUM BULLISH MARKET SENTIMENT INDEX VS ALUMINUM LME CASH

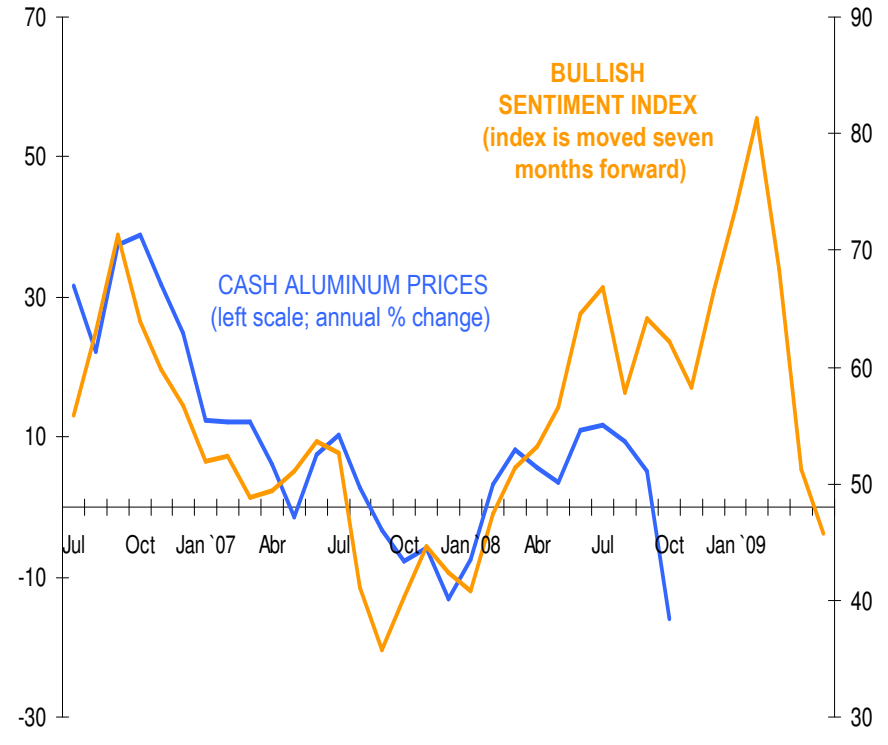
(bullish comments as % of total analysts comments in previous eight weeks)



Source: HARBOR intelligence

HARBOR'S ALUMINUM BULLISH MARKET SENTIMENT INDEX AS LEADING INDICATOR

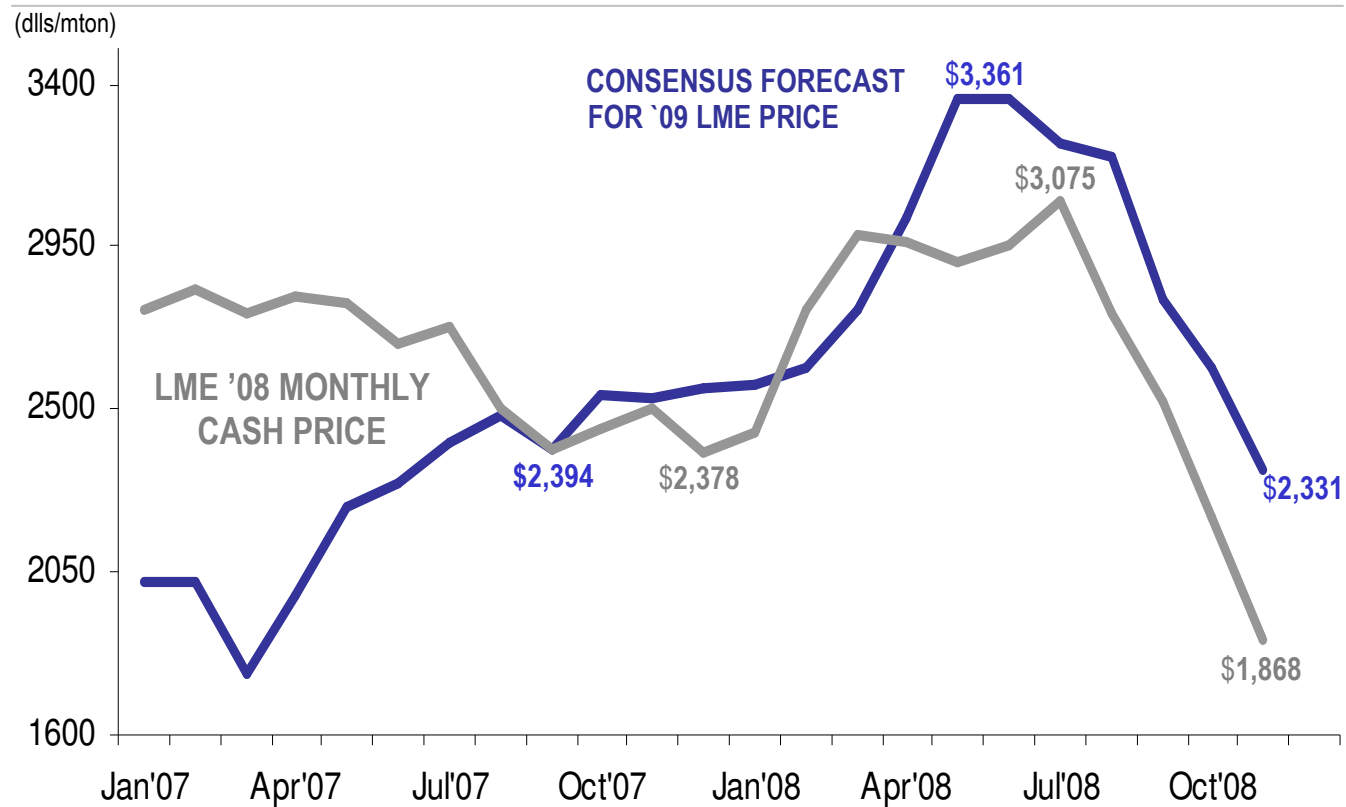
(bullish comments as % of total analyst comments in previous eight weeks)



