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OCTOBER 2017

GFMS METALS RESEARCH

BASE METALS & FERROUS UPDATE

OVERVIEW

China debt worries persist while metals post multi-year highs.

COPPER SUPPLY WATCH

Tightness, what tightness?

NICKEL

Supply fears support, but lack of liquidity may dampen mood.

LME OPTIONS MONITOR

Fresh OTM calls point to further gains.

ZINC

Supply tightness continues, short term demand poses worries.


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IN THIS ISSUE

Summary and Overview

China debt worries hang back in the shadows as industrial metals rally

Even as industrial metals such as copper and zinc post fresh multi-year highs, caution persists in some quarters, including in the country's highest echelons, about the health of the Chinese economy and the vast and growing debt overhang that is fuelling growth.

China surpassed expectations in the first half of the year, with the long predicted negative impact of a property market slump failing to materialise. Against this backdrop, and resurgent speculative interest, the LME benchmark copper contract recently pierced $7,000/tonne on its way to its highest in more than three years. Meanwhile zinc, driven also by dwindling mine supply, has been among the strongest LME performers to date, surging to a ten-year high above $3,300 in early October.

Next year looks set to pan out somewhat differently

Latest data show that China's infrastructure and property sectors are slowing; and this is a pattern which is seen maintained through to end-year. Furthermore, with the government's continued and growing emphasis on deleveraging, these sectors will give at best a flat performance in 2018. For a metal such as zinc, heavily reliant on infrastructure for growth, this is especially disconcerting.

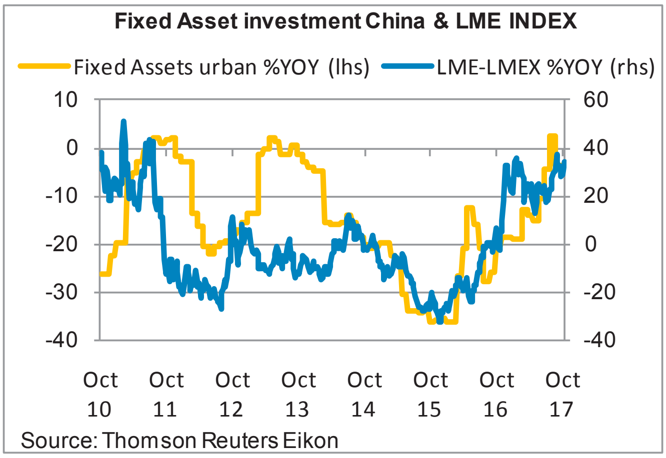
Also of concern, the upcoming enforced heating season closures between November and March in smog-prone provinces will have a disproportionately negative effect on zinc's key downstream galvanising sector compared with metal production.

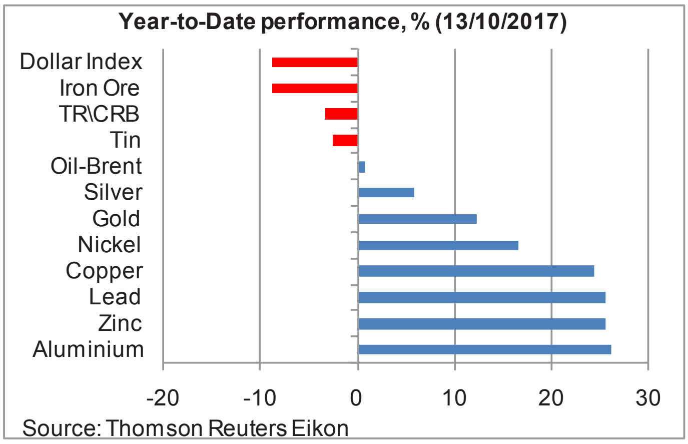
While we still see room for zinc to maintain an upwards price trajectory into next year, gains will be limited on an annual average basis. Progress will be hampered by demand developments, particularly as supply-side relief comes through from around mid-year with the start up of new western mine capacity.

Copper's fundamentals, meanwhile, indicate that this year's price strength will prove premature.

Copper rally: fake news or reality?

Certainly as the surplus widens again to around 300,000 tonnes on the back of strong supply growth we would expect this to be reflected in weaker prices; albeit a low single-digit decline year-on-year without a return to the cyclical lows.





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Copper is expected to end 2017 in fairly modest surplus following the disruptions at major mines in Chile (Escondida) and Indonesia (Grasberg) in the first half.

After a stagnant 2017, copper mine production is forecast to grow strongly by around 4% next year. Glencore is scheduled to restart idled capacity in Africa, with its Luilu facility in the Democratic Republic of Congo (DRC) significantly larger and lower cost than previously. By H2 2018 finished copper capacity at the operation is slated to reach 300,000 tonnes per annum (tpa). At its peak in 2014, Luilu produced only half that amount.

This will be accompanied by commissioning of First Quantum's 320,000 tpa Cobre de Panama project, the start up of smaller mines, a 100,000 tpa expansion at Southern Copper's Toquepala, not to mention the possibility of restarts that are likely to be encouraged in the present high price environment. A tight concentrates market will not be a feature hampering global refined copper production next year.

Meanwhile, on the other side of the equation, though stronger than expected Chinese demand has played a positive role this year, a weaker property market will be a headwind in 2018.

At time of writing the LME 3-month copper price is trading just below $7,100/tonne, and levels last seen more than three years ago. While further strength cannot be ruled out near term, in our view this is likely to leave prices with further to fall once less than bullish fundamentals reassert themselves.

Against this backdrop other industrial metals without their own sufficiently compelling bullish narrative are likely to be pegged back.

Nickel is likely one such example. While mindful of this market's tendency for volatile price moves, another year of modest deficit and still high inventory levels is likely to hamper performance on an annual average basis; reflected in equally modest price gains.

Zinc ‘supply trade’ tapers, eyes turn to demand?

Zinc Market Outlook, October 2017 Update

Prices Outlook

LME zinc prices have gained strong upside momentum since early June and the 15% gains made during the third quarter were followed by a ten-year high of $3,308/t. Meanwhile, exchange stocks (LME and SHFE) are both at nine-year lows. LME 3-month prices have risen by 26% in the year to date.

Demand growth has skewed to the upside in China over the previous two quarters and this has combined with supply tightness to reassert zinc’s bullish narrative. On the futures market, we have seen sharp upward moves in the net long positions and intra-day prices. (More analysis in reports - *Climbing galvanisers’ profit in China shore up zinc demand, add fuel to the metal’s bullish narrative;* *Zinc market overview, stock falls underline firm fundamentals in 2017*)

Over a three to six-month horizon, supply side tightness will remain the key theme in fundamentals. In terms of 2017 we are forecasting full year average prices (LME 3-month) of $2,950/t, up 41% year-on-year.

Year-to-date Chinese mine production has contracted and a decline for the full year is likely. We estimate mine output in China, the world’s largest producer, will fall by 2.4% year-on-year. We expect global mine production to grow 3.3% helped by decent growth in India as well as in other major producers such as Peru, Mexico, and Australia. However, seasonal cutbacks and closures in China’s Northern Inner Mongolia during the harsh winter could add to concentrate tightness. The region has replaced Yunnan as China’s largest zinc mining province. In the meantime, smelters are battling to secure feed and stockpile concentrate. Overall, the concentrate shortage is likely to become more acute.

However, demand side stories from China may begin to have the upper hand in Q4 and potentially determine short term market sentiment, preventing further significant price rises.

Risks to the demand side stem from pollution control measures which tie into the ‘2+26’ policy whereby cities are required to cut production of nonferrous metals, steel, cement, coal and construction materials including ceramics. Transportation of industrial materials will be stopped in the event that the atmospheric particulate matter reaches alarming levels (PM2.5).

Abstract

While zinc’s supply crunch continues to support a bullish narrative and has sent prices to decade highs, the demand side may have the upper hand going forward. In particular the winter heating season cutbacks in northern China, a main galvanising production hub, may dent short term demand.

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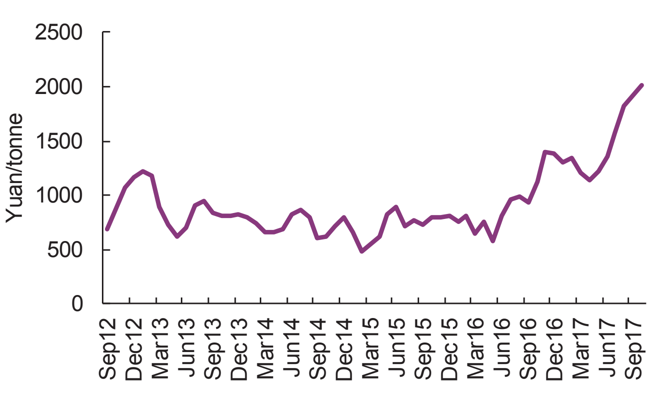
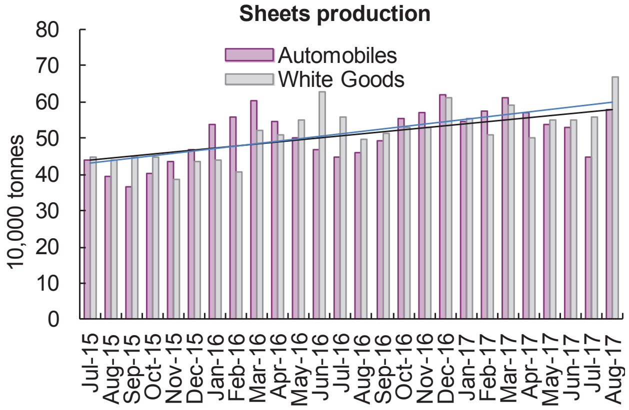
10th October 2017

