Alumina Limited

Can margins and FCF continue to lift?

Equities

Australia
Aluminum

12-month rating	**Buy**
12m price target	**A$1.50**
Price	**A$1.31**

RIC: AWC.AX **BBG:** AWC AU

Trading data and key metrics

52-wk range	A$1.79-0.99
Market cap.	A$3.77bn/US$2.90bn
Shares o/s	2,880m (ORD)
Free float	100%
Avg. daily volume ('000)	14,944
Avg. daily value (m)	A$18.0
Common s/h equity (12/16E)	US$1.91bn
P/BV (12/16E)	1.5x
Net debt / EBITDA (12/16E)	NM

EPS (UBS, diluted) (US$)

	UBS	Cons.
12/16E	0.04	0.02
12/17E	0.08	0.05
12/18E	0.09	0.06

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Alumina price has recovered from an oversold position

The alumina price over the course of 2015 declined by 44% from a high of US$355/t in Jan 15 to a low of US$198/t in Jan 16. We believe the decline was driven by oversupply and a fall in the alumina cash cost curve. In the last 8 weeks the alumina price has rebounded 25% to be US$248/t today, driven by curtailments inside and outside China due to a <US$200/t alumina price putting >80% of the industry under water on an all in cash basis. AWC itself has curtailed 4.5Mtpa of alumina capacity while AWC reports that ~7Mtpa of Chinese alumina capacity is slated for curtailment. However, we are starting to see restarts, so risks are building in our view that the price rise is capped.

Q1 15 margin seen at US$12/t, but recovery underway

AWC through its AWAC JV with Alcoa is guiding 12.7Mt of alumina production in 2016 (excl. Ma'aden JV), down from 15.1Mt in 2015 reflecting curtailments and disposals. In 2015 AWAC achieved an EBITDA margin of US$91/t, up from US$54/t in 2014. With the decline in the aluminium/alumina price and the fact that realisation is a lag of 1-2 months, the margin for Q1 16 is locked in. With spot alumina averaging US$207/t on a 1-mth lag, we estimate an EBITDA margin of US$12/t for Q1 (vs US$57/t in DQ 15), which would be the lowest since 2009. Although with alumina at US$248/t today, we estimate the EBITDA margin today is US$38/t.

Dividends sustainable provided EBITDA/t margin above US$22/t

We believe AWC can maintain semi-annual dividend distributions provided AWAC maintains an EBITDA margin above US$22/t. This is based on a sustaining capital spend for AWAC of US$17/t, and interest and SG&A for AWC of US$20m pa. While Q1 16 margin is <US$17/t, we still expect distributions from AWAC In H1 16 due to the large cash balance within AWAC & US$115m in net proceeds from the sale of DBP to DUET.

Valuation: A$1.50ps (DCF, 10% d.r) – Buy rating retained

The long run margin for AWAC (15 year average) is ~US$60/t, albeit perhaps closer to US$100/t going forward given AWAC's new position on the cost curve and a LT price of US$300/t. This implies a value of ~A$1.55ps for AWC based on a simple margin model, while our full model for AWC generates an NPV of A$1.50ps. Near term risk is restarts capping the alumina price. Our TP of $1.50ps is set at 1.0x NPV.

Highlights (US$m)	12/13	12/14	12/15	12/16E	12/17E	12/18E	12/19E	12/20E
Revenues	0	0	0	0	0	0	0	0
EBIT (UBS)	(17)	(13)	(12)	(11)	(13)	(12)	(13)	(13)
Net earnings (UBS)	(3)	91	258	100	235	248	295	343
EPS (UBS, diluted) (US$)	(.00)	0.03	0.09	0.04	0.08	0.09	0.10	0.12
DPS (US$)	0.00	0.02	0.06	0.06	0.08	0.09	0.10	0.11
Net (debt) / cash	(135)	(87)	(101)	(92)	(33)	(22)	(6)	16

Profitability/valuation	12/13	12/14	12/15	12/16E	12/17E	12/18E	12/19E	12/20E
EBIT margin %	-	-	-	-	-	-	-	-
ROIC (EBIT) %	(26.7)	(21.3)	132.6	72.5	71.8	71.2	73.5	73.6
EV/EBITDA (core) x	-13.9	-96.2	-98.4	-83.6	-73.3	-74.5	-71.0	-71.0
P/E (UBS, diluted) x	NM	40.6	12.3	28.3	12.1	11.4	9.6	8.3
Equity FCF (UBS) yield %	2.6	(0.2)	1.4	5.6	8.2	9.1	10.0	12.0
Net dividend yield %	0.0	1.2	5.6	5.5	8.4	9.1	10.1	10.9

Source: Company accounts, Thomson Reuters, UBS estimates. Metrics marked as (UBS) have had analyst adjustments applied. Valuations: based on an average share price that year, (E): based on a share price of A$1.31 on 04 Apr 2016 17:41 EST

UBS Research THESIS MAP a guide to our thinking and what's where in this report

OUR THESIS IN PICTURES →

PIVOTAL QUESTIONS

Q: Are closures occurring to drive the alumina price up the cost curve?

Yes, but we are also seeing some restarts. AWAC is the largest alumina producer and third party supplier globally. Its unit costs sit in the lowest quartile of the cost curve. In late 2015, Alumina appeared to be suffering a liquidation event and spot declined to a low of US$198/t on 15 Jan 2016, which implied ~80% of producers were losing money. Since the start of CY 16, prices have rebounded 25% to US$248/t and we have begun to see closure trends ease, with restarts and incremental production growth reported particularly in China…

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Q: Can AWC expand its EBITDA margin & maintain above its historical avg. (US$60/t)?

Yes, we believe so. Between 2002 and 2015, AWAC generated an average EBITDA margin of ~US$60/t. We estimate AWAC's long run margin will be closer to US$100/t going forward, given AWAC's new lower position on the cost curve following recent closures and a LT price of US$300/t…

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Q: Can Alumina Ltd afford to continue to pay dividends over the next 3 years?

Yes, as long as the AWAC EBITDA margin remains above US$22/t, we expect AWC will continue to be able to pay free cash flow out to shareholders in the form of dividends. The EBITDA margin will be highly dependent on unit costs achieved by AWAC, as well as the alumina price, which is outside their control.

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UBS VIEW

The progressive migration from an alumina price that has been historically linked to the aluminium price to an index/spot alumina price would generate higher margins. AWC and Alcoa have demonstrated productivity improvements within AWAC, which together with a strengthening US$ has to some degree offset compression of lower prices on EBITDA margins. 2016 could see margins improve from current levels, as prices normalised following the recent liquidation events. Our $1.50ps NPV assumes a long-run alumina price of US$305/t with a US75 cent A$. Every US$25/t change in the LT alumina price lifts our NPV by 36cps, all else being equal.

EVIDENCE

Prices have recovered 25% following pre-CNY liquidation and closures: In the lead up to Chinese New Year in Feb 2016, there were a number of reported refinery closures or capacity reductions. AWAC itself has curtailed 4.5Mtpa of alumina capacity while AWC reported that ~7Mtpa of Chinese alumina capacity is slated for curtailment. Total closures were estimated to be in the order of 12Mt, or ~8% of global supply.

WHAT'S PRICED IN?

Investors are pricing in and EBITDA margin above historic levels, but below UBSe: The current share price of A$1.31ps implies a long term alumina price of US$285/t, which compares to UBSe of US$305/t. Our long term price kicks in from the MQ in 2021 and is from then inflated at 2.5% pa.

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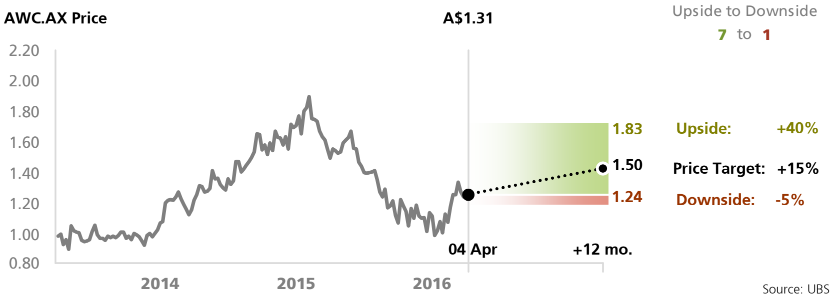
UPSIDE / DOWNSIDE SPECTRUM



Source: UBS

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COMPANY DESCRIPTION

AWC has a 40% interest in Alcoa Worldwide Alumina (AWAC), which has interests in bauxite, mining, alumina refining, alumina chemicals and two aluminium smelters, and is the world's largest producer and third-party seller of alumina.