Source: HARBOR intelligence

...as a result, analysts continue to downgrade '09 price forecasts

LME '08 ALUMINUM MONTHLY CASH PRICE vs
CONSENSUS ALUMINUM PRICE FORECAST FOR '09



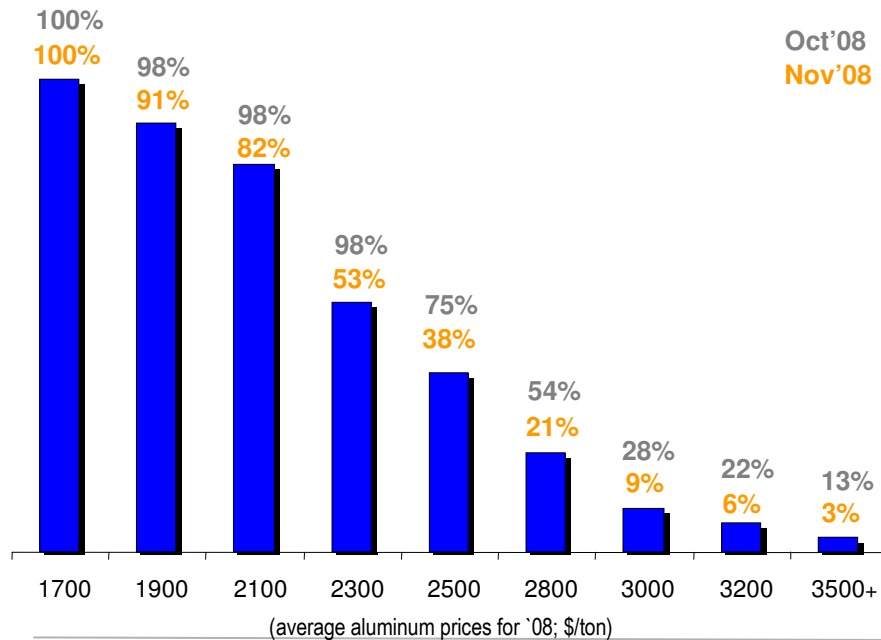
Source: HARBOR's Internal database (sourced from press reports)

64% of the analysts that updated their '09 aluminum price forecasts in Nov expect aluminum prices to average below \$2,300 per mton (104 cent/lb)

FORECASTS UPDATED WITHIN THE LAST FOUR MONTHS

WHAT ARE ANALYSTS EXPECTING FOR '09

(% of analysts expecting prices to average higher than specified price level; from our database of 34 analysts that have updated their price forecasts within the last four months)

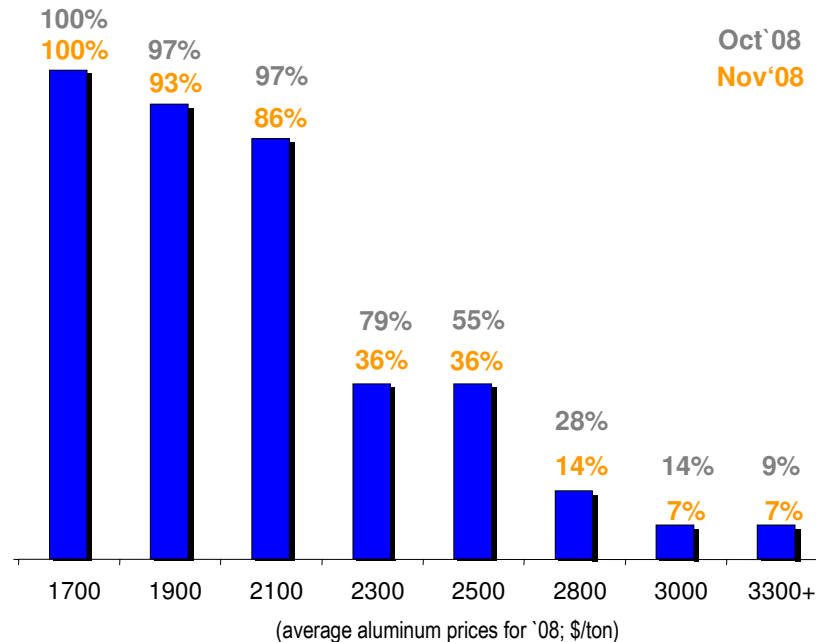


Source: HARBOR intelligence with internal database

FORECASTS UPDATED IN NOVEMBER

WHAT ARE ANALYSTS EXPECTING FOR '09

(% of analysts expecting prices to average higher than specified price level; from our database of 14 analysts that have updated their price forecasts in Nov '08)