Gross Margin Galvanised Sheets/Plates



Source: GFMS Thomson Reuters ; SteelHome; SMM

Chinese Zinc Galvanised Auto & White Goods Sheets production



Source: CISA members

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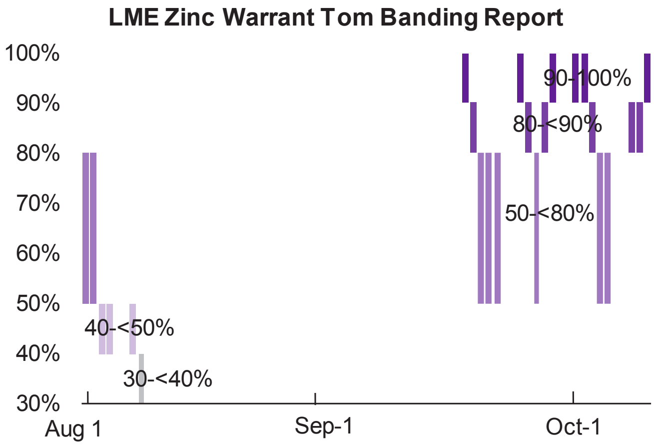
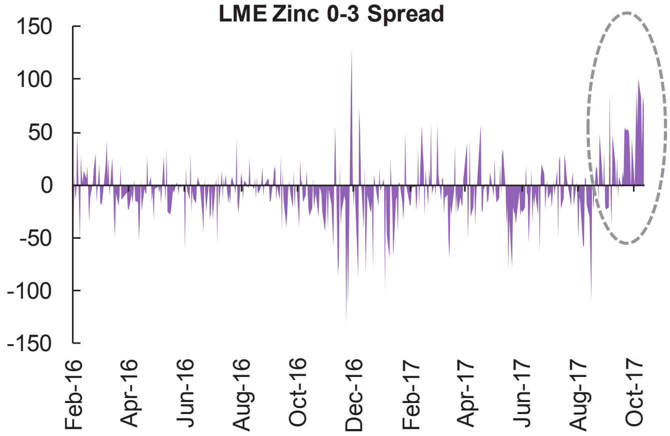


Source: LME; Thomson Reuters Eikon



Source: LME; Thomson Reuters Eikon

The Chinese authorities' determination to combat pollution has been enacted in multiple ways but overall it is a 'double-edged sword'. With that said, their efforts in cracking down on pollution across the country have led to closures of mines which have failed to meet requirements including those which cannot afford sufficiently robust tailings dam. Chinese Ministry of Environmental Protection (MEP) inspections have been sweeping across the country and knocked supply growth. In August, more than 60% of lead and zinc mines in China's southwest Sichuan province was suspended after environmental inspections.

However, the pollution controls will also bring disruptions to demand over the coming heating season which usually last from November until March, with China's largest galvanising production region targeted. Neighbouring the capital Beijing, the Tianjin municipality and Hebei province are the hub of Chinese zinc galvanising along with the area's steel industry clusters. With northern China gradually entering the winter season, the area will be under the spotlight. It would not be surprising to see further enforced closures, particularly given the upcoming 19th National Party Congress which could make authorities take tougher action.

According to CISA (Chinese Iron and Steel Association), galvanised sheet production from their members has shown a counter-seasonal cyclical pattern i.e., production over the summer months has surprised on the upside, and as a result cumulative production growth for the first eight months is up by around 5% year-on-year. The reasons behind this we believe should include better demand from end use sectors as well as higher production margins for galvanisers. There are overlaps between independent galvanisers and integrated steel mills. Within that growth from CISA member producers, we think part of their plan has been to boost production before Q4. Steel mills have been noticeably cutting production during the winter heating season. It is likely that galvanised production will record a sequential decline during Q4.

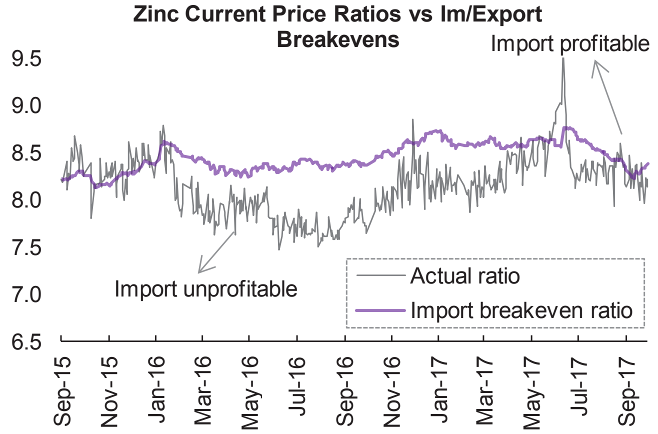
Our 12-month view of the market is that the bullish supply side narrative will unwind towards the end of 2018 and that demand developments may take the upper hand. In 2018, as a base case scenario we see prices recording marginal growth of 1.7% year-on-year to $3,000/t.

What to watch next? -major uncertainties/risks

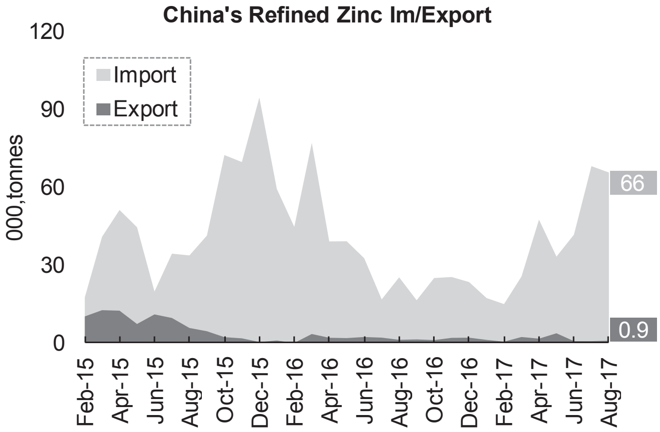
- Invisible stocks - The 'known unknown'

The tightness in this market is evidenced by a deepening backwardation in the LME market. The LME cash to 3 month spread hit its widest for many years over September this year, increasing the borrowing costs. The LME warrant tom bandings, showing the number of separate trading entities who hold a significant percentage of warrants and positions along the front of the curve for tom, cash and cash+1 expressed as a percentage of live stocks. This picture reveals that since mid-September there has been a pick-up in trading days where positions are dominated by single entities (see chart on previous page). This was against the backdrop that exchange stocks of refined zinc have now fallen to multi-year lows, while sizeable unreported stocks are understood to be held in private warehouses. Unconfirmed rumours have been spreading of a few hundred thousand tonnes in Spain and New Orleans. In September, however, we have only seen two rises in LME stocks each time at just over 20kt, unconvincing signs of a sustained stock rebuilding process underway. Historically, a surge in LME stocks tends to dent short term prices. For example, from 8th August to 14th September in 2015, LME stocks increased 44% or by over 190kt. Over the same period, the LME's most liquid contract dropped sharply, falling by 9.45% before making almost a full recovery.

However, despite the nearby premium, the LME may not be the sole destination for invisible stocks in the western market Indeed, it would appear that for those seeking 'risk free' premium the Chinese market (including bonded warehouses) has already attracted metal as a result of the favourable physical import arbitrage window during August and September. Indeed, there has been a significant surge in Chinese refined imports since July.



Source: GFMS, Thomson Reuters



Source: Thomson Reuters Eikon

- The 'grey rhinos' threatening China's economy might dent zinc's medium to long term demand picture

'Grey rhinos' that have been threatening Chinese economic growth have not gone away, and are unlikely to leave without some pain. Some are looming large such as heightened capital outflows pressures because of the faster-than-expected normalisation of U.S. interest rates. The overstretched debt in the corporate sector and mounting provincial government debt as well as the overheated real estate sector have all been threatening the country's financial stability; one of the policy makers' top priorities.

A deleveraging campaign and deep restructuring have been called for in order to tackle problems while the authorities also want growth. Since the 'old economy' pattern is largely relying on debt-financed investments particularly since the 2008 financial crisis, while the economy is still in the process of rebalancing towards a service and consumption driven economy, it would be extremely difficult to deleverage without impacting growth. This year, infrastructure investment growth and real estate sector activities have already slowed down. These are zinc's major end use sectors. Questions surrounding their sustainable growth pose downside risks for zinc demand over the medium to long term.

- Regulation risk - abrupt adjustments in the event of market turbulence

A succession of asset bubbles from stocks and bonds and real estate have led the Chinese authorities to give higher priority to financial stability than to reform and growth. Following Chinese stock market turbulence in 2015 when there was massive volatility the government introduced many measures to stem the turbulence. In the event of a similar situation occurring in the futures market, the authorities are likely to intervene.

In fact, as lead and zinc have risen to new highs, SHFE has already come up with a number of trading rule changes in order to curb excessive speculation. Below is a select list of some of the SHFE trading rules changes on lead and zinc.

Effective Date	Changes in SHFE Trading Rules
26/09/2017	Notice on the Adjustments to the Transaction Fees for Closing out Intra-Day's Positions in Relevant Futures Contracts on Lead
23/08/2017	Notice on the Imposition of Trading Limit on Relevant Zinc Contracts
24/11/2016	Notice on Adjusting Trading Margins and Price Limits of Copper, Aluminium, Zinc, Lead, Nickel, Tin, Rebar, Hot Rolled Coils, Natural Rubber and Bitumen
Source: SHFE	

- In the United States, President Trump's proposed corporate tax cut plan and infrastructure spending package remain key areas to watch in the world's second largest zinc consumer. There have been many debates whether these measures would balloon the federal deficit and debt, if the economic growth forecast by the Republicans fails to materialise amid rising interest rates.