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OUR THESIS IN PICTURES

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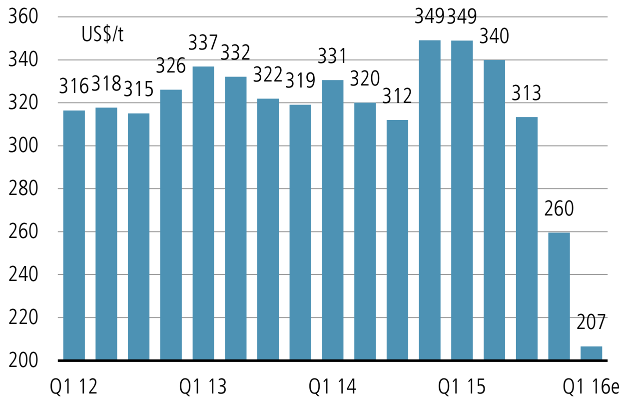
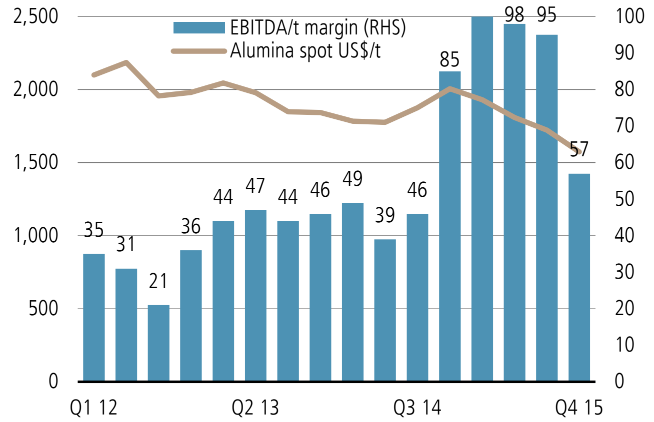
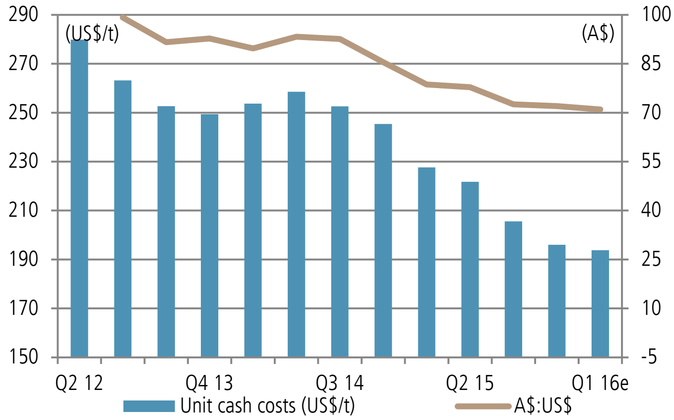


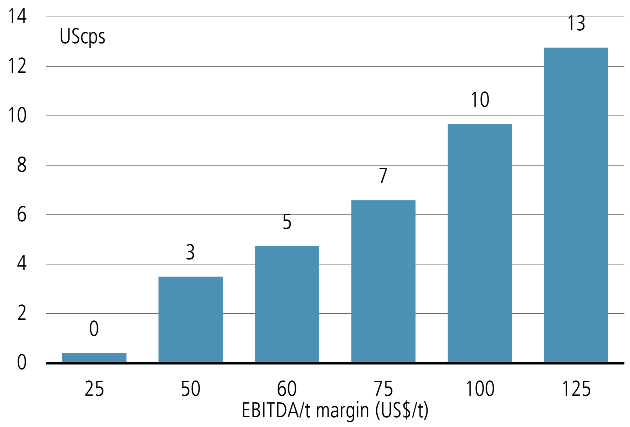
"Following the liquidity event seen pre-CNY, alumina spot prices have recovered to US$248/t …



… AWAC's long run historical EBITDA margin is ~US$60/t …



… Unit costs are expected to decrease to ~US$190-195/t ex Suralco and Point Comfort.



AWC generates US5cps FCF at an EBITDA margin of US$60/t…

PIVOTAL QUESTIONS

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Q1: Are closures occurring to drive the alumina price up the cost curve?

UBS VIEW

Yes, but we are also seeing some restarts. AWAC is the largest alumina producer and third party supplier globally. Its unit costs sit in the lowest quartile of the cost curve. In late 2015, Alumina appeared to be suffering a liquidation event and with spot declining to a low of US$198/t on 15 Jan 2016, which implied ~80% of producers were losing money. Since Chinese new year, prices have rebounded 25% to US$248/t and we have begun to see closure trends ease, with restarts and incremental production growth reported particularly in China.

EVIDENCE

Pre-Chinese New Year in Feb 2016, there were a number of reported refinery closures or capacity reductions. AWAC itself has curtailed 4.5Mtpa of alumina capacity while AWC reported that ~7Mtpa of Chinese alumina capacity is slated for curtailment. Total closures were estimated to be in the order of 12Mt, or 8-10% of global supply.

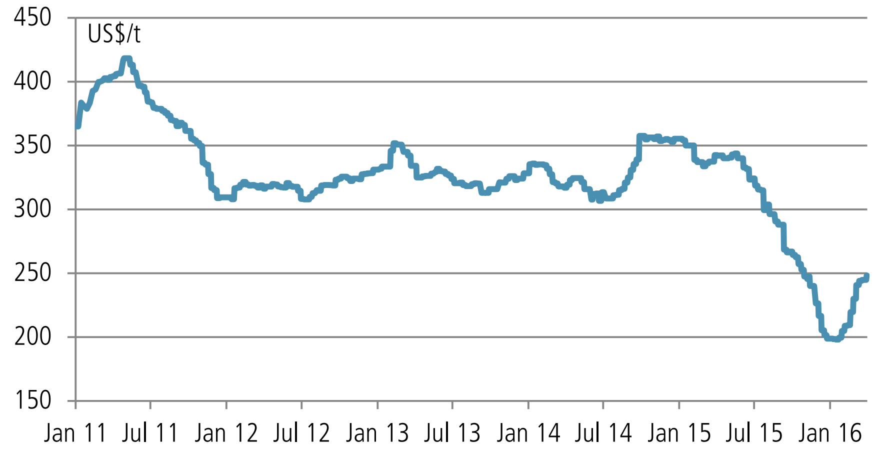
WHAT'S PRICED IN?

The current share price of A$1.31ps implies a long term alumina price of US$285/t, which compares to UBSe of US$305/t. Our long term price kicks in from the MQ in 2021 and is from then inflated at 2.5% pa.

Decline in Alumina price over 2015

Over the course of CY 2015 the spot alumina price declined 44% from US$355/t to US$198/t. The price decline occurred without any retracements and as the year drew to a close the price decline accelerated.

Figure 1: Alumina price declined substantially over CY 15

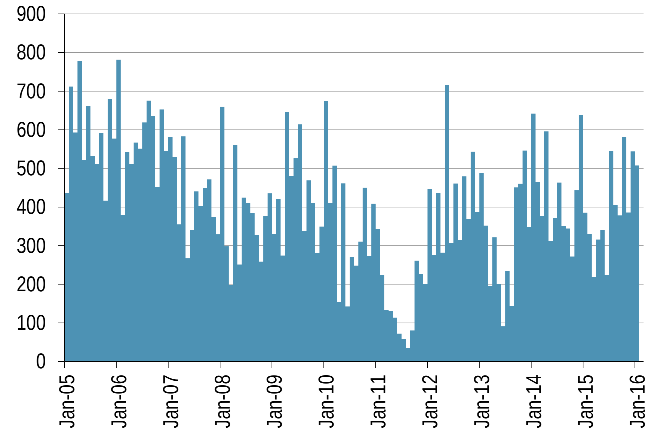


Source: Metal Bulletin, UBS.

Based on producer feedback, we believe the acceleration of the price decline reflected loss-making refineries (particularly in China) liquidating inventories in the

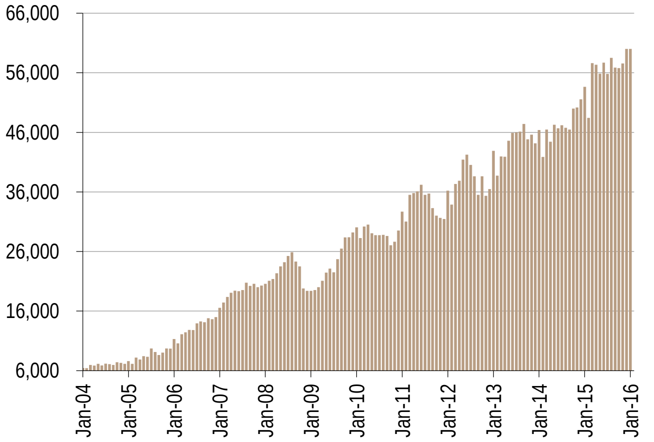
lead up to Chinese New Year. Since alumina is not a storable commodity, due to its tendency to rehydrate, we also suspect that this liquidation of inventories was driven by both cash flow needs, as well as uncertainty on the part of higher cost refineries about whether they would re-start post the CNY holiday.