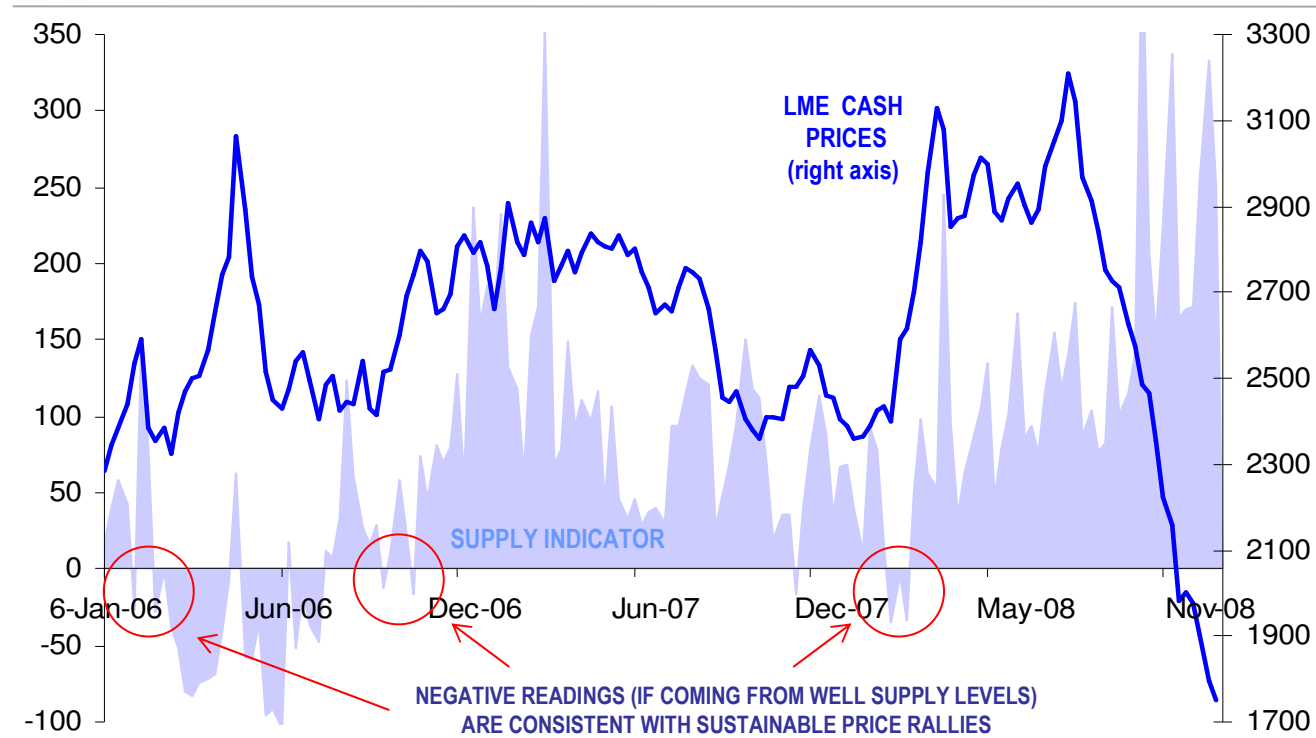


Source: HARBOR intelligence with internal database



Prices will trend down as long as we continue to experience today's big market surpluses