We see moderate growth in zinc demand from the United States this year and this is being driven primarily by vehicle production and construction. Also worth noting that even though U.S. production of passenger cars and light trucks has shown a 1.9% decline over the first nine months, zinc usage has benefited from the SUVs sector which has high zinc content in its body-in-white (BIW). Consumers' shift from cars to SUVs is one of the most significant developments the industry has ever seen.

Copper Supply Watch

6th October 2017
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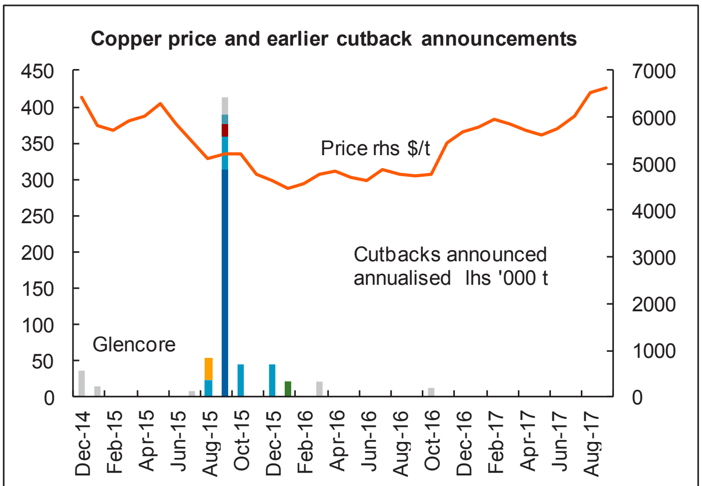
It might be slightly premature to pose this question just yet, but while copper supply disruptions dominated the market in early 2017, so far the second half has been a rather more relaxed affair.

Copper: tightness, what tightness?

While supply and demand might end 2017 relatively finely balanced, albeit still in slight surplus, production looks set to pick up in coming months and, significantly, gather considerable momentum next year. This may muddy the picture for those holding out for a sustained upwards trajectory to prices from their already elevated levels.

Ironically, copper prices, last at $6,651/tonne, and not far off recent three-year highs, only really took off over the summer months once some of the earlier major obstacles to supply growth had been overcome. The Escondida mine in Chile, which had been badly affected by a 44-day strike in February/March, had finally resumed normal operations around July, while concentrate exports were also running relatively smoothly from Freeport's Grasberg mine in Indonesia after the earlier government-imposed ban.

Mine production growth next year will be supported by start-ups of the Bytrinskoye mine in Russia and First Quantum's Cobre de Panama project, which when fully up and running will add a combined circa 400,000 tonnes per annum (tpa) of new capacity. Added to that, we see markedly stronger contributions next year from mines such as FQM's Sentinel in Zambia and Southern Copper's Toquepala in Peru after an expansion. Not to mention Glencore is also scheduled to restart capacity currently idled in Africa. The traditionally somewhat nebulous nature of cutbacks in general should also be borne in mind. These higher prices might encourage the reopening of other capacity idled in 2014/2015; and more quickly perhaps than those closures in some cases were implemented.



Source: GFMS Thomson Reuters

Also calming fears on the mine side near term an Indonesian mining ministry official said that Freeport will be able to continue to export copper concentrate from Grasberg this month even if talks over a new mining permit have not been resolved. However, all does not appear rosy in the background and the company has yet to request an extension.

Assuaging concerns with regard to refined production in the shorter term, cathode output in China, the world's largest producer, looks set to rise by around 5% this year. Growth was supported earlier in the year, despite the aforementioned mine disruptions, by higher scrap feed. Now, while Chinese scrap imports have been in a declining trend in recent months due in part to longer inspection times at ports, concentrate supplies evidently have eased as indicated by the 10% increase in treatment charges set by the Chinese Smelters Purchase Team for the final quarter.

Japan plans

Reflecting this also Japanese copper smelters announced production plans for the second half of the current financial year (ending March 31st 2018), which will amount to a 4% year-on-year increase for the period. As a result, what had looked set to be a sizeable decline for calendar year output in 2017 will be limited to just 1%.

Japan is the world's third largest producer behind China and Chile respectively. With no domestic mines, it is a key destination for concentrates, and hence one barometer for the state of mine supply. Through to April, trade data shows that Japanese copper concentrate imports on a gross weight basis were down almost 11% year-on-year, amid significant declines from Chile and Indonesia. The shortfall has gradually reduced and by August (latest available data) had contracted to less than 4%.

Some of the increase on a per company basis is down to the juggling of ownership and capacity at one particular smelter. That aside, however, Japanese sources recently told us that the concentrate market had been quiet, with transaction volumes relatively thin, and also that there had been no panic over even during the disruptions.

Barring a major labour dispute or unforeseen natural disaster, global mine production looks on course to continue its recovery in the Q4 particularly if current elevated prices encourage restarts. With a further sizeable increase in the order of 4% expected in 2018, refined production will also pick up pace, and give rise to a larger surplus.

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Nickel: Supply tightness fears, steady demand support, but liquidity needs watching

Abstract

The premium for nickel cathode has been rising in China, and supply worries are helping to support prices for the metal. More bullish sentiment has been stoked by fears for lower ore imports into the world's top producer as the rainy season fast approaches in the Philippines. Meanwhile, news of Chinese NPI capacity cuts in China sent a shockwave through the market, though the actual impact may not be that significant. Demand for nickel from the stainless sector remains steady, but there are some concerns that a lack of liquidity may start to dampen speculative mood in that market.

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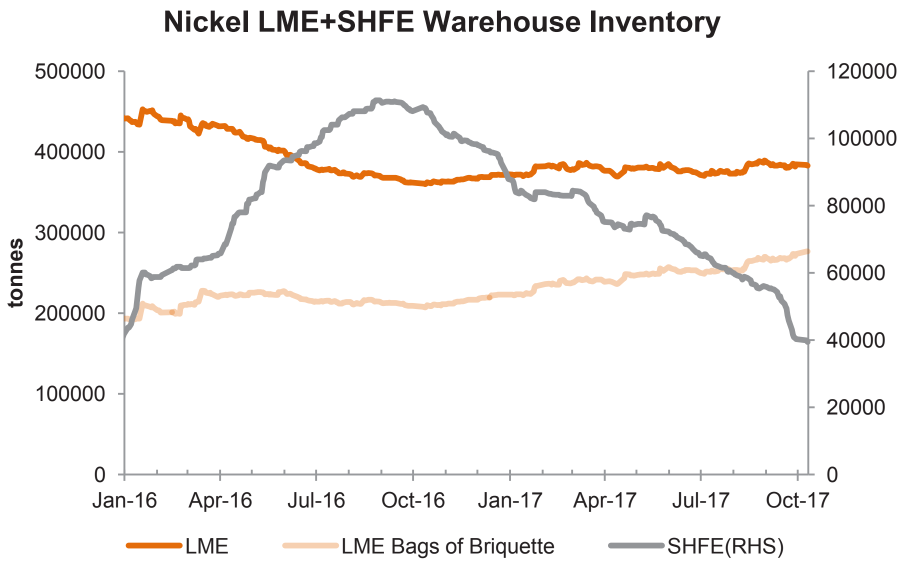
12 October 2017

CIF Premium Rising Amid Falling Stocks

The CIF premium for nickel full plate cathode has reached close to $300/tonne in China after the Golden Week holiday, boosted from $220 in early September by opening of arbitrage the window, restocking by stainless plants in late September, and in particular the continued decline in cathode inventories. SHFE stocks, which comprise only cathode, have touched their lowest level since end 2015.

At first glance LME inventories have remained relatively steady either side of 380,000 tonnes in recent months, but if we take a closer look, cathode stocks have been falling and briquettes, namely bagged briquettes account for around 72% of the total. Shanghai bonded warehouse inventories meanwhile have continued to fall. The situation in China has been exacerbated by lower production from Russia's Nornickel, the only registered foreign brand in SHFE, due to reconfiguration of production facilities at its Polar division. Given also the possibility that several trading firms have been stocking up on nickel cathode, the premium might continue to increase in the near term.



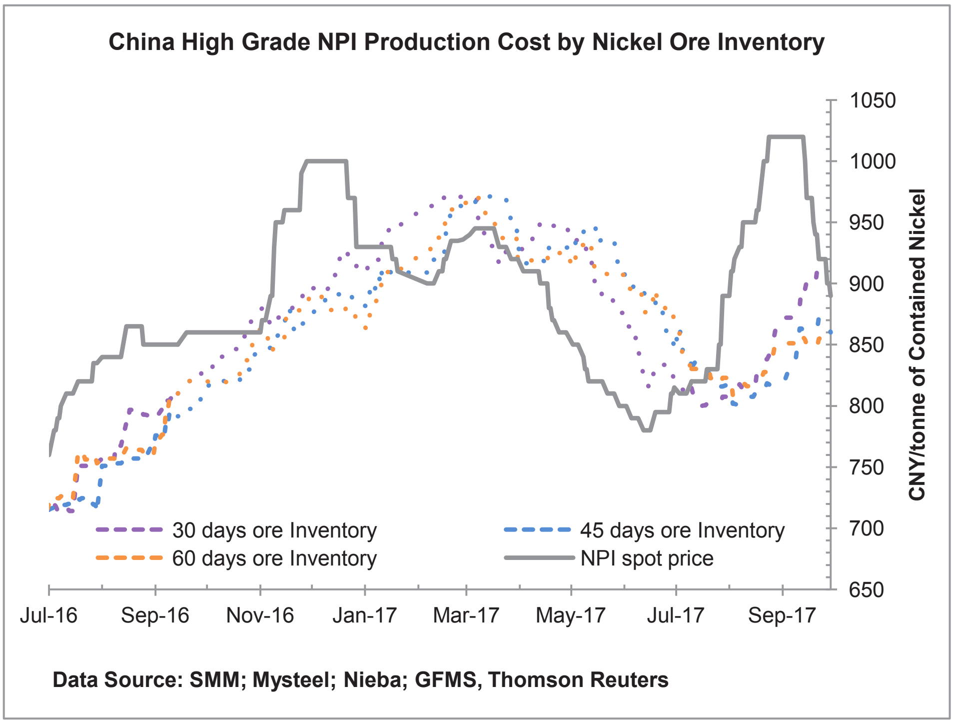
Data Source: LME; SHFE;Thomson Reuters Eikon