Figure 2: China alumina imports (kt/mth)



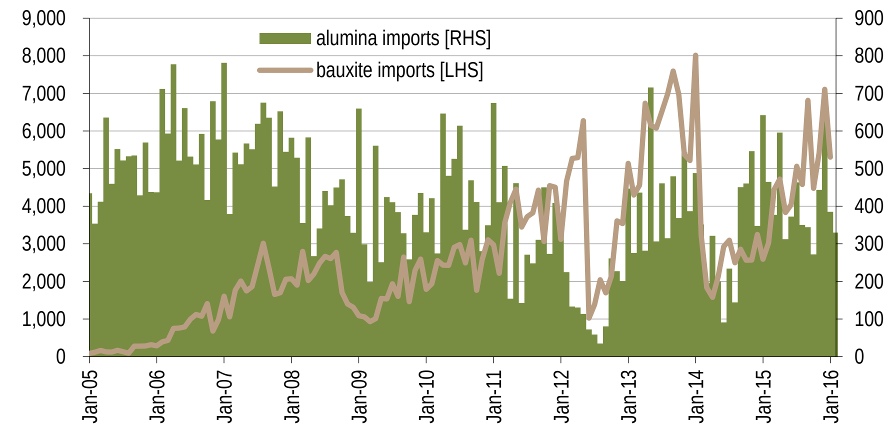
Source: China Customs, Antaike

Figure 3: China's Mthly Annualized Alumina Output (kt)



Source: China Customs, Antaike

Figure 4: China's Al2O3-bxt trade (kt/mth)



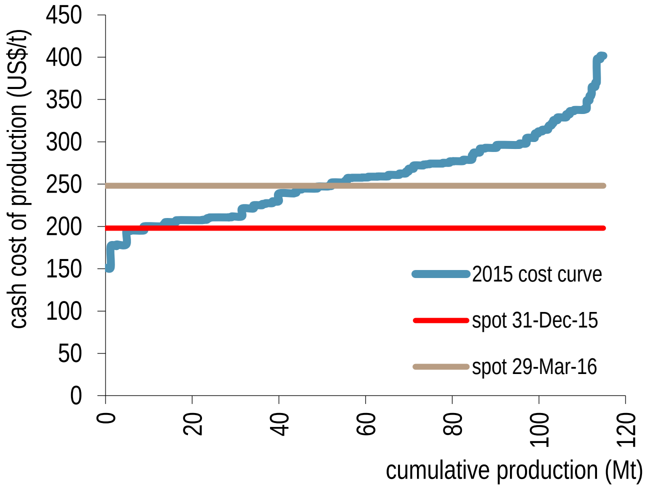
Source: China Customs, Antaike

Price has led to significant curtailments amongst refiners globally

Lower bauxite prices; a decline in producer currencies; and the substantially lower oil price contributed to significant reduction in the marginal cost of production in the global Alumina market over 2015. We estimate the marginal cost declined to US$280/t, from US$340/t in 2014. Despite this, by late 2015, the alumina price was in the bottom quartile of cost curve, with ~80% of global production loss making at spot prices.

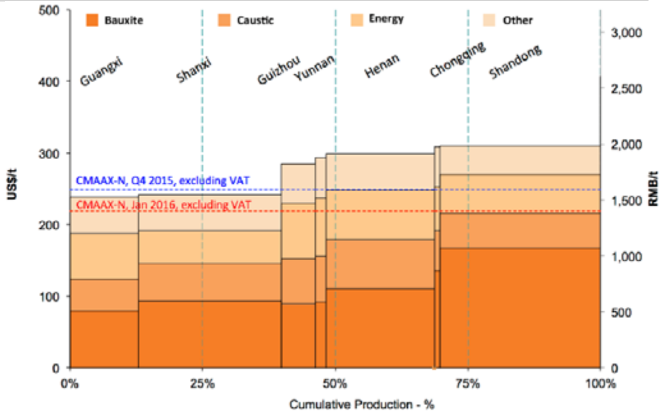
At 4Q'15 prices, on a provincial basis, around 62% of the Chinese refining capacity is cash negative. On the same basis, at January 2016 prices, all Chinese alumina refineries were cash negative.

Figure 5: 2015 global alumina cost curve



Source: Wood Mckenzie, UBS LT price. Spot as at 31 Dec 2015, Metal Bulletin.

Figure 6: China Q4'2015 Refining Cash Cost Curve



Source: Alumina Ltd

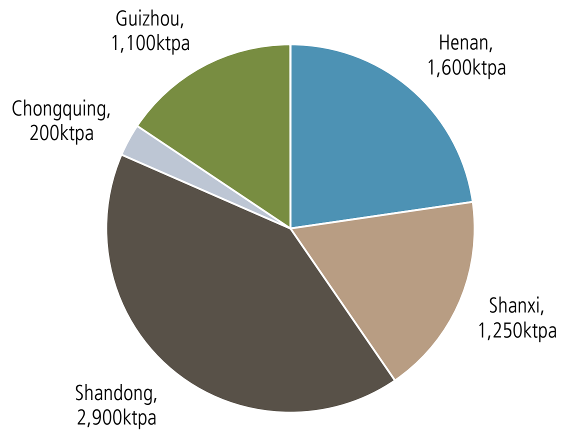
The severity and duration of the price decline (without reprieve) led to a number of curtailments announced around the Chinese New Year holiday (8 February 2016). This was especially evident in China, where ~7Mt of capacity has been shut. In addition to curtailments in China, Alumina Ltd itself (through AWAC) contributed closures of 4.5Mt through Point Comfort in the US and Suralco in Suriname. Global curtailments of ~12Mt, amounts to approximately 8% of global supply.

Figure 7: Summary of recent refining curtailments

Refinery/company	Unit cost US$/t	Location
Chongqing Bosai	325	Chongqing China
Weiqiao Shandong	293	Shandong, China
Lanjigarh India	293	India (Vedanta)
Xinfa Shandong	292	Shandong, China
Point Comfort	259	USA
Chalco Shandong	250	Shandong, China
Shandong Lubei	250	Shandong, China
Chalco Shanxi	225	Shanxi, China
Suralco		Suriname
Average unit cost	273	

Source: Alumina Ltd, UBS Research

Figure 8: Refining curtailments by Chinese Province



Source: Alumina Ltd, UBS.

From its low of US$198.06/t in January 2016, the alumina price has rebounded 25% to US$248.09/t (as at 29 March 2016) reflecting these announced supply curtailments. Although this is a significant improvement, we highlight that this price level remains within the second quartile of the 2015 cost curve. This indicates that ~50+% of global production remains loss making at current prices, even accounting for recently announced closures. On this basis we would expect further curtailments to be announced. The key risk from here remains the potential for capacity restarts to occur as the alumina price improves, reflecting the reduced supply. If this were to occur on a larger scale, restarts could offset ongoing announcements of curtailments. However, restarts announced during the month of March have been small in number and scale.

PIVOTAL QUESTIONS

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Q2: Is AWC able to expand its EBITDA margin further and maintain it above the historical average of US$60/t?

UBS VIEW

Between 2002 and 2015, AWAC generated an average EBITDA margin of ~US$60/t. We estimate AWAC's long run margin will be closer to US$100/t going forward, given AWAC's new lower position on the cost curve following recent closures and a LT price of US$305/t.

EVIDENCE

AWC and Alcoa have demonstrated productivity improvements within AWAC, which together with a strengthening US$ has to some degree offset compression of lower prices on EBITDA margins. 2016 could see margins improve from current levels, as prices normalised following the recent liquidation events.

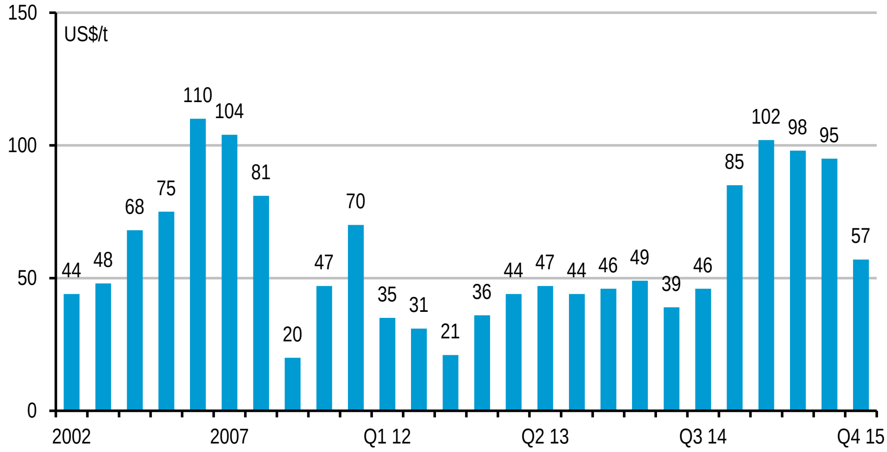
WHAT'S PRICED IN?

At $1.30ps our simple margin model suggests that the market is pricing in a long term EBITDA margin for the refining business within AWAC of US$85/t, assuming a long term A$ of US75 cents.

Historical EBITDA margin of US$60/t

Since the demerger of Alumina Ltd from Western Mining in 2002, the EBITDA/t margin generated by AWAC has averaged ~US$60/t. The main drivers of the margin being the prevailing alumina price, in particular now that >80% of alumina sales are on a spot or index basis, as well as the A$ and Brazilian Real.

Figure 9: AWAC historical EBITDA/t performance



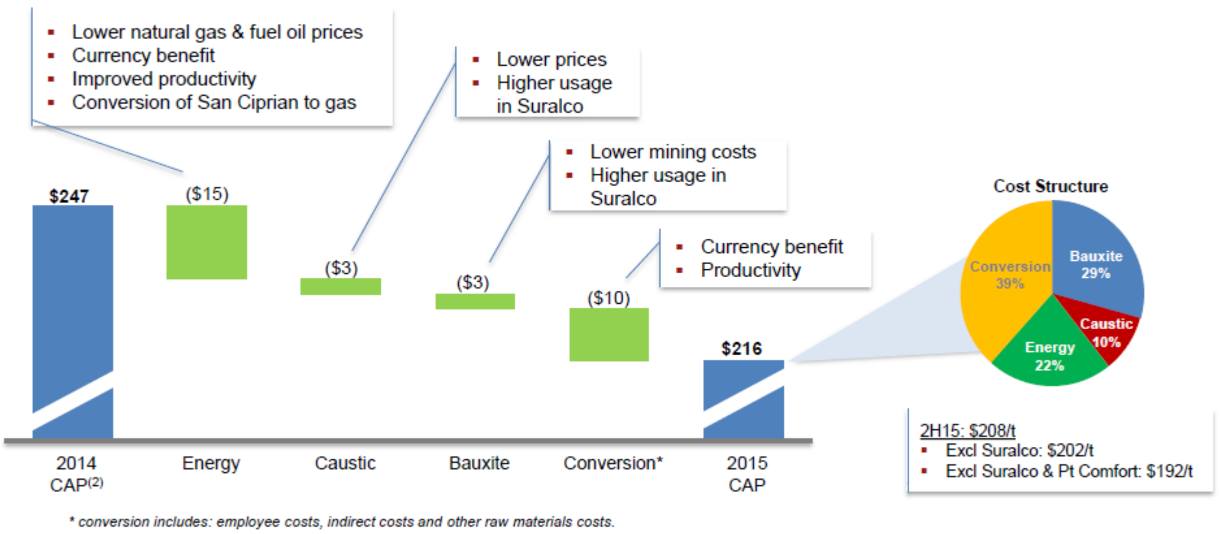
Source: AWC

AWAC has been repositioning itself down the cost curve

AWC and its JV partner Alcoa have been restructuring the AWAC portfolio for a couple of years now through gas conversion at San Ciprian, sale of Jamalco, and

closure of Point Comfort and Suriname, which has seen AWAC's cash cost of production of alumina decline by 13% over 2015 to US$216/t. AWC in its 2015 result in Feb 16 last reported its alumina unit costs at US$202/t, which are expected to decline to US$192/t post closure of Point Comfort in mid-2016.