**ALUMINUM CASH PRICES VS
HARBOR'S ALUMINUM WELL SUPPLY INDICATOR LEVEL ***
(four week average; \$/ton)



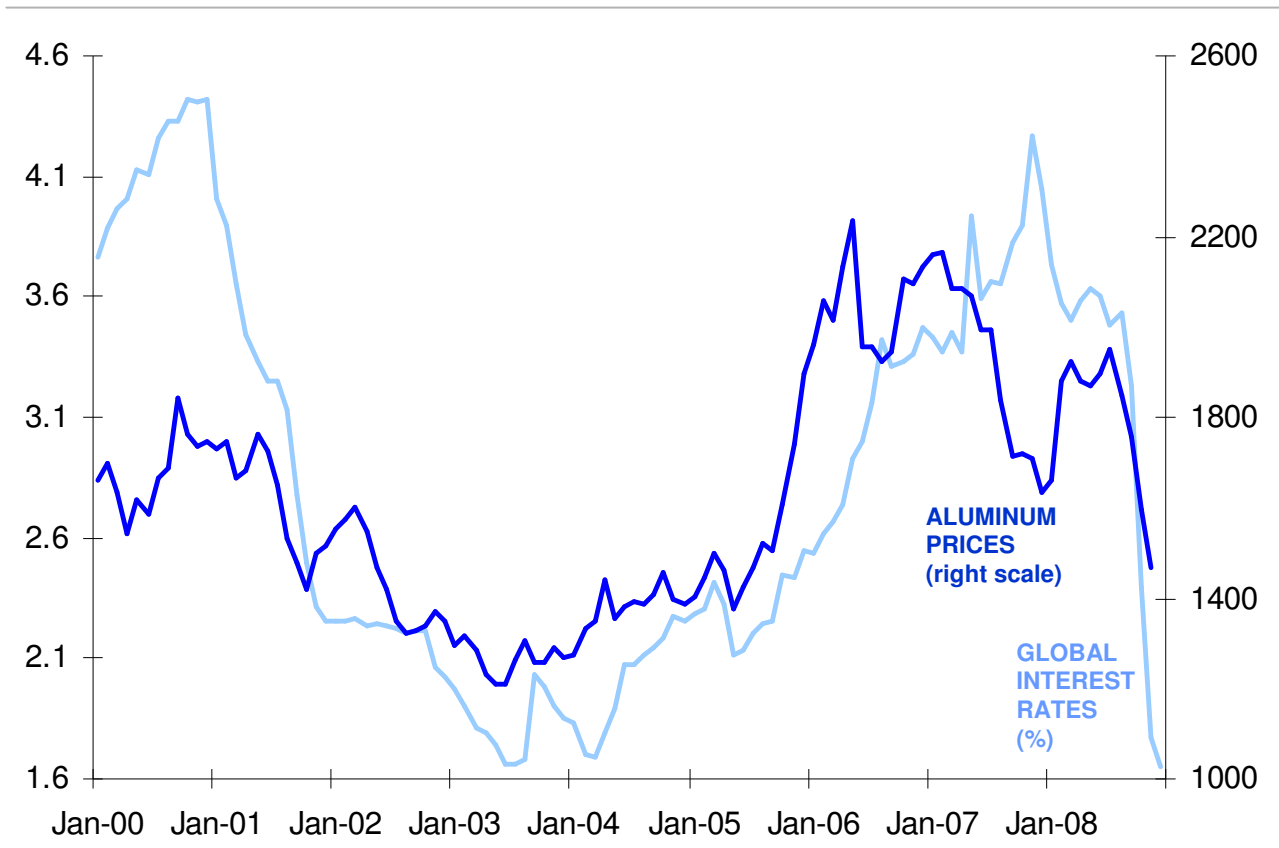
Source: HARBOR intelligence

*formula that includes commercial inventory movements, forward curve, regional premiums, alumina price trends, SHFE-LME price spread among others



...and Central Banks around the globe remain in easing cycle

ALUMINUM CASH LME PRICES IN EURO TERMS VS
GLOBAL INTEREST RATES*
(MONTHLY AVERAGE; euro/ton)

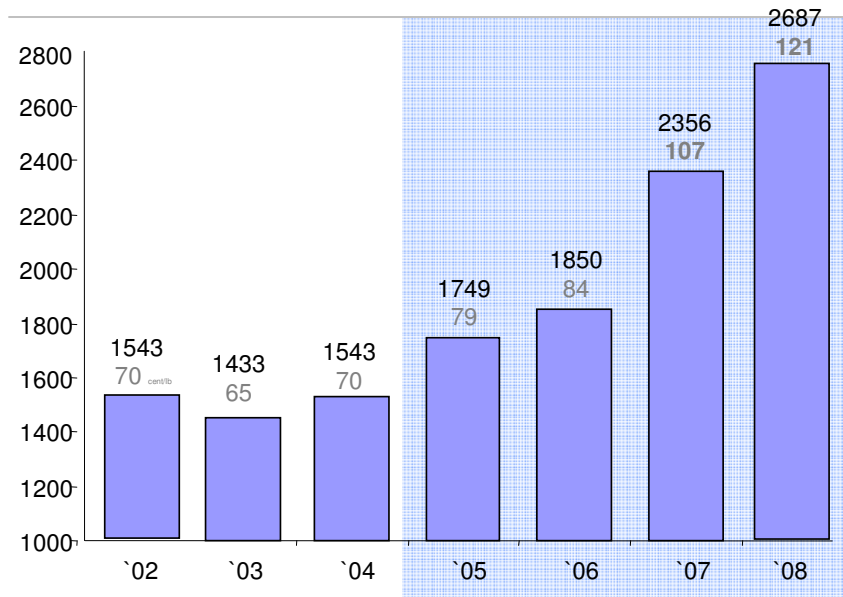


Source: HARBOR intelligence with LME data

*weighted by aluminum demand participation of each region on global demand

However, analysts haven't change their long term aluminum price forecasts (which were updated on Oct `08)... cash prices trading at sharpest deviation

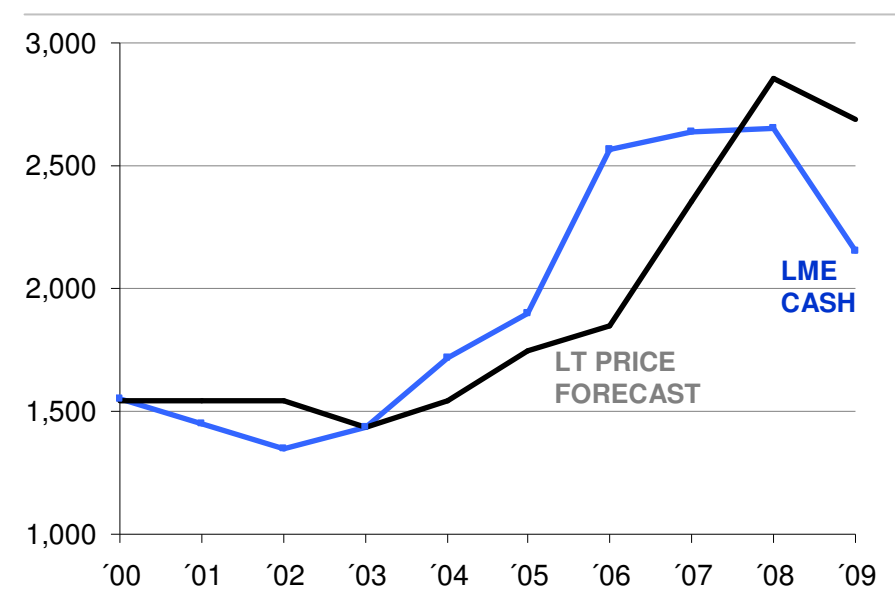
CONSENSUS LONG TERM ALUMINUM PRICE FORECAST* (annual;\$/ton)