China Nickel Pig Iron-Supply-Side Shock Boosts Sentiment

In the January to August period, Chinese nickel ore imports increased by 8.2% year-on-year, according to trade data. Within that Indonesia accounted for a total 1.67 million tonnes (the official Indonesian number stands slightly lower at 1.49 million tonnes, according to Reuters news). Either way, both numbers amount to less than a fifth of the Indonesian government's official annual quota of 8.98 million tonnes. In fact, despite the relaxation of Indonesia's earlier nickel ore export ban, concerns are growing for an ore shortage during the Philippines' rainy season around end-year as the latter remains the main supplier to the Chinese nickel pig iron (NPI) industry. Certainly, the price for higher grade and higher water content Indonesian ore has left Chinese NPI plants unwilling buyers of the material. Apparently exacerbating the situation for the NPI sector, the Environment Protection Bureau of the city of Linyi recently announced that half the capacity of four NPI plants in Shandong province must be cut from mid-November to mid-March next year. Among them, Shandong Xinhai Technology is the largest NPI plant in China, accounting for 26% of total production in September. However, the actual impact on supply could be much less as the constraint was imposed on capacity rather than production, and theoretically plants could close several old lines with the least production and keep open those producing more. An improvement in nickel content is another way to increase production as NPI is priced on this basis.

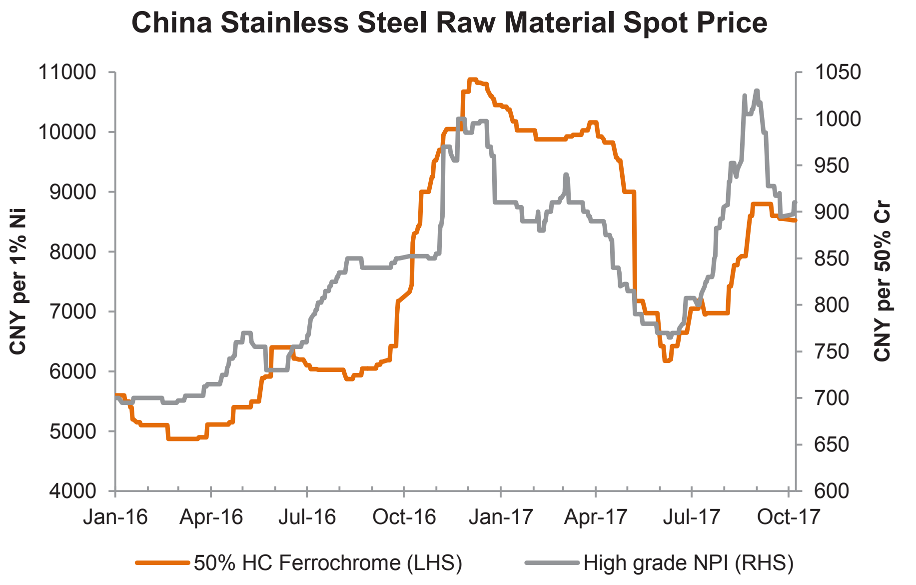
On the Indonesian NPI side, little had been heard since June from Virtue Dragon, a subsidiary of Jiangsu Delong, after it announced earlier this year plans to start 19 RKEF lines. In late September, however, the company said it had made its first shipment of 10,000 tonnes of NPI the previous month. Tsingshan meanwhile, has launched the first and second (late September) phases of stainless steel production, each with 1million tonnes per annum (tpa) capacity. The operation is expected to consume all of its NPI locally in Indonesia when running at full capacity and as such there will be less material available to help ease the tightness in China.

As seen from our cost model, revenues remain reasonable for most standalone RKEF plants despite the drop in the NPI price since mid-September. In any case, we expect to see strong price support for high grade NPI as NPI plants tend to increase their ore inventory in preparation for the rainy season (shifting to the orange line).



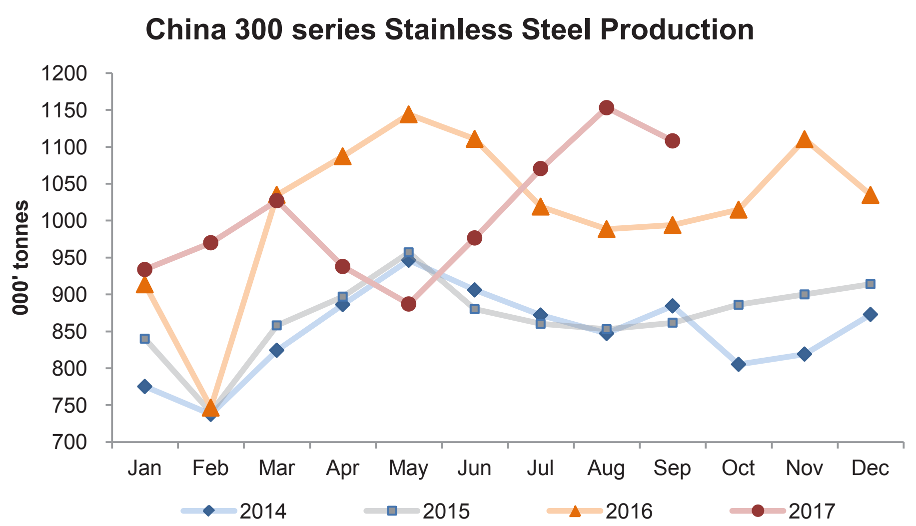
Stainless Steel Demand Picks up After Late September Price Fall

We've also seen an increase in stainless steel raw material restocking activities following the drop in prices in late September ahead of the national holiday in early October. As a result, raw material inventories are understood to be high at stainless plants and resulted in a decrease in transaction volumes after the holiday.



Data Source: SMM; Mysteel; GFMS, Thomson Reuters

Stainless steel production in September remained robust, but the decline in the price during the second half of September has led to high stainless inventory levels at mills. But according to our understanding, stainless mills are still running at full capacity in October on the back of positive revenues, and thus we expect October production to remain at the same level.



Data Source: Nieba

Stainless inventories at public warehouses, meanwhile, have fallen to low levels, and led to bullish market sentiment based on expectations that trading firms will restock and push up the price once again. But several potential risks need to considered. First of all, uncertainty remains among stainless market participants as reflected by the volatile daily price change. After several months' of painful destocking, trading firms are much more cautious. The capacity of trading firms to absorb products is largely dependent on cash flow, and a lack of liquidity was largely responsible for the slump in the stainless price from March to June.

We understand liquidity has been easier lately and a few trading firms have replenished their stock betting on positive macro economic data and a stainless price rebound. At present, many stainless trading firms already have at least a certain amount of inventories in hand and daily transaction volumes largely depend on the nickel price rather than vice versa. As end consumption remains steady but not that significant, the performance of the stainless market will have a closer relationship with macro data. Last but not least, stainless mills recently have started to make deliveries, while stainless from Tsingshan Indonesia has also started to show up in the market, and could at least dampen the speculative mood.

Resource Nationalism in Mining

Abstract

Increased resource nationalism is often a reflection of an upturn in the cycle, and on the face of it the stars may seem to be aligning for the governments of resource-rich nations as metals prices rally. However, the sustainability of this uptrend remains open to question.

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Resource nationalism catches the eye as metals rally, but upturn may not sustain

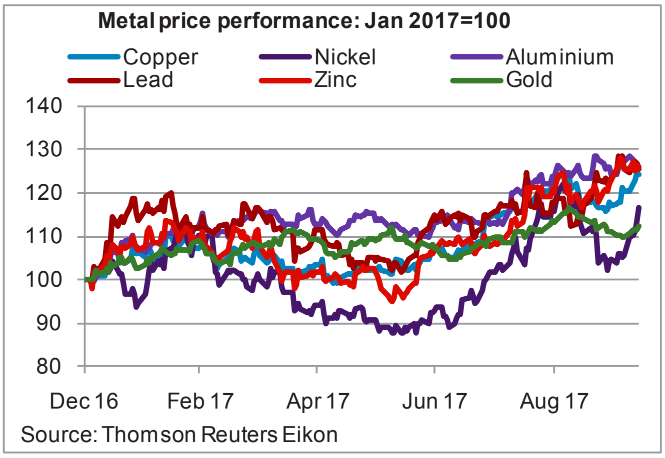
The current strength in metals would seem supportive to governments arguing for a greater proportion of miners' profits to be diverted to their own nations' coffers. Zinc and, more latterly, copper are among those leading the charge, and are up around one-quarter in value from the start of the year. The jury is still out, but in hindsight, recent stances taken by authorities in Africa and more latterly Australia could be deemed to mark the beginning of a sustained upturn in resource nationalism. However, it may yet prove but a brief flirtation. The fundamentals of individual metals are taking a back seat as largely speculative activity holds sway and prices rally. But if, as we expect, some metals adjust lower again as prospects dim, so countries may struggle to push through plans to monetise their resources.