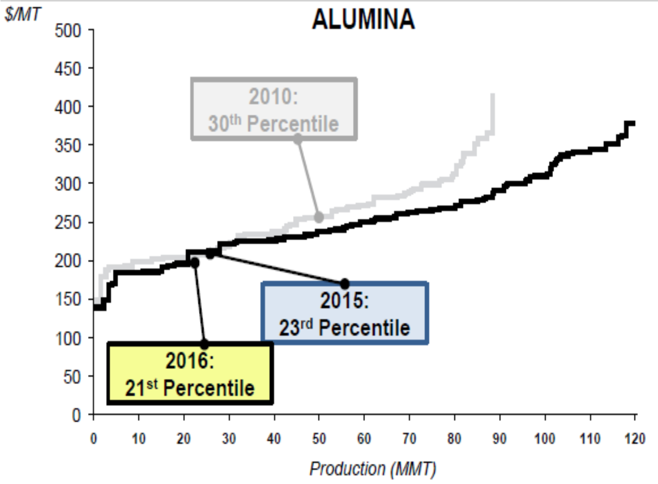
Figure 10: AWAC cost of alumina production



Source: AWC

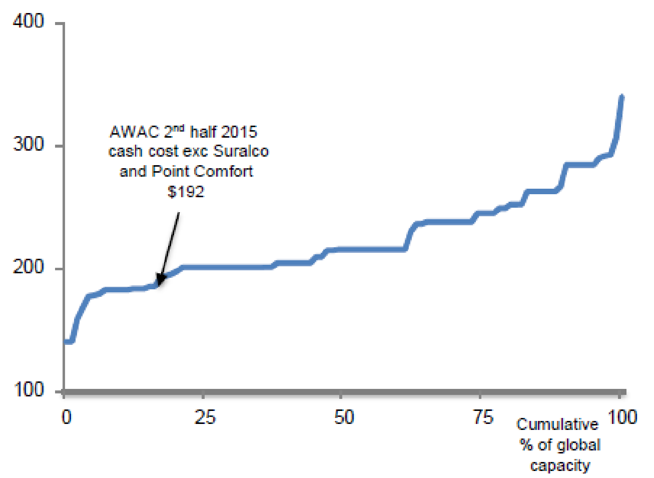
The reduction in costs has seen AWAC move into the bottom quartile of the cost curve, down from the 30th percentile in 2010.

Figure 11: AWAC cost curve transition



Source: Alcoa

Figure 12: AWAC cost curve position post restructuring



Source: AWC

Long term alumina price seen at US$305/t

In November 2005, UBS revised down its long run alumina price from US$350/t to US$305/t based on a mixture of 1) an incentive price of new alumina capacity in China, 2) the incentive price for 'creep' production at non China refineries & the marginal cost of global alumina production in 2020. Our new long term price equates to 17.3% of the long term aluminium price (US$0.80/lb or US$1,760/t). For a detailed review of our long term alumina price analysis, see Aluminium: China capacity eating the world - Nov 15.

In summary, our thoughts on the long term alumina market are…

Our approach to a long term alumina price

Our long term price is reduced to US$305/t fob Australia, against US$350/t previously. Our old long term price was based on a weighted average incentive price for **all** projects in trade using a **uniform 15% IRR hurdle**.

Our new approach is more nuanced, combining different elements and assumptions.

- **China domestic supply:** We have looked at the incentive price for new China domestic supply using a much lower 5% IRR hurdle. We think China will be broadly self-sufficient in alumina & only arbitrage the seaborne trade when it suits. The exports of metal from this alumina production will crowd out much of the potential growth in alumina demand elsewhere.
- **Creep:** Small incremental de-bottlenecking improvements at global refineries can lift their production over time at minimal capital cost. This can be as much as 1-2% p.a. The modest requirement of 0.5% annual growth in new seaborne alumina capacity may ably be met by this creep. So for an incentive price we only factor in this creep & not large scale greenfield expansions. We do still use a western-world 15% IRR however.
- **Marginal cost of production:** The marginal cost of alumina production in 2020 is estimated to be US$300/t in 2020 based on WoodMackenzie data, adjusted for a higher oil price (US$70/bbl Brent) & our long term bauxite input of US$40/t cfr for non-integrated refineries. We also include a freight net-back to Australia of US$15/t. Much of the new supply to the market is undercutting this marginal cost so there is a risk of deflation over time to this number.

Figure 13: Long term price estimation

Alumina - Aust fob	US$/t fob	Comment
Incentive Price - China	315	China is producing most of the alumina it needs & exporting ally
Incentive Price - RoW Creep	304	RoW capacity growth is needed, but can be meet by creep
Cost Curve - 90th centile in 2020	299	Cost support, but new capacity is entering trade at lower costs
Average	306	

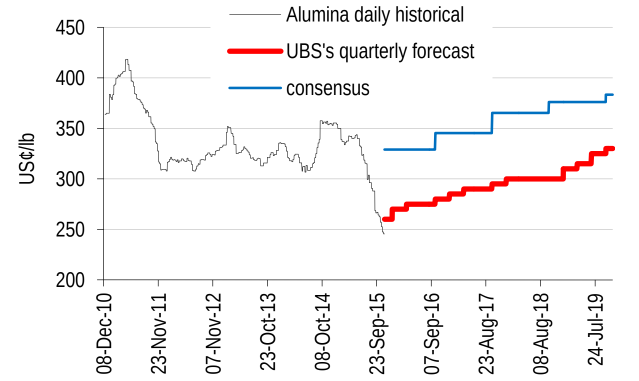
Source: UBS Research.

Figure 14: UBS New vs Old Alumina Forecasts

	old	new	old	Vs Consensus	
	US$/t	US$/t	%	US$/t	%
2015E	310	309	0%	324	-5%
2016E	275	275	0%	329	-16%
2017E	295	290	-2%	345	-16%
2018E	330	300	-9%	365	-18%
2019E	350	321	-8%	376	-15%
LT price (nom. 2020)	395	344	-13%	383	-10%
LT price (real 2015)	350	305	-13%	337	-10%

Source: UBS Research.

Figure 15: UBS Alumina Price forecasts



Source: Bloomberg, Consensus Economics and UBS estimates.

Figure 16: Incentive Price Analysis - Alumina

Project	Owner/s	Count.	Start	Cap.	Cash Cost	Capex		Sust.	IRR	Incentive Price	Breakeven Price
				kt	US$/t	US$m	US$/t	US$/t	Hurdle	US$/t	US$/t
Guizhou Quingzhen	Chalco	China	2015	1,600	246	603	377	7.5	5%	273	254
Beihai	China Weiqiao	China	2015	500	244	250	500	10.0	5%	280	254
Chongzuo Yinhai	Guangxi Investment Grou	China	2018	800	240	703	879	17.6	5%	303	258
Wuchuan	CPI	China	2016	800	259	844	1,055	21.1	5%	335	280
Baode	Tongde Aluminium	China	2016	1,000	274	813	813	16.3	5%	332	290
Wanji Xiangjiang	Xiangjiang / Henan Wanji	China	2015	400	240	281	703	14.1	5%	290	254
Xing	Chalco	China	2016	1,000	246	675	675	13.5	5%	294	260
Nhan Co	Vinacomin (State owned)	Vietnam	2016	600	230	766	1,277	25.5	8%	370	256
West Kalimantan	Hongqiao JV	Indonesia	2019	1,000	200	1,000	1,000	20.0	8%	312	220
CPI Refinery Project	China Power Investment	Guinea	2022	4,000	222	6,000	1,500	30.0	8%	405	252
Global Creep	Various	Global	2016	2,000	250	400	200	20.0	15%	304	270
Lanjigarh Refinery Phase 2	Vedanta	India	2018	3,000	235	1,570	523	10.5	15%	354	245
Rondon	CBA	Brazil	2018	3,000	214	2,750	917	18.3	15%	422	232
Tayan - West Kalimantan	Antam / Showa Denko	Indonesia	2016	300	200	490	1,633	32.7	15%	571	233
Mempawah - West Kalimantan	Antam / Inalum	Indonesia	2019	1,600	200	1,700	1,063	21.3	15%	441	221
Al Taweelah Alumina	EMAL	Abu Dhabi	2018	2,000	227	1,000	500	10.0	5%	276	237
wgt avg (total)				23,600	230	19,845	841	18		354	249
China domestic				6,100	251	4,169	683	14		300	265
China dom + Frieght to Aust										315	280
China backed offshore				5,600	219	7,766	1,387	28		385	247
China domestic + China backed				11,700	236	11,935	1,020	20		340	256
RoW				6,900	223	15,676	896	20		373	243

Source: UBS Research, Wood Mackenzie, Shanghai Metals Market, company & press reports

China domestic alumina incentive price

China's alumina production has grown quickly & in lock step with aluminium output (see Figure 27). We expect this situation to continue based on new capacity coming to market base this view on company filings, news reports, Wood Mackenzie & Shanghai Metals Market estimates. We also do not see Bauxite supply being a constraint.