Source: HARBOR intelligence estimate and Reuters poll

*sustainable aluminum price in the long term

ALUMINUM LME CASH VS CONSENSUS LONG TERM ALUMINUM PRICE FORECAST* (annual;\$/ton)



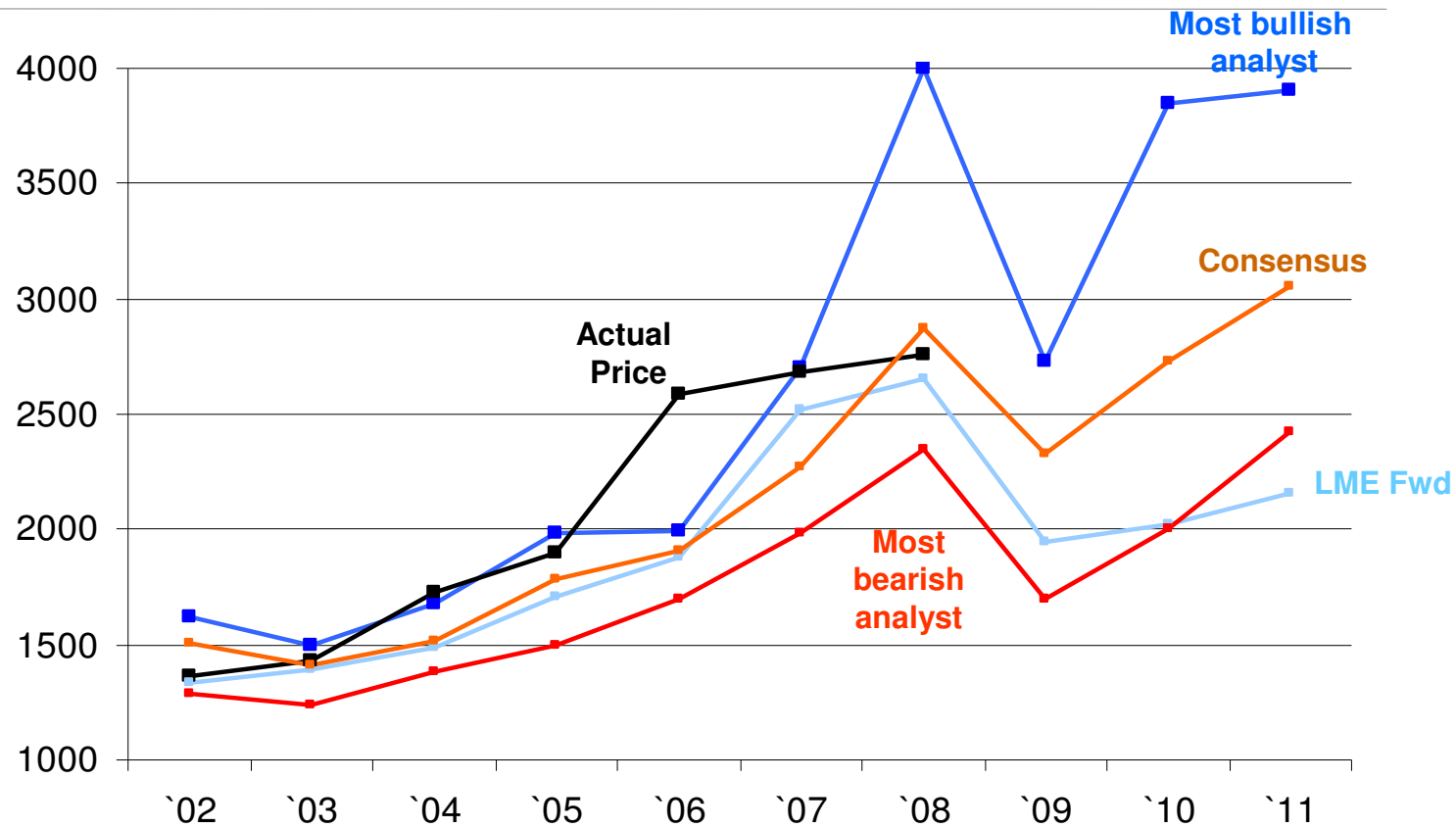
Source: HARBOR intelligence estimate and Reuters poll

*sustainable aluminum price in the long term

The forward curve is way lower vs the consensus estimate and even below the most bearish analyst from '10 on

FORECAST HISTORY VS ACTUAL ALUMINUM PRICE

(\$/ton)