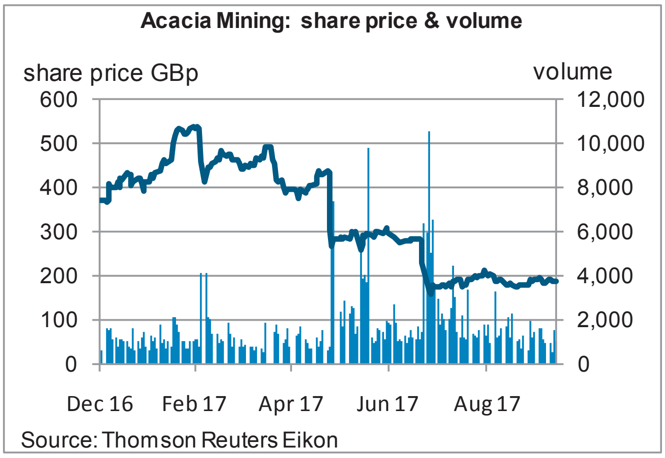
Uproar in Western Australia

The government of Western Australia caused uproar among the state's gold mining community on Thursday (7th September) by announcing plans to increase the gold royalty rate to 3.75% from 2.5% in a bid to reduce the budget deficit. The state accounts for 80% of total Australian gold mine production, according to Reuters news. With mining firms warning of job losses and slashed exploration spending, continued strong opposition to the latest proposal, which has yet to secure Upper House approval, looks inevitable.

Also on Thursday, South Africa's mines minister said amendments to the country's resources law, which include allowing firms 12 months to increase black ownership to a minimum of 30% from 26%, were expected to be passed by end-year; later than planned. Miners' share prices were hurt earlier this year amid concerns over the implications of its introduction on jobs and investment.

And so the list goes on. In May, shares in Barrick's majority-owned Acacia Mining also tumbled after it was accused as part of a wider shake-up of evading taxes for years by under-reporting exports from its Bulyanhulu gold-copper mine in the country. In the absence of resolution, the company has said the mine will close at the end of September. Last month, Zambia reduced power supply to First Quantum and Glencore in a dispute over a hike in power prices. Attempts in 2015, to raise Zambian mining royalties met with strong opposition in the face of weak metals prices and the government had to backtrack.





Counter-cyclical activity

That said, some instances of resource nationalism have their own peculiarities and are likely to happen regardless of the stage in the cycle. Freeport-McMoRan's deal with the Indonesian government over the Grasberg copper-gold mine is one such example.

The Indonesian government recently sounded a triumphant note when announcing it had gained concessions from Freeport that will permit the firm to keep operating Grasberg, and include divestment of a 51% stake and a new smelter.

The dispute between the two parties has rumbled on over a protracted period, and progress needed to be made by October most immediately for Freeport to secure its next export permit. This has been deemed critical for a copper market beset by major disruptions to supply early this year, and which crucially included a lengthy halt to concentrate shipments from Grasberg. Further ahead there may yet be battles over the deposit's valuation.

Certainly Indonesia has been one of the greatest proponents of resource nationalism pushing ahead with plans on a counter-cyclical basis. In its bid to create a value-add downstream industry the government introduced a ban on ore exports in early 2014, which rocked the nickel market and provided an interlude to the broad downtrend that had been in place since 2011.

As a result, nickel prices which had more than halved in value between February 2011 and mid-2013, languishing not far above $13,000/tonne, rebounded to $21,625/tonne in May 2014, until it became apparent that Indonesia's "loss" was the Philippines' gain as ore exports from the latter surged.

Resource nationalism did not go away entirely in the last downturn, but there are signs of it becoming a more prominent feature again in metals. However, this looks to be more a case of parties jostling for position than an indication that the next cyclical boom is upon us. Certainly we believe that a number of metals including the LME bellwether contract copper are currently over achieving.

The Facts & Myths of Iron Ore Production Cost and Port Inventories

Abstract

With the Ministry of Environmental Protection (MEP) stepping up on its "war on pollution", supply side reforms have been an endemic feature in the Chinese steelmaking industry in 2017. What then are the repercussions for miners producing different grades of iron ore? Given the record stockpiles of iron ore across Chinese ports in 2017, are there any irreversible paradigm shifts that await?

Edwin Toh

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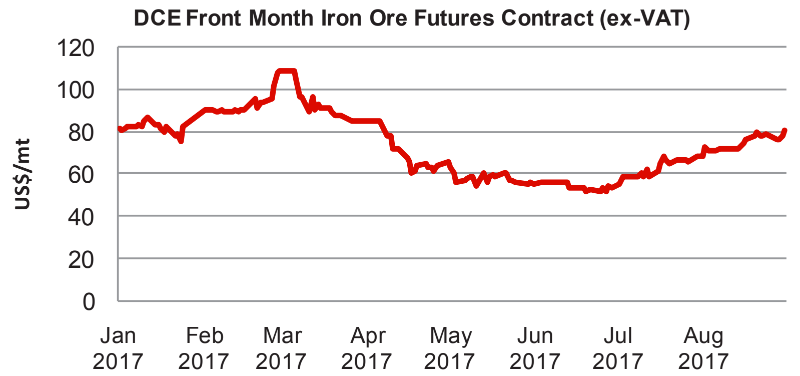
25 September 2017

Iron Ore-Price Trends

2017 Spot Seaborne Iron Ore Prices Trends

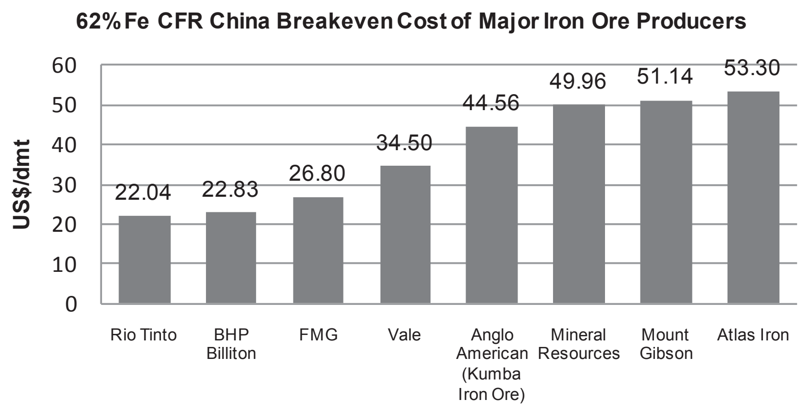


Source: Dalian Commodity Exchange (DCE)

In the first eight months of 2017, Dalian Commodity Exchange's (DCE) front month iron ore futures contract – priced on a 62% Fe basis – scaled a peak in excess of US$100/mt ex-VAT, before retreating to a nadir slightly above US$50/mt ex-VAT. These price trends, while echoing the prevailing sentiments – from the Chinese authorities' supply-side reforms of cutting steel output to eradicating induction furnace capacity – of the day and fuelled by speculative demand for the most liquid bulk commodity, spell vastly divergent fortunes for miners.

With the four biggest iron ore miners – Vale, Rio Tinto, BHP Billiton and Fortescue Metals Group (FMG) – commanding approximately 70% of the world's seaborne iron ore market, volatility and wild swings in spot iron ore prices would invariably impact miners adversely. Given the significant differences in production cost for different miners, however, prolonged dips in spot iron ore prices would critically undermine the survival of some miners.

CFR China Breakeven Cost of Major Iron Ore Producers



Source: Company Reports, Thomson Reuters GFMS

DCE's front month iron ore futures contract averaged US$73/mt ex-VAT in the first eight months of 2017. While these price levels are above most miners' CFR China breakeven cost, the disparate margins between the four biggest miners and other prominent smaller Australian producers – Atlas Iron, Mount Gibson and Mineral Resources – of predominantly low-grade iron ore fines (with 56%-58% Fe content) illustrate the gulf in depth between various miners' ability to withstand bearish swings in spot seaborne iron ore market.

With the latter's production cost double that of the former's, sustained spot iron ore prices above US$80/mt are essential for smaller Australian producers of predominantly low-grade iron ore fines (excluding FMG, who are able to capitalize on their low production costs through economies of scale, despite producing primarily low-grade iron ore) to operate at optimal capacity.

Cessation of Mining Operations and an Ensuing Consolidation Phase: History Revisited?

When spot seaborne iron ore prices (62% Fe basis) averaged US$57/mt in 2015 and 2016, a slew of Australian producers specializing in the production of low-grade iron ore ceased mining operations as the dip in iron ore prices eroded all margins with production cost far outweighing spot prices.

Small Australian producers of predominantly low grade iron ore are facing an increasingly precarious future especially in periods of prolonged dips in seaborne iron ore prices.

These affected miners include:

- Atlas Iron suspended production at all its mines back in April 2015, before resuming production in 2H2016
- Arrium entered voluntary administration in 1H2016, before being acquired by GFG Alliance in September 2017
- BC Iron halted production at Nullagine mine in early 2016, eventually divesting it to FMG for a nominal sum and a share of future royalties
- Mount Gibson and Grange Resources – both backed by Chinese investors – endured a tumultuous 2016 racking up significant losses, before returning to profitability in 2017

Many smaller Australian mines were adversely affected by the sustained dip in iron ore prices in 2015 and 2016 as they were beset by high production costs driven by payments to contractors and government royalties. In some instances, exorbitant transportation costs arising from the distance between mine and port further rendered mining operations untenable.

These developments, in turn, ushered in a phase of consolidation where lower production costs, scale back on iron ore production to more sustainable levels and diversification into other minerals became the order of the day for these smaller miners.

While current price levels would afford miners on the higher end of the cost curve margins in excess of 20%, smaller Australian miners specializing in the production of low-grade iron ore can ill-afford to rest on their laurels as bearish swings in spot iron ore prices could result in them re-visiting the dark days of 2015-2016.

Besides, notwithstanding current spot iron ore prices yielding 200%-300% margins for the biggest iron ore producers, these miners have slashed their production costs by at least a quarter over the last few years and are increasingly poised to ramp up their market share to fill the void created by mining exits. The higher quality iron ore produced by Rio Tinto, BHP Billiton and Vale also ensure they are better placed to meet the demands of the Chinese market which is facing increasingly more stringent environmental regulations.