China domestic projects benefit from low capital costs & a low cost of capital

We have estimated an incentive price for new China alumina capacity of US$300/t across a sample of 7 projects which are projected to add 6Mtpa of capacity at an average capital intensity of ~US$680/t. We have then added an extra US$15/t to account for a freight net-back to Australia which is where we base our long term price.

Figure 17: Getting to a Australia fob price from China domestic incentive

Alumina - Aust fob	US$/t	Comment
China Domestic Incentive Price	300	Is Pre Vat of 17%, implies US$351/t cfr China price Vat incl.
WA Freight to China	15	Handymax - long term
China Domestic + Freight	315	A net back calc to get back to a Australia fob incentive

Source: UBS Research, Wood Mackenzie, Shanghai Metals Market, company & press reports

For this analysis we assumed 5% IRR. We have used such a low IRR-hurdle for China domestic production to account for lower China SOE-linked return requirements as other factors are considered in the capacity expansion impulse (employment, GDP). The break-even of this capacity is collectively US$265/t, with a range of US$254-290/t.

We estimate an incentive price for new China supply of US$307/t

China-linked offshore projects incentive price

A number of China backed alumina projects are being executed in Vietnam, Indonesia & Guinea. These projects are backed by Chinese corporates, government & banks and so again here we apply a lower IRR of 8% to estimate an incentive price for this new alumina capacity. The capital cost of these projects is higher than the China-domestic ones at US$1,387/t due to the lack of infrastructure in these countries (power etc).

We estimate an incentive price of US$385/t for these projects, but a much lower breakeven of US$247/t. Our view is that these projects that have been committed will likely come into the trade but will not leave as there will be capacity at higher cost which will be more marginal. We have therefore not included the incentive price of this cohort of projects in our thinking of the long term alumina price.

Creep incentive price

Creep is defined as Improvements made in existing plants which do not include major capital works such as crushers or calciners. Improving flow or yield marginally drives it. These are basically very small debottlenecking projects are with the net result that production can improve 1-2% p.a. with minimal capital. While difficult to quantify, on a site visit to AWAC's WA operations in Dec-11 they estimated capex can ranges from $0-200/t, much better than the $1500-3000/t western world capex intensity for large scale projects these past few years.

Creep can deliver most of the seaborne alumina requirement for around US$300/t fob

To account for creep, we have included a 2Mtpa project in our incentive price analysis with an opex of US$250/t, capex of US$200/t and an IRR of 15%. Under these assumptions, Creep has an incentive price of around US$300/t.

Under our base case scenario of very little growth (0.5% CAGR) in ex-China smelting & therefore alumina refining, most of this required growth can be met by creep.

Other global projects incentive price

We provide a summary of the economics of several non-China backed Alumina projects in Figure 31. There are a sprinkling of projects here that we think are at a competitive disadvantage to China-domestic projects on higher cost of capital & higher capital intensity (i.e. capex of >US$1000/t, vs US$500-1000 for China).

The incentive price for these projects has an incentive of US$340/t & but a much lower breakeven of US$240/t (the gap driven by capex & return on said capex).

The projects here being executed here will enter the trade at around Q2-Q3 on the cost curve and so will pressure high-cost refineries to lower costs or close in a low growth market.

Long term margin seen expanding towards US$100/t

With AWAC's revised cost base of US$192/t, we estimate that AWAC could generate a long term margin of US$113/t. Using a simple margin model for AWAC

and assuming US$113/t for the alumina business and US$15/t margin for export bauxite sales, we estimate a NPV for AWC of A$1.73/t.

However, we note that the A$ and Brazilian Real have ralied 10% since late Feb 16 when AWC reported its 2015 result, and based on sensitivity provided by AWC, the stronger A$ and Brazilian Real has increased the AWAC cost base by ~US$10/t, thus bringing the long run margin closer to US$100/t.

Assuming a US$100/t margin for AWAC and retaining a US$15/t margin for bauxite exports, our DCF based valuation for AWC drops to A$1.50ps.

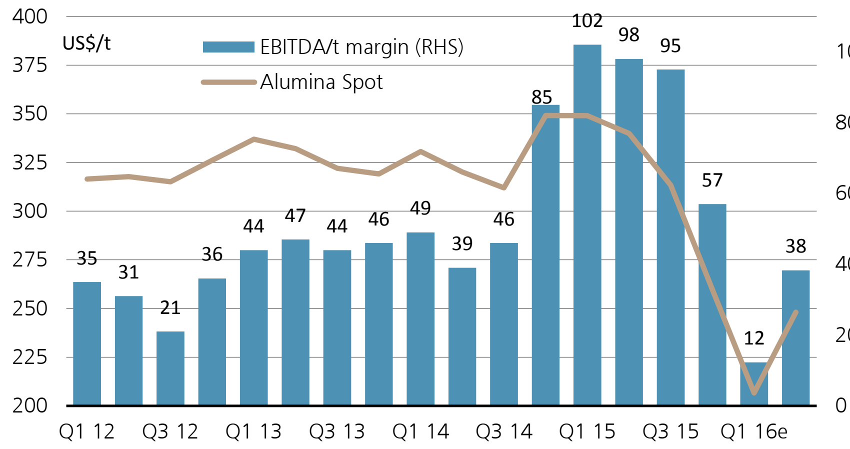
Spot margin recovering after Q1 16 low

The alumina price over the course of 2015 declined by 44% from a high of US$355/t in Jan 15 to a low of US$198/t in Jan 16. We believe the decline was driven by oversupply and a fall in the alumina cash cost curve. In the last 8 weeks the alumina price has rebounded 25% to be US$248/t today, driven by curtailments inside and outside China due to a <US$200/t alumina price putting >80% of the industry under water on an all in cash basis. AWC itself has curtailed 4.5Mtpa of alumina capacity while AWC reports that ~7Mtpa of Chinese alumina capacity is slated for curtailment.

AWC through its AWAC JV with Alcoa is guiding 12.7Mt of alumina production in 2016 (excl. Ma'aden JV), down from 15.1Mt in 2015 reflecting curtailments and disposals. In 2015 AWAC achieved an EBITDA margin of US$91/t, up from US$54/t in 2014. With the decline in the aluminium/alumina price and the fact that realisation is a lag of 1-2 months, the margin for Q1 16 is all but locked in. With spot alumina averaging US$207/t on a 1-mth lag, we estimate an EBITDA margin of US$12/t for Q1, which would be the lowest since 2009.

With alumina at US$230/t today, albeit with the A$ at US76.5 cents (Q1 16 average of US$72.2 cents) and Brazilian Real of $3.60 (Q1 average of US$3.90), we estimate the EBITDA margin today is US$38/t. Still below the long run average of US$60/t and our assumed long run margin of US$100/t.

Figure 18: EBITDA/t margin versus Alumina price



Source: AWC, UBS estimates

PIVOTAL QUESTIONS

return ↑

Q3: Can Alumina Ltd afford to continue to pay dividends over the next 3 years?

UBS VIEW

Yes. Given capex commitments and the desire to maintain a US$200-250m cash balance within AWAC, we estimate an EBITDA margin for AWAC of US$17/t is required to see AWAC FCF neutral. With AWC's cash outflows annually totalling ~US$20m for interest and SG&A, a further US$5/t margin is needed to cover these additional costs. Given an historical margin average of US$60/t and expectation that margins will improve from the current margin of US$38/t, we believe AWC can continue to pay semi-annual dividends. Also capital commitments are forecast to remain low, while AWC gearing is also low at <5%.

EVIDENCE

AWC did not pay a dividend for three years (2012-2014) due to low margins (EBITDA margin <US$50/t for period 2012-14) and high debt levels (20% gearing ; >US$600m net debt). Post an equity placement to CITIC in H1 13 and improved margins in H2 14, AWC recommenced dividends in H1 15 and despite weak cash flow in mid-2015, AWC continued to pay dividends through the use of a DRP. AWC has said that it is committed to returning FCF to shareholders as gearing is <5% and management has no wish to build cash on the balance sheet.

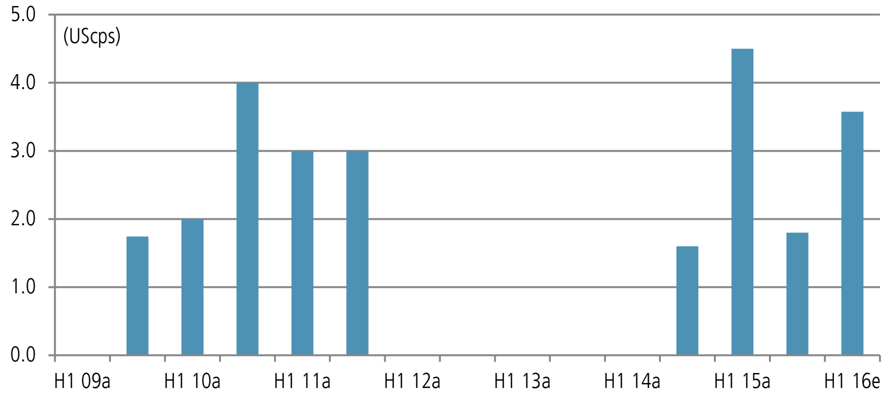
WHAT'S PRICED IN?