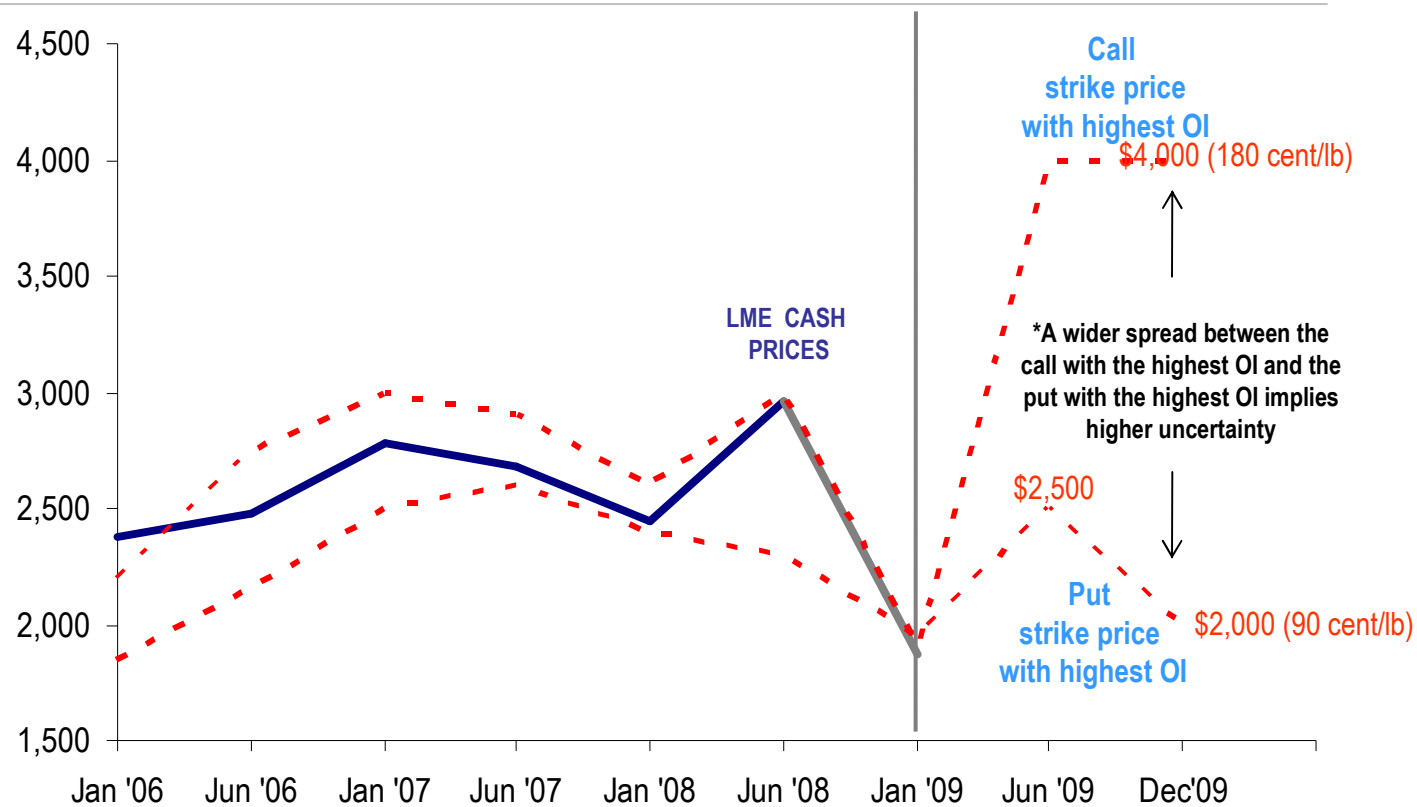


Source: HARBOR intelligence with internal database

The LME option market is betting prices will trade between \$2,000 (90 cent/lb) and \$4,000 (180 cent/lb) by the end '09

LME ALUMINUM CASH PRICE vs OPTIONS WITH HIGHEST OPEN INTEREST (OI)

(dolls/mtons)



Source: HARBOR intelligence with LME data

Analysts expect prices to average '09 higher than today and average close to \$3,000 per mton (136 cent/lb) by 2011

ALUMINUM LME CASH ANNUAL PRICE FORECASTS BY ANALYST

	'08	'09	'10	'11
AVERAGE FORECAST (forecast updated Nov '08)	2640	2331	2729	3051
LOWEST FORECASTED PRICE (forecast updated Nov '08)	2593	1700	2000	2424
HIGHEST FORECASTED PRICE (forecast updated Nov '08)	2668	2733	3850	3900
AVERAGE OF THOSE EXPECTING HIGHER PRICES (forecast updated Nov '08)	2680	2802	2729	3191
AVERAGE OF THOSE EXPECTING LOWER PRICES (forecast updated Nov '08)	2611	2147	NA	2263
BEST 10 ANALYSTS in '07	2692	2434	2832	2942
BEST 5 ANALYSTS in '01-'07	2618	2389	3050	3311
HARBOR Recession (45% chance in '08-'10)	2588	2140	2300	2100
HARBOR Realistic (45% chance in '08-'10)	2593	2535	3200	3200
HARBOR Risk (10% chance in '08-'10)	2623	2870	3850	3900
PREDOMINANT FORECAST	2631	2357	2836	2931

Source: HARBOR intelligence with internal database

Analysts expect prices to average '09 higher than today and average close to \$3,000 per mton (136 cent/lb) by 2011