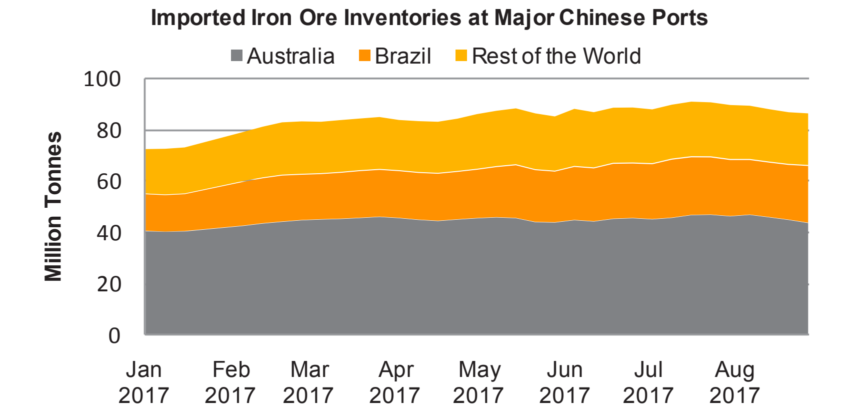
While smaller Australian miners may not currently be facing prospects as bleak as those encountered in 2015-2016, the challenges confronting them remain firm. Adopting nimble, yet scalable mining operations to meet market conditions could be key to their survival in navigating a volatile seaborne spot iron ore market and ensuring history does not get re-visited.

Iron ore – Port Inventories

Record Iron Ore Stockpiles at Chinese Ports

Iron ore inventory at Chinese ports has registered record-breaking numbers in 2017. With China Iron & Steel Association's (CISA) estimation of total iron ore inventory at Chinese ports at end August amounting to 135 million tonnes, the excess iron ore supply should exert substantial bearish pressure on the spot seaborne iron ore market.

While stockpiles of iron ore at Chinese ports have hit record levels, the bulk of these feedstocks are low-grade ore with high levels of impurities.



Source: Thomson Reuters Eikon

The cumulative iron ore inventory at seven major ports – namely Caofeidian, Dalian, Jingtang, Lianyungang, Qingdao, Rizhao and Tianjin – typically account for at least two-third total iron ore inventory at Chinese ports. These major ports consistently registered inventory levels above 70 million tonnes in 2017.

With Australian exports accounting for the bulk of iron ore at Chinese ports, supply of non-mainstream medium-grade and low-grade iron ore are abundant. This supply is further enhanced by ROTW exports which account for approximately 25% of inventory at these major Chinese ports.

While Brazilian exports account for a quarter of iron ore inventory levels at the seven major ports, it should be noted supply of high-grade Brazilian iron ore at these ports remain extremely tight as a sizeable portion of Brazilian iron ore exports comprise of medium-grade blended fines – like Brazilian Blend Fines (BRBF) – with high levels of impurities.

Why are the Bears Seemingly Absent From the Spot Seaborne Iron Ore Market?

Excessive iron ore inventory levels, however, have not translated into a bearish spot seaborne iron ore market as mainstream medium- and high-grade iron ore continue to command a substantial premium at both Chinese ports and the seaborne spot iron ore market. Essentially, market consensus indicates approximately 70% of iron ore cargoes at Chinese ports are predominantly non-mainstream medium-grade and low-grade (~ 56%-58% Fe) feedstocks. Such low-grade iron ore – often comprising significant volumes of impurities in the form of alumina, silica and phosphorus vis-à-vis their higher grade counterparts – are undesirable for two primary reasons:

1. Impurities require extensive use of reducing agents like metallurgical coal for

removal. With current metallurgical coal prices having effectively tripled since the start of 2016, consumption of low-grade iron ore is rendered economically unviable.

2. As a wider consequence of the Chinese authorities' clampdown on pollution, the repercussions of consuming low-grade iron ore is further exacerbated by the higher levels of pollution synonymous with the increased use of metallurgical coal.

Against this backdrop, abundant supply of low-grade iron ore fines at Chinese ports shunned by steelmakers has translated into bears for low-grade feedstocks while prices for medium- and high-grade iron ore fines, lump and pellets remain well supported.

Prospects of Different Grades of Iron Ore in China

Amidst the current landscape where steel margins remain healthy and China's "war on pollution" is in full swing, demand for mainstream medium-grade iron ore, high-grade iron ore fines and feedstock like lump and pellets remain robust among Chinese steelmakers and traders at the expense of low-grade feedstock.

The stepping up of the Chinese authorities' "war on pollution" looks set to usher in a new era in Chinese iron ore consumption patterns with a shift toward higher grade feedstocks with lower levels of emission. The spread between high-grade and low-grade iron ore is expected to widen further.

Such consumption patterns have, in turn, driven the spreads between low- and medium-grade ore and medium- and high-grade ore to record levels of US$23/dmt and US$20/dmt respectively. A better-than-expected construction sector, coupled with first signs of People's Bank of China (PBOC) relaxing capital controls, will only serve to further widen the spreads across the various grades of iron ore as steelmakers remain keen to optimize productivity in a climate where steel margins are more than capable of absorbing the premium synonymous with the procurement of high-grade feedstock.

The interplay between market forces, aided by a state-directed campaign to meet more stringent emission guidelines, only serves to shift Chinese consumption away from non-mainstream medium-grade and low-grade iron ore. With Chinese steel mills increasingly turning to domestic iron ore concentrates and high-grade seaborne cargoes – rather than procure non-mainstream medium-grade or low-grade ore readily available at Chinese ports – in the absence of competitively-priced high-grade iron ore fines, lump and pellets, this shift in paradigm could prove a harbinger of a new era in Chinese steelmaking.

August 21 2017. Traders and clerks react on the floor of the London Metal Exchange, London, Britain.
REUTERS/Paul Hackett

LME Copper Options Monitor

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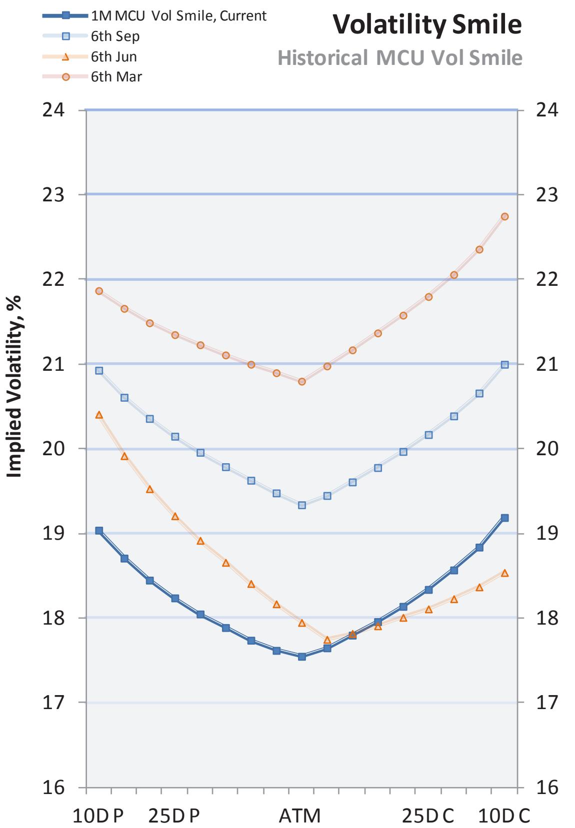
Phone: +44 (0) 207 5422 635



- (06 Oct – 12 Oct) Open interest (OI) rose by 6,323 lots week-on-week to total 113,757 lots on the back of a 4,150 lot increase on calls. Over the short term, speculators favoured the US$7,200/tonne Nov17 call contract. New OTM positions on Nov17 and Dec17 contracts point to a recovery this week as low vols lure speculators.
- **Fundamentals:** Indonesia mining ministry official says Freeport copper special mining permit extended to Jan 2018, and attaches an US$8 Bn valuation to the company. [nJ9N19L013] *Source: Reuters*
- **LME stocks:** Total CU stocks -4,000 to 291,000; On-warrant stocks -3,150 to 223,200 [29 Sep-06 Oct] <MCUSTX-TOTAL>
- **CFTC**: COMEX Copper speculators cut net long position by 890 contracts to 90,012 in week to 3rd October.