At $1.31ps and assuming the average dividend yield of 4% for the All Ords, this implies the market is pricing in a 2016 dividend of US4cps. Bloomberg consensus dividend for 2016 is US2.9cps, while our estimate is US5.5cps.

Dividends were suspended in 2012

In August 2012, AWC announced that no interim dividend would be paid given the current volatility in external markets, and the fact that the Company's cash flows and balance sheet were being conservatively managed. This was despite AWC receiving US$70m in distributions from AWAC during H1 12. Net debt was US$602m and gearing was 18% at the time.

Figure 19: AWC dividend history



Source: AWC, UBS estimates

Placement to CITIC in 2013 lowered gearing

Alumina Limited on 14 Feb 13 announced that CITIC would unconditionally subscribe, in aggregate, for 366,029,428 fully paid ordinary shares in Alumina, being 15% of Alumina's current capital base, representing 13.04% of Alumina's capital base following completion (the "Placement"). The Placement was to raise approximately A$452m based on an issue price of A$1.235 per share, which reflects a premium of approximately 3% to the closing price of Alumina shares on 13 February 2013 and a premium of 11% to the volume weighted average price of Alumina shares for the month ending 13 February 2013.

The funds raised under the Placement were to be applied by Alumina primarily to repay bank debt. Alumina's net debt position was expected to fall from ~US$681m at the time to ~US$216m as a result of the Placement.

By 30 Jun 13, net debt had fallen to US$197m with gearing of 6.3% at the AWC level. Despite the strength of the balance sheet, AWC declared no interim dividend for 2013 given challenging market conditions at the time.

Dividends resumed in 2015

AWC resumed dividend payments in Feb 15 with the announcement of a US1.6cps final dividend for 2014. Net debt had reduced to US$86.6m with gearing of 3.4%.

CEO Peter Wasow at the time said, "With a strong balance sheet, reduced capital requirements going forward and an improved business outlook, we are pleased to resume paying dividends to shareholders".

Further to this, AWC in its 2014 results release stated, "The decision to resume dividends reflects the directors' current view of the business outlook for AWAC and the Company's capital structure and requirements".

AWC management focused on returning FCF

In the 2014 profit release AWC's dividend policy stated "*The Board intends, on an annual basis, to distribute cash from operations after debt servicing and corporate cost commitments have been met. The Board will also consider the capital structure of AWC, the capital requirements for the AWAC business and market conditions. Dividends will be fully franked for the foreseeable future*".

We interpret this to mean that AWC will look to maintain a net debt figure around US$110-120m, and thus distribute all distributions from AWAC to AWC net of any costs incurred by AWC which are likely to include interest and SG&A.

AWAC cash breakeven above US$17/t EBITDA margin

With AWAC having a net cash position and expected to remain so going forward, AWAC need only generate an EBITDA margin sufficient to cover its capital commitments.

Guidance for 2016 is sustaining capital of US$150m plus growth capital of US$25m. Based on guidance of 12.7Mt of alumina production in 2016, this equates to ~US$14/t of capital intensity.

Beyond 2016 we envisage minimal growth capital and assume a sustaining capital spend of ~US$17/t. This implies a CF breakeven margin requirement of US$17/t.

AWC cash breakeven above US$22/t EBITDA margin

We estimate AWC's cash outflow commitments to be ~US$25m pa, reflecting ~US$12m for SG&A and US$8m of interest.

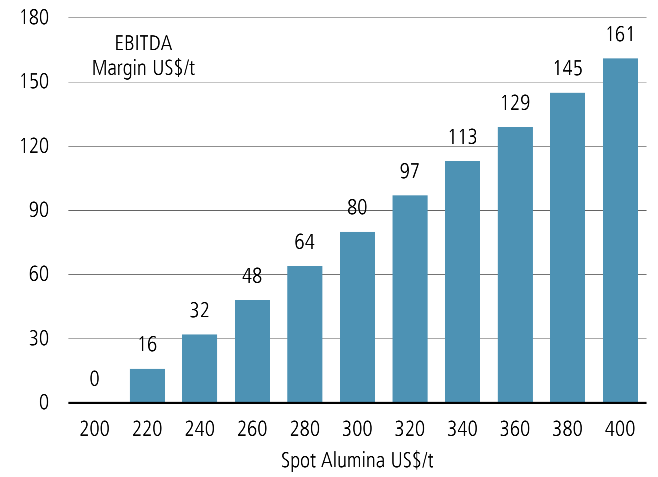
Based on future sustainable alumina production of 12.2Mtpa (excludes Ma'aden JV), this requires an additional US$5/t of margin within AWAC, thus implying an AWAC EBITDA margin of US$22/t to ensure AWC is FCF neutral.

AWAC distributions seen in H1 16

While we forecast an AWAC EBITDA margin for MQ 16 of US$12/t, which implies a negative FCF quarter for AWAC, we still expect distributions from AWAC in H1 16 due to : 1) surplus cash at 31 Dec 15 despite some one-off commitments including US$200m gas prepayment, 2) sale of DBP to DUET for A$205m which should close in Q2 16 and see net cash proceeds of US$115m to AWAC (US$46m or US1.6cps to AWC), and 3) EBITDA margin has improved to US$38/t following lift in spot alumina price (US$248/t), offset by a stronger A$ (US77 cents).

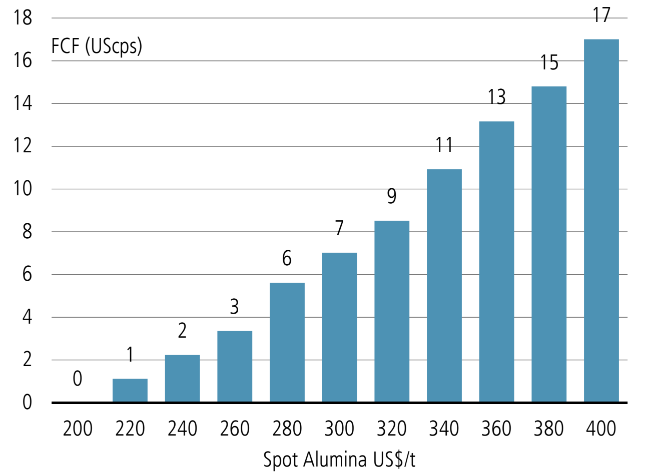
The figures below show the relationship between the spot alumina price and EBITDA margin for AWAC and FCF within AWC.

Figure 20: Alumina price vs AWAC EBITDA/t margin



Source: UBS estimates

Figure 21: Alumina price vs AWC FCF

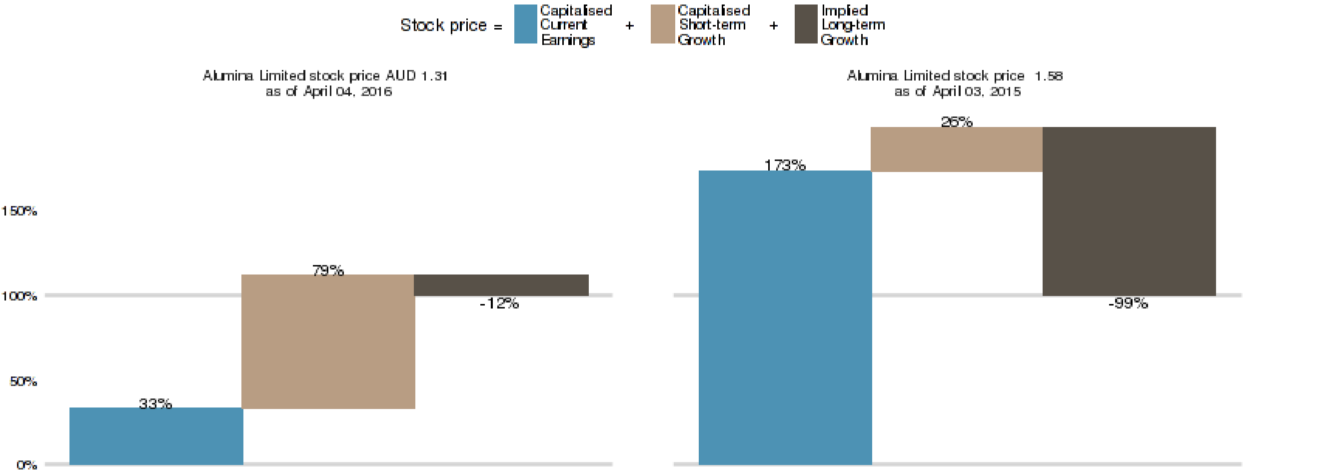


Source: UBS estimates

WHAT'S PRICED IN?

return ↑

Figure 22: What's priced in?