TOP RANKED ANALYSTS' ALUMINUM LME ANNUAL CASH PRICE FORECASTS

FORECAST RANKING*							Avg Forecast Error (%)**	Updated	Analyst	2008		2009		2010		2011		2012	
2001	2002	2003	2004	2005	2006	2007				\$ per mton	cts/lb	\$ per mton	cts/lb	\$ per mton	cts/lb	\$ per mton	cts/lb	\$ per mton	cts/lb
NR	NR	NR	NR	2	20	1	9.3	Jul'08	Analyst 1	2866	130	3307	150						
NR	10	8	10	26	21	2	9.2	Nov'08	Analyst 2	2600	118	1700	75	2000	90	2424	110		
1	7	13	13	38	6	4	7.9	Nov'08	HARBOR Risk (10% chance in '08)	2623	119	2870	130	3850	175	3900	177	4400	200
9	9	11	8	4	4	5	9.1	Oct'08	Analyst 3	2642	124	2455	111	3108	141	2910	125		
NR	8	NR	11	24	13	6	9.8	Nov'08	Analyst 4	2790	127	2733	124	2953	134				
NR	NR	NR	NR	28	22	9	14.0	Oct'08	Analyst 5	2725	124	2100	95						
12	NR	NR	NR	15	14	10	10.3	Oct'08	Analyst 6	2601	118	1874	85	2249	102	2535	115	2646	120.1
NR	NR	NR	NR	NR	NR	12		Jul'08	Analyst 7	2646	120	2866	130						
NR	NR	NR	NR	NR	NR	13		Jul'08	Analyst 8	3115	141	3750	170	2900	132	2800	127		
10	NR	2	6	13	5	14	11.4	Oct'08	Analyst 9	2802	127	2920	132	2975	135	2997	136	3195	145
2	9	5	18	9	1	15	7.0	Nov'08	Analyst 10	2612	118	2100	95	3000	136	3900	177	3500	159
NR	NR	NR	17	NR	3	19	14.3	Oct'08	Analyst 11	2740	124	2425	110						
NR	NR	NR	NR	31	NR	21		Jul'08	Analyst 12	2946	134	2753	125						
4	3	1	1	11	10	22	9.0	Nov'08	Analyst 13	2640	120	1984	90	2094	95	2646	120		
8	NR	NR	4	14	11	23	11.2	Nov'08	Analyst 14	2601	118	2094	95	2645	120	3086	140	3306	150
2	20	4	16	37	15	27	12.0	Sep '08	Analyst 15	2855	130	3213	146						
NR	NR	NR	12	5	18	29	12.0	Oct'08	Analyst 16	2755	125	2204	100	2645	120	3086	140		
NR	NR	12	9	8	29	32	13.7	Nov'08	Analyst 17	2616	119	2163	98	3200	145	3200	145		
6	1	3	7	29	1	33	9.3	Nov'08	HARBOR Realistic (45% chance in '08)	2593	118	2535	115	3200	145	3200	145	3200	145
NR	NR	NR	NR	6	19	33	15.0	Jul'08	Analyst 18	2950	134	2976	135						
NR	NR	10	3	12	2	34	9.8	Oct'08	Analyst 19	2712	123	2028	92	2623	119	2756	125	2646	120
NR	14	9	5	10	17	35	11.5	Oct'08	Analyst 20	2715	123	2400	109	2450	111	2491	113		
5	NR	7	16	27	27	36	16.0	Sep'08	Analyst 21	2882	131	3500	159						
NR	NR	NR	NR	NR	NR	NR		Nov'08	HARBOR Recession (45% chance in '08)	2588	117	2140	97	2300	104	2100	95	2000	90.74

* Annual rankings means how accurate was the analyst to predict average prices for that year at the end of the previous year. If ranking reads 1, it means it was the most accurate analyst in predicting that year's average price. Ranking was made by HARBOR intelligence.

**We only included the average forecast error (% deviation of forecast vs actual price) of those analysts that we have at least three years of history.



Recent quarterly forecasts show that consensus expect prices to bottom between IVQ '08 and IQ '09