Month	Call				Strike	Put			
	RIC	OI	N.CHG	IV %		RIC	OI	N.CHG	IV %
DEC7	MCU6000L7	1,008	0	18.75	6000	MCU6000X7	3,441	-8	18.75
NOV7	MCU7000K7	2,880	1005	18.51	7000	MCU7000W7	-		18.51
NOV7	MCU7200K7	2,580	2180	19.31	7200	MCU7200W7	-		19.31
DEC7	MCU5600L7	175	0	17.81	5600	MCU5600X7	2,549	0	17.81
DEC7	MCU4800L7	-		25.15	4800	MCU4800X7	2,170	0	25.15
DEC7	MCU6100L7	178	0	18.37	6100	MCU6100X7	2,081	-108	18.37
DEC7	MCU6500L7	860	-75	18.32	6500	MCU6500X7	2,001	74	18.32
DEC7	MCU7000L7	1,977	-125	18.00	7000	MCU7000X7	-		18.00
DEC7	MCU6300L7	743	0	18.96	6300	MCU6300X7	1,823	-13	18.96
DEC7	MCU6200L7	245	0	18.78	6200	MCU6200X7	1,643	29	18.78

Source: Thomson Reuters Eikon

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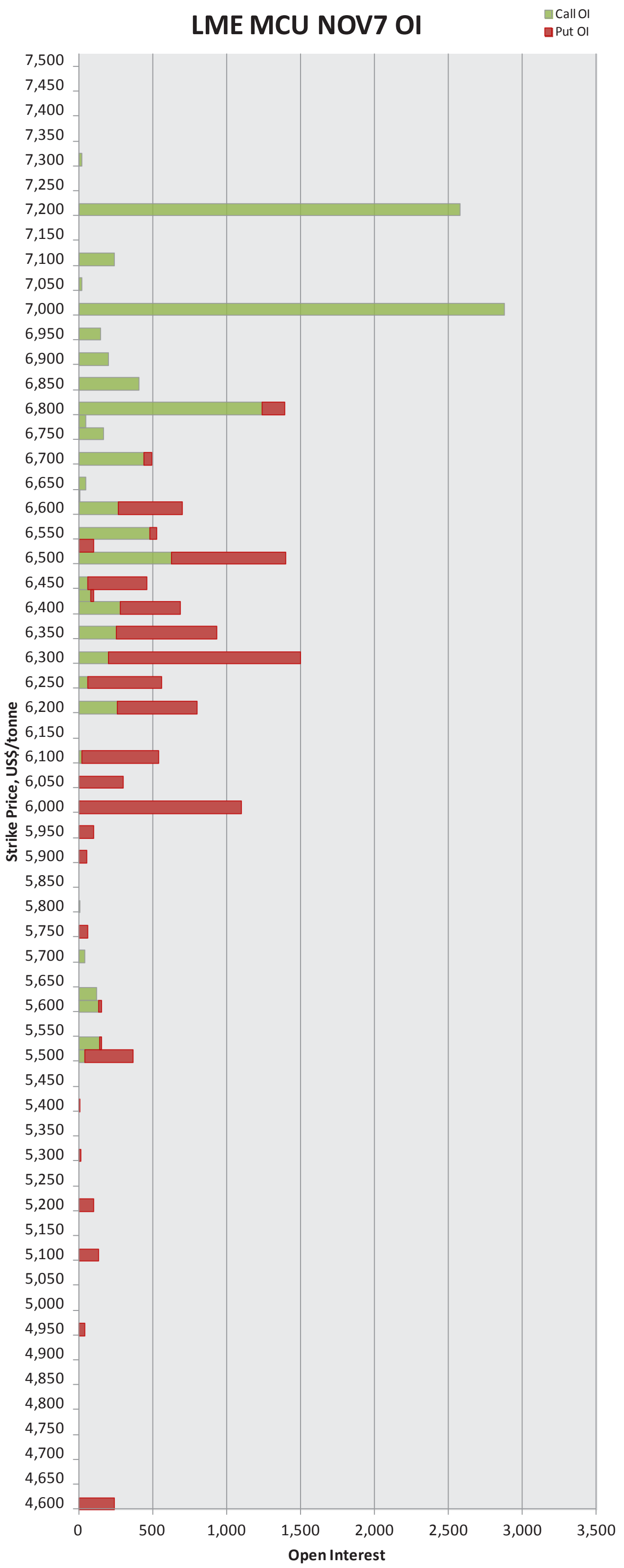
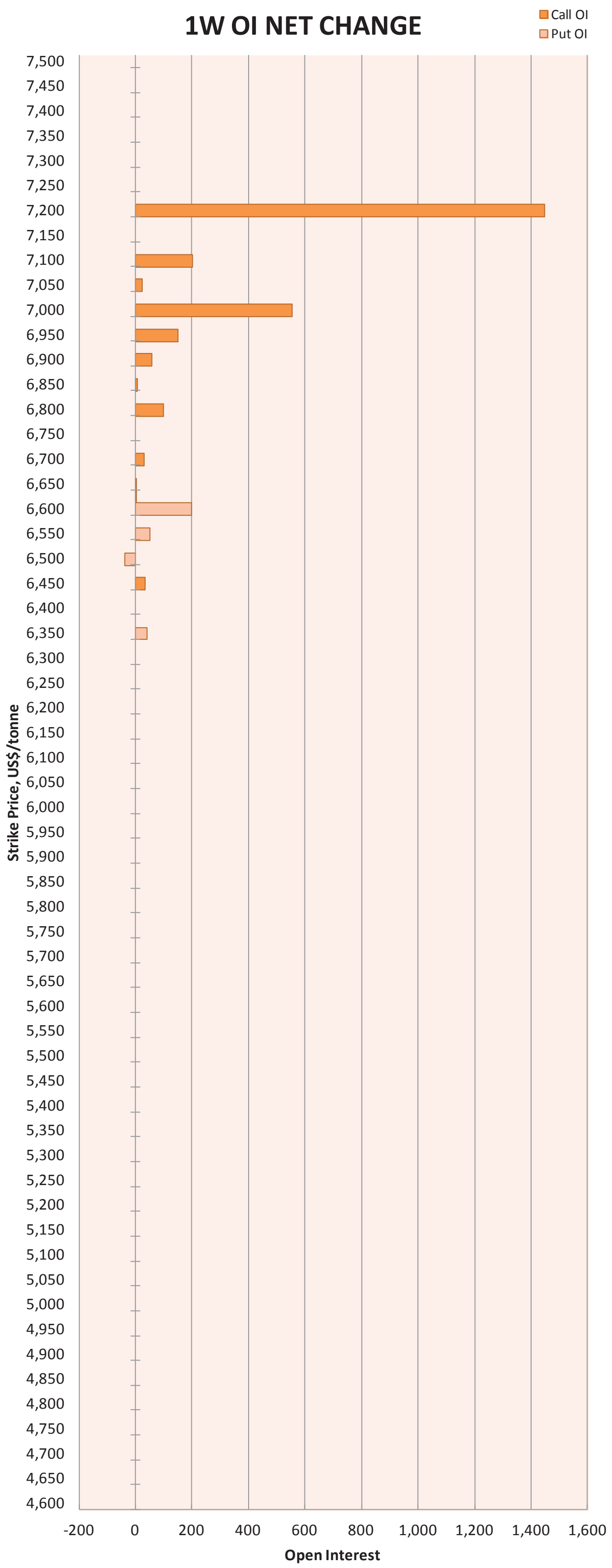
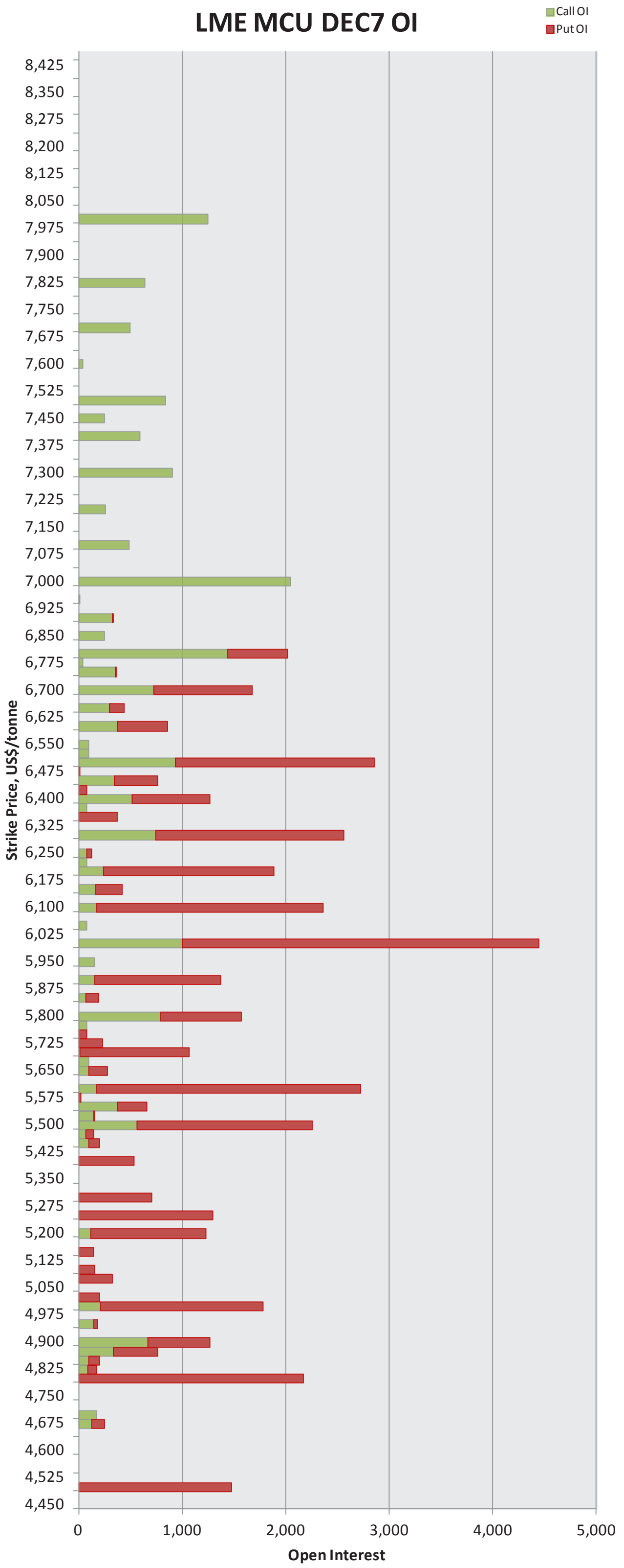
OPEN INTEREST – NOVEMBER 2017