Source: UBS

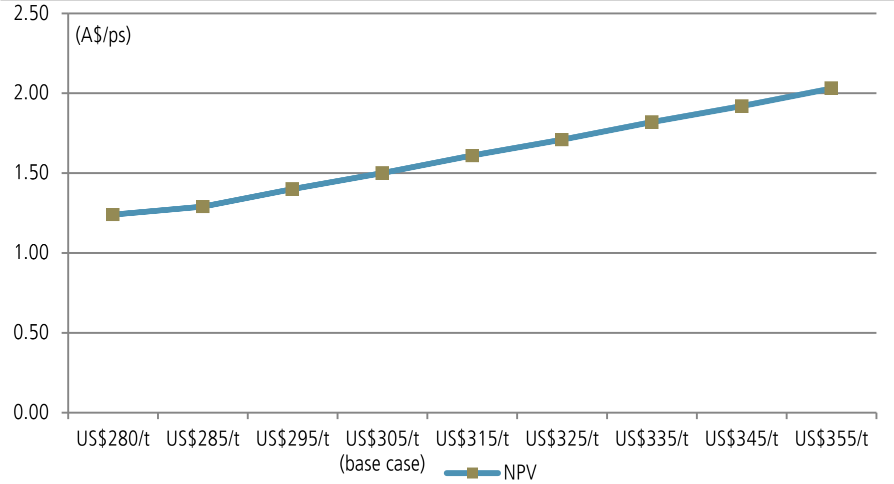
Capitalised current earnings: FY 16 EPS valued as a perpetuity at a 10% cost of equity (i.e. assumes FY 16 EPS continues forever).

Capitalised short term growth: Calculated as incremental growth in EPS from FY 16 to FY 18, similarly valued into perpetuity.

Implied long term growth: Is the residual leading to the current stock price.

The current share price of A$1.31ps implies a long term alumina price of US$285/t, which compares to UBSe of US$305/t. Our long term price kicks in from the MQ in 2021 and is from then inflated at 2.5% pa.

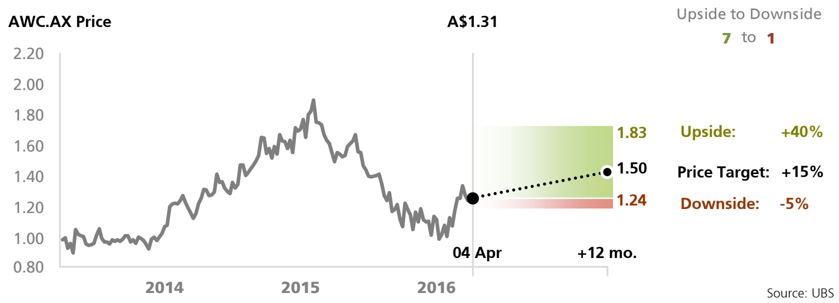
Figure 23: Sensitivity of AWC NPV to long term alumina price



Source: UBS estimates. LT alumina price kicks in from MQ 2021 and is inflated at 2.5%pa. Scenario includes AUD/USD of 0.75.

UPSIDE / DOWNSIDE SPECTRUM

return ↑



AWC is trading at A$1.31 (as of 4 Apr 2016).

Value drivers	Alumina price (long term)	AUD/USD
$1.83 upside	US$355/t	80¢
$1.50 target	US$305/t	75¢
$1.24 downside	US$280/t	75¢

Risk to the current share price is heavily skewed (7:1) to the upside

Alumina Ltd is trading at **A$1.31** (as of 4 April 2016).

Upside (A$1.83): An upside scenario for Alumina prices might entail a requirement for ongoing ex-China refinery investment. Under this scenario we think our old methodology of calculating a long term incentive price may be more appropriate. Using a weighted average incentive price across all projects would imply a long term alumina price of US$355/t (rounded). Refer to Figure 31 of our commodity team's note: Aluminium: China capacity eating the world. We also incorporate a higher A$.

Base (A$1.50): Our long term alumina price of US$305/t real, is based on 1) The incentive price for China domestic refineries; and 2) The incentive price for creep at RoW refineries & the marginal cost of production in 2020e. Refer to Figure 28 of our commodity team's note: Aluminium: China capacity eating the world.

Downside (A$1.24): If we were to reduce the alumina cost curve by 20% using the 2014 as a baseline, the marginal cost of alumina production may fall to around US$280/t. This is still above spot of ~US$248/t, but at this level around half of the industry is loss making, which is not a sustainable proposition longer term. Our downside case NPV assumes long term alumina of US$280/t.

COMPANY DESCRIPTION

return ↑

Market Cap	A$3.7bn
Shares Outstanding	2,806m
Industry and outlook	Metals & Mining
Region	Australia
Website	www.aluminalimited.com

AWC has a 40% interest in Alcoa Worldwide Alumina (AWAC), which has interests in bauxite, mining, alumina refining, alumina chemicals and two aluminium smelters, and is the world's largest producer and third-party seller of alumina.

Industry outlook

The global aluminium industry continues to suffer from overcapacity in China and a slow curtailment of loss making capacity in the west. This has resulted in the aluminium price remaining depressed and as a result an alumina price based on linkage at a substantial discount to the spot alumina price. At 12 Jan 2014, Indonesia placed a full export ban on mined bauxite, while in January 2016, Malaysia announced a 3 month moratorium on bauxite mining. The impact of these events (particularly if the Malaysian situation continues) could force China to import bauxite from elsewhere, or reduce its reliance on domestically produced alumina. We understand China has historically stockpiled bauxite, but a prolonged ban on Malaysian bauxite mining could lend support to the spot alumina price over the course of 2016. Global aluminium inventory remains large, but has now declined to below the 35 year average of 61 days, however ongoing record sales of Chinese semi-fabricated and aluminium extrusions into the export market may weigh on the aluminium price over the medium term.

Upcoming catalysts

11 April 2016 – MQ earnings call for Alcoa
06 May 2016 – AWC AGM Melbourne
11 July 2016 – JQ earnings call for Alcoa

Revenues by region (%)

AWC through its 40% share of AWAC sells aluminium and alumina globally. Production of alumina is predominantly in Australia and LATAM suggesting major markets are Asia, the US and LATAM.

EBIT by product segment

AWC only reports EBIT for AWAC which in turn generates 100% of its earnings from the production and selling of bauxite, alumina and aluminium.

Appendix

Appendix 1

Alumina Ltd (AWC.AX)

Analyst/s: Glyn Lawcock; Amber MacKinnon
Email: glyn.lawcock@ubs.com / amber.mackinnon@ubs.com
04-April-2016

MARKET INFORMATION

Rating:	**Buy**
Price (as of 04-Apr-16):	1.31
Price Target (12 months):	**1.50**
Issued Capital:	2,879.8
Market Capitalisation:	3,772.6
Avg. daily turnover (US$m)	13.1
Year end:	December
Website:	http://www.aluminalimited.com
Major Shareholders:	-
AUDUSD	0.77

COMPANY DESCRIPTION

AWC has a 40% interest in Alcoa Worldwide Alumina (AWAC), which has interests in bauxite, mining, alumina refining, alumina chemicals and two aluminium smelters, and is the world's largest producer and third-party seller of alumina.

INVESTMENT SUMMARY

(US$m)	**2015**	**2016E**	**2017E**	**2018E**
Net profit [reported] ($m)	88	82	235	248
Net profit [adjusted] ($m)	258	100	235	248
EPS [reported] (cps)	3.1	2.9	8.3	8.8
EPS [adjusted, diluted] ($)	**9.1**	**3.6**	**8.3**	**8.8**
EPS Growth (%)	*181%*	*-61%*	*134%*	*6%*
PER [adjusted] (x)	**0.4**	**0.5**	**0.2**	**0.1**
Dividend (cps)	6.3	5.5	8.4	9.2
Payout ratio (%)	*202%*	*191%*	*102%*	*105%*
Dividend Yield (%)	**4.8**	**4.2**	**6.4**	**7.0**
FCF Yield (%)	2.2	4.2	6.3	6.9
Franking (%)	100.0	100.0	100.0	100.0
Shares [period-average, diluted] (m)	2824.3	2824.3	2824.3	2824.3

OPERATIONAL ASSUMPTIONS

	1H16E	**2H16E**	**2015**	**2016E**	**2017E**	**2018E**
Aluminium Price (USc/lb)	70.0	74.0	75.5	72.0	75.3	80.0
Internal Sales Alumina Contract Pri	219.6	228.6	255.1	224.1	239.8	252.5
Alumina Spot Price (US$/t))	235.8	277.5	315.5	256.7	290.0	300.0
A$:US$	0.72	0.72	0.75	0.72	0.72	0.73
Production (AWAC 100%)						
Alumina Prodn incl. Ma'aden (Mt)	6.8	6.3	15.1	13.1	12.7	12.7
Aluminium Prodn (kt)	82.0	82.0	163.0	164.0	164.0	164.0
AWAC Financials						
Total Revenue (US$m)	1,897	2,071	5,380	3,968	4,390	4,546
EBITDA (US$m)	135	493	988	628	1,167	1,223
EBIT (US$m)	-6	355	686	349	895	954
Net Income (US$m)	0	254	318	253	638	680
Capital Expenditure (US$m)	88	89	172	178	229	235

VALUATION

Valuation per share [NAV @10%] ($)	1.50		
Share Price Target [12 months] ($)	1.50		
Price/NAV [10% disc rate] (x)	0.87		
Operating Assets [JH 16]		**A$m**	**¢**
AWAC (40%)		4576	159
Gross Assets		**4576**	**159**
Net Borrowings		(140)	(5)
Corporate Costs		(113)	(4)
Net Asset Value @ 10% discount rate		**4323**	**150**

DIVISIONAL BREAKDOWN [EBIT]

(A$m)	**1H16E**	**2H16E**	**2015**	**2016E**	**2017E**	**2018E**
AWC share of AWAC						
Revenue (A$m)	*1054*	*1150*	*2860*	*2204*	*2434*	*2492*
EBITDA (A$m)	*75*	*274*	*525*	*349*	*647*	*671*
EBIT (A$m)	*(3)*	*197*	*364*	*194*	*496*	*523*