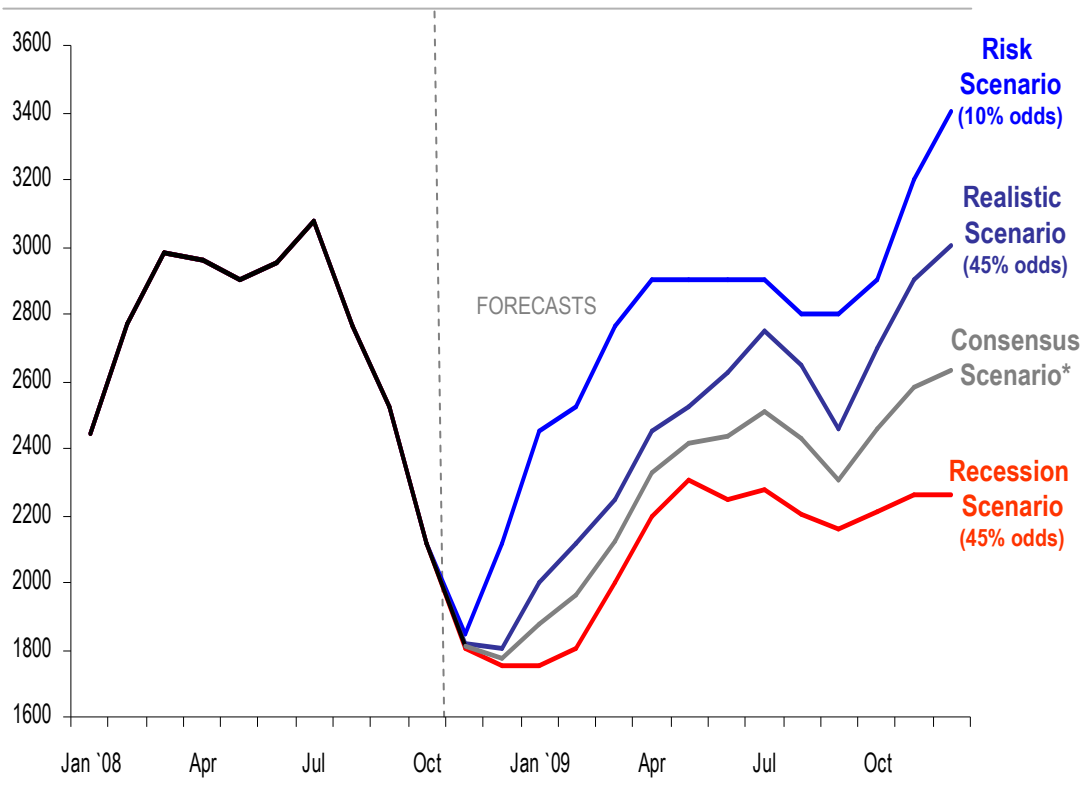
ALUMINUM LME CASH QUARTERLY PRICE FORECASTS

Updated	Analyst	2008				2009			
		1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Nov'08	HARBOR Realistic Scenario (45% in '08)	2,732	2,940	2,788	1,913	2,123	2,533	2,618	2,867
Nov'08	HARBOR Recession Scenario (45% in '08)	2,732	2,940	2,788	1,890	1,850	2,251	2,212	2,246
Nov'08	HARBOR Risk-Speculative Scenario (10% in '08)	2,732	2,940	2,788	2,030	2,580	2,900	2,853	3,167
Nov'08	HARBOR Consensus Scenario (Risk and Realistic average)	2,732	2,940	2,788	1,902	1,986	2,392	2,415	2,556
Oct'08	Analyst 1	2,732	2,940	2,788	2,060	2,931	2,909	2,909	2,887
Oct'08	Analyst 2	2,732	2,940	2,788	2,200				
Oct'08	Analyst 3	2,732	2,940	2,788	3,000	2,350	2,490	2,700	2,700
Oct'08	Analyst 4	2,732	2,940	2,788	2,435	2,336	2,380	2,557	2,755
Oct'08	Analyst 5				2,315	2,205	2,315	2,315	2,425
	Analyst's Average	2732	2940	2788	2179	2308	2551	2609	2740

Source: HARBOR intelligence with internal database

We have downgraded our price forecasts...we see more short term weakness and then a “V” shape bounce

HARBOR ALUMINUM CASH PRICE FORECAST (LME Cash Price; \$/ton)



Source: HARBOR intelligence

* HARBOR calculates monthly forecasts from annual forecasts

	Risk Scenario	Realistic Scenario	Recession Scenario	Consensus Scenario
Jan '08	2441	2441	2441	2441
Feb	2774	2774	2774	2774
Mar	2981	2981	2981	2981
Apr	2962	2962	2962	2962
May	2903	2903	2903	2903
Jun	2956	2956	2956	2956
Jul	3075	3075	3075	3075
Aug	2763	2763	2763	2763
Sep	2525	2525	2525	2525
Oct	2120	2120	2120	2120
Nov	1850	1820	1800	1810
Dec	2120	1800	1750	1775
Jan '09	2450	2000	1750	1875
Feb	2525	2120	1800	1960
Mar	2763	2248	2000	2124
Apr	2900	2450	2200	2325
May	2900	2525	2303	2414
Jun	2900	2625	2250	2438
Jul	2900	2750	2275	2513
Aug	2800	2650	2203	2427
Sep	2800	2455	2158	2307
Oct	2900	2700	2210	2455
Nov	3200	2900	2264	2582
Dec	3400	3000	2264	2632
08	2,623	2,593	2,588	2,590
09	2,870	2,535	2,140	2,338

We think European consumers will continue to face unfavorable exchange rate movements within the next year

MONTHLY ALUMINUM PRICE FORECAST IN VARIOUS CURRENCIES
(EUROS AND YENS)

FORECAST IN EUROS €

	Risk Scenario	Realistic Scenario	Recession Scenario
Jan `08	1,659	1,659	1,659
Feb	1,881	1,881	1,881
Mar	1,920	1,920	1,920
Apr	1,879	1,879	1,879
May	1,866	1,866	1,866
Jun	1,899	1,899	1,899
Jul	1,951	1,951	1,951
Aug	1,848	1,848	1,848
Sep	1,758	1,758	1,758
Oct	1,596	1,596	1,596
Nov	1,467	1,467	1,467
Dec	1,738	1,406	1,336
Jan `09	1,885	1,481	1,215
Feb	2,004	1,536	1,250
Mar	2,193	1,653	1,429
Apr	2,302	1,763	1,517
May	2,231	1,804	1,588
Jun	2,339	1,974	1,630
Jul	2,339	2,022	1,580
Aug	2,333	1,978	1,574
Sep	2,333	1,779	1,499
Oct	2,417	2,015	1,579
Nov	2,462	2,132	1,572
Dec	2,615	2,206	1,572
`08	1,789	1,761	1,755
`09	2,288	1,862	1,500

FORECAST IN YENS ¥

	Risk Scenario	Realistic Scenario	Recession Scenario
Jan `08	259,844	259,844	259,844
Feb	287,899	287,899	287,899
Mar	300,395	300,395	300,395
Apr	304,109	304,109	304,109
May	302,754	302,754	302,754
Jun	315,849	315,849	315,849
Jul	328,564	328,564	328,564
Aug	302,245	302,245	302,245
Sep	269,140	269,140	269,140
Oct	212,233	212,233	212,233
Nov	180,781	180,781	180,781
Dec	201,400	176,400	176,750
Jan `09	269,500	210,000	175,000
Feb	295,425	237,440	192,600
Mar	328,797	256,272	218,000
Apr	345,100	279,300	239,800
May	348,000	290,375	253,330
Jun	348,000	301,875	247,500
Jul	353,800	321,750	254,800
Aug	333,200	302,100	240,127
Sep	338,800	284,780	239,538
Oct	353,800	315,900	247,520
Nov	393,600	342,200	255,832
Dec	418,200	354,000	255,832
`08	272,101	270,018	270,047
`09	343,852	291,333	234,990