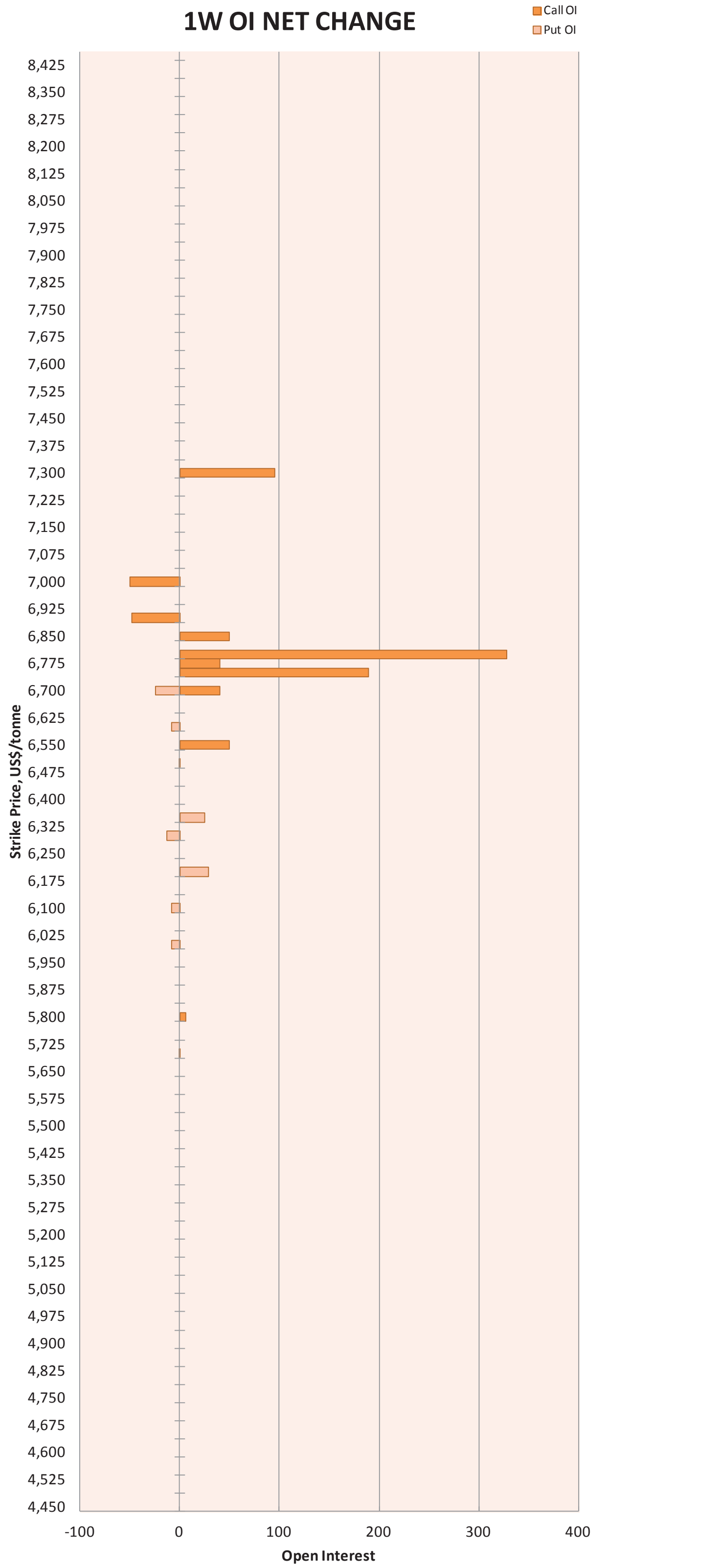




Source: Thomson Reuters Eikon

OPEN INTEREST – DECEMBER 2017





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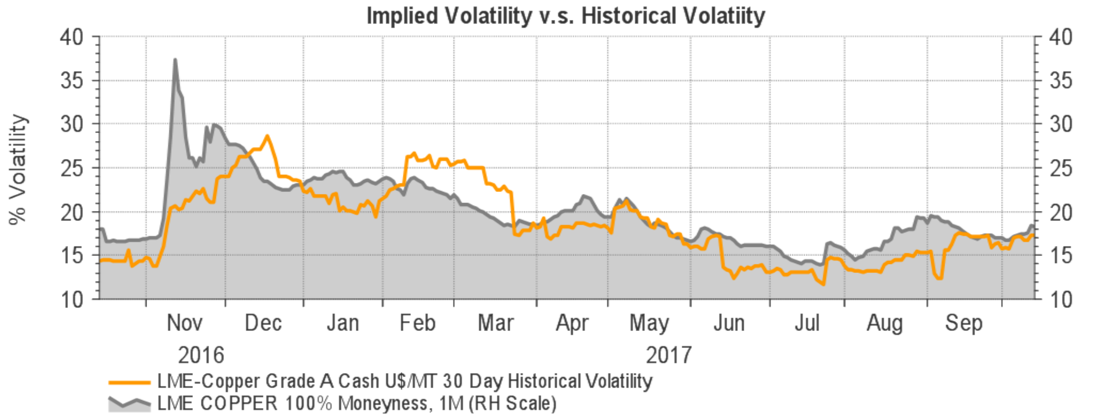

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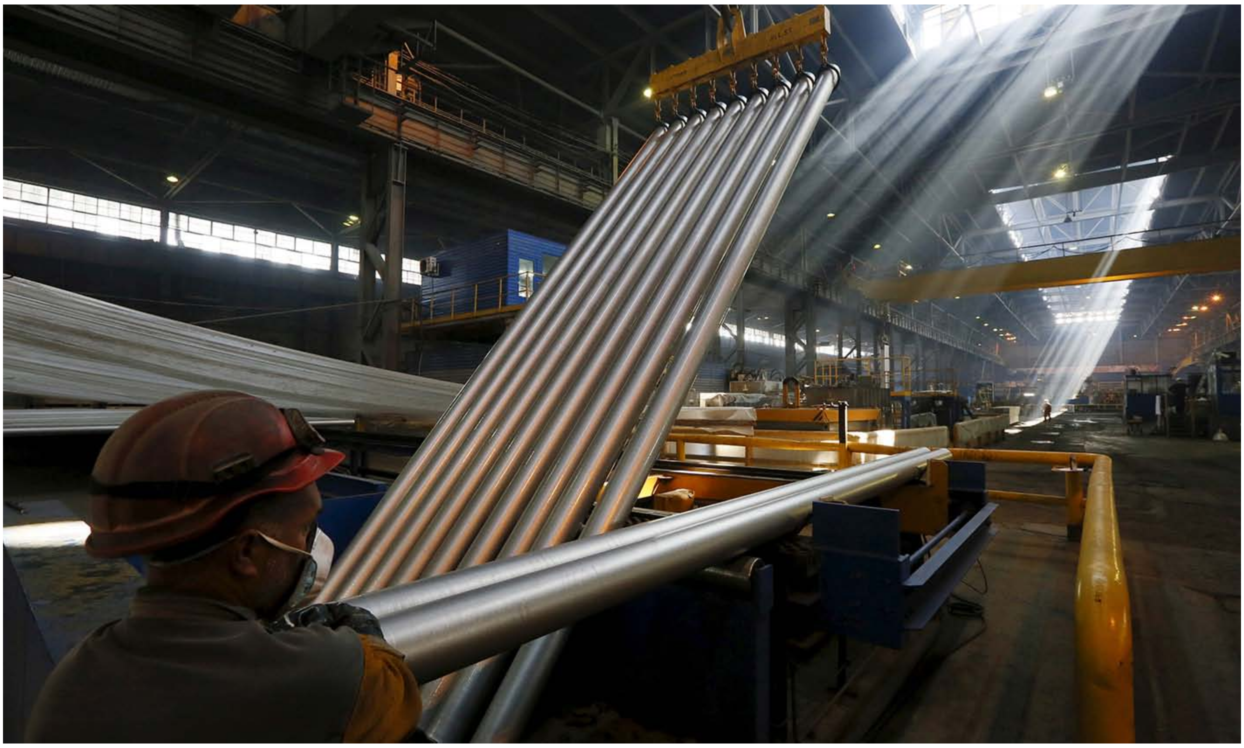

An employee works with cylindrical 6-metre aluminium ingots at the the Rusal Sayanogorsk aluminium smelter outside the town of Sayanogorsk, Russia, September 3, 2015. REUTERS/Ilya Naymushin

LME Aluminium Options Monitor

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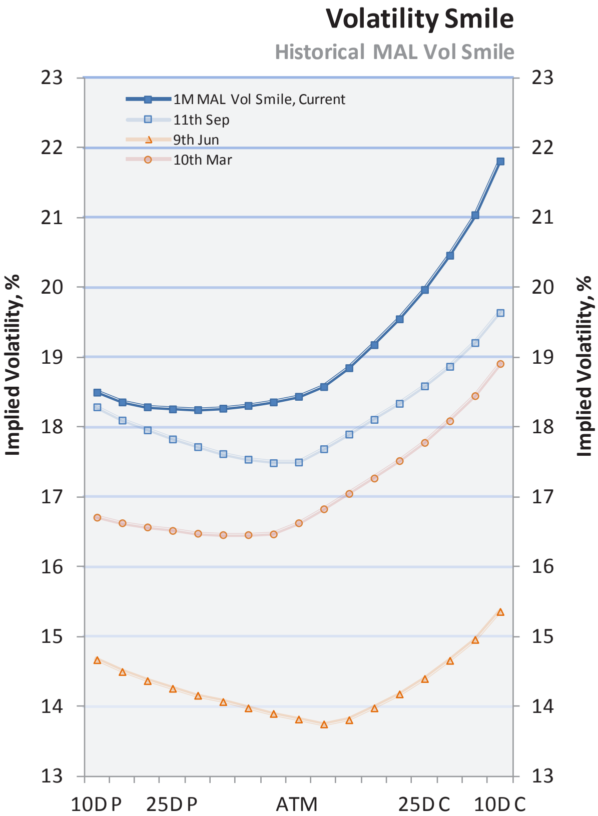