PROFIT & LOSS

(US$m)	**1H16E**	**2H16E**	**2015**	**2016E**	**2017E**	**2018E**
Sales Revenue	0	0	0	0	0	0
Operating Cash Profit	**0**	**0**	**0**	**0**	**0**	**0**
Depn & Amortisation	0	0	0	0	0	0
Operating Profit	**0**	**0**	**0**	**0**	**0**	**0**
Exploration	0	0	0	0	0	0
SGA	-6	-6	-12	-12	-14	-14
EBIT	**-6**	**-6**	**-12**	**-11**	**-13**	**-12**
Net interest	-3	-3	-7	-7	-8	-10
Profit before tax	**-9**	**91**	**88**	**82**	**235**	**248**
Tax expense	0	0	0	0	0	0
Equity Associated NPAT	0	0	0	0	0	0
Minority Interests	0	0	0	0	0	0
Dividends [preferred]	0	0	0	0	0	0
Net Profit (reported)	**-9**	**91**	**88**	**82**	**235**	**248**
Normailsation adjustments	18	0	170	18	0	0
Net Profit (underlying)	**9**	**91**	**258**	**100**	**235**	**248**
EBITDA margin (%)			*18%*	*16%*	*27%*	*27%*
Net Interest Cover [EBIT] (x)			*55.2*	*27.8*	*64.9*	*50.8*
Tax Rate (%)			*NM*	*NM*	*NM*	*NM*
EBIT/Total Assets (%)			*17%*	*10%*	*25%*	*26%*
NPAT/Equity (%)			*13%*	*5%*	*12%*	*13%*

ENTERPRISE VALUE

(A$m)	**2015**	**2016E**	**2017E**	**2018E**
Enterprise Value	**2,788**	**2,791**	**2,756**	**2,756**
EV/EBITDA (x)	*5.3*	*8.0*	*4.3*	*4.1*
EV/Operating Free Cash Flow (x)	*33.0*	*17.4*	*11.6*	*10.5*

EPS SENSITIVITIES

Commodity	**Base Change**	**2016E**	**2017E**	**2018E**
			% EPS Change	
AUDUSD	1US¢	-7%	-3%	-3%
Aluminium	5 USc/lb	5%	2%	2%
Alumina Spot	US$10/t	22%	11%	10%

CASH FLOW

(US$m)	**2015**	**2016E**	**2017E**	**2018E**
Operating income [EBIT, UBS]	-12	-11	-13	-12
Depreciation & Amortisation	0	0	0	0
Net change in working capital	0	-0	0	0
Other (operating)	51	172	248	272
Pre-tax op cash flow	**39**	**160**	**236**	**260**
Interest (paid) / received	5	0	1	2
Tax paid	-1	0	0	0
Other	0	0	0	0
Operating cash flow	**44**	**160**	**237**	**262**
Capital expenditure	41	0	0	0
Net (acquisitions) / disposals	0	0	0	0
Dividends paid (Common)	-108	-152	-178	-245
Shares issued/(repurchased)	0	1	0	0

BALANCE SHEET [Selected Items]

(US$m)	**2015**	**2016E**	**2017E**	**2018E**
Net Working capital	1	-2	-2	-2
Fixed Assets	0	0	0	0
Net Other	2,083	2,008	2,006	1,998
Capital Employed	**2,084**	**2,006**	**2,003**	**1,996**
Net Cash / (Debt)	-101	-92	-33	-22
Total Equity [incl. minorities]	**1,983**	**1,914**	**1,971**	**1,974**
Net Debt / Equity (%)	*5%*	*5%*	*2%*	*1%*
Book Value per Share($)	*0.71*	*0.66*	*0.68*	*0.69*

Source: Company data, UBS estimates

Forecast returns

Forecast price appreciation	+14.5%
Forecast dividend yield	9.0%
Forecast stock return	+23.5%
Market return assumption	7.0%
Forecast excess return	+16.5%

Valuation Method and Risk Statement

Investment risk inherent in the resource sector includes, but is not limited to movement of commodity price and currency which may differ materially from the assumption used in this report. Furthermore the sector is subject to political, financial and operational risks, each of which has the potential to significantly impact company/industry performance. Our price target is derived from a DCF-based methodology based on a 10% discount rate.

Required Disclosures

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12-Month Rating	**Definition**	**Coverage**[1]	**IB Services**[2]
Buy	FSR is > 6% above the MRA.	48%	36%
Neutral	FSR is between -6% and 6% of the MRA.	39%	28%
Sell	FSR is > 6% below the MRA.	12%	22%
Short-Term Rating	**Definition**	**Coverage**[3]	**IB Services**[4]
Buy	Stock price expected to rise within three months from the time the rating was assigned because of a specific catalyst or event.	<1%	<1%
Sell	Stock price expected to fall within three months from the time the rating was assigned because of a specific catalyst or event.	<1%	<1%

Source: UBS. Rating allocations are as of 31 December 2015.
1:Percentage of companies under coverage globally within the 12-month rating category.
2:Percentage of companies within the 12-month rating category for which investment banking (IB) services were provided within the past 12 months.
3:Percentage of companies under coverage globally within the Short-Term rating category.
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UBS Securities Australia Ltd: Glyn Lawcock; Amber MacKinnon; James Brennan-Chong.

Company Disclosures

Company Name	Reuters	12-month rating	Short-term rating	Price	Price date
Alcoa Inc.[6, 7, 16]	AA.N	Buy	N/A	US$9.63	01 Apr 2016
Alumina Limited[13]	AWC.AX	Buy	N/A	A$1.31	01 Apr 2016

Source: UBS. All prices as of local market close.
Ratings in this table are the most current published ratings prior to this report. They may be more recent than the stock pricing date

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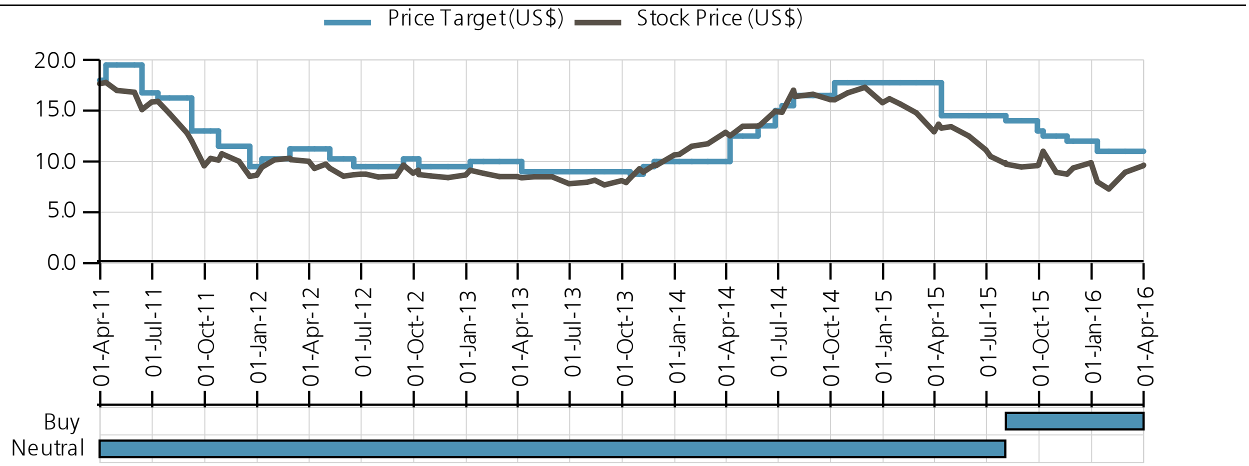
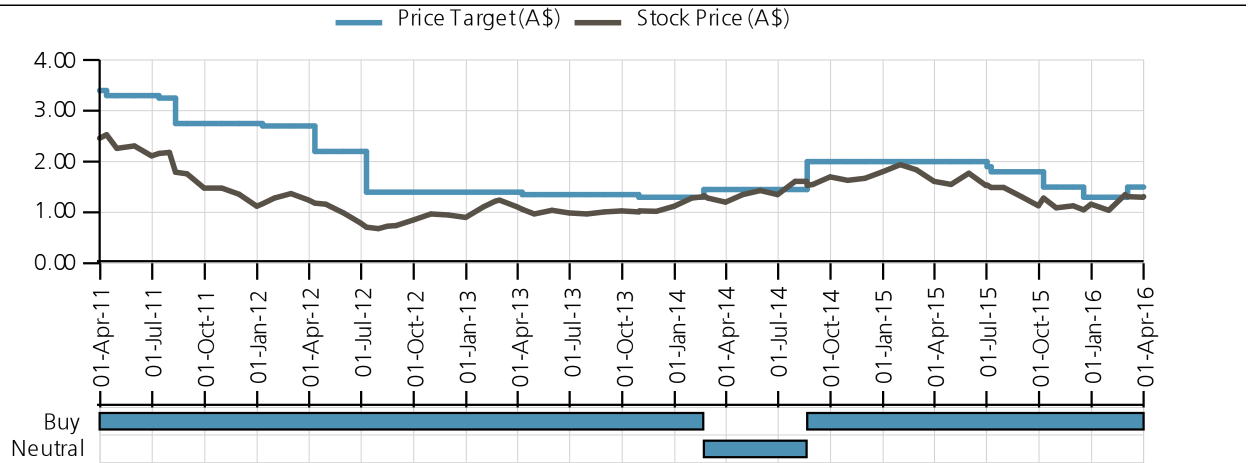
Alcoa Inc. (US$)



Source: UBS; as of 01 Apr 2016

Alumina Limited (A$)



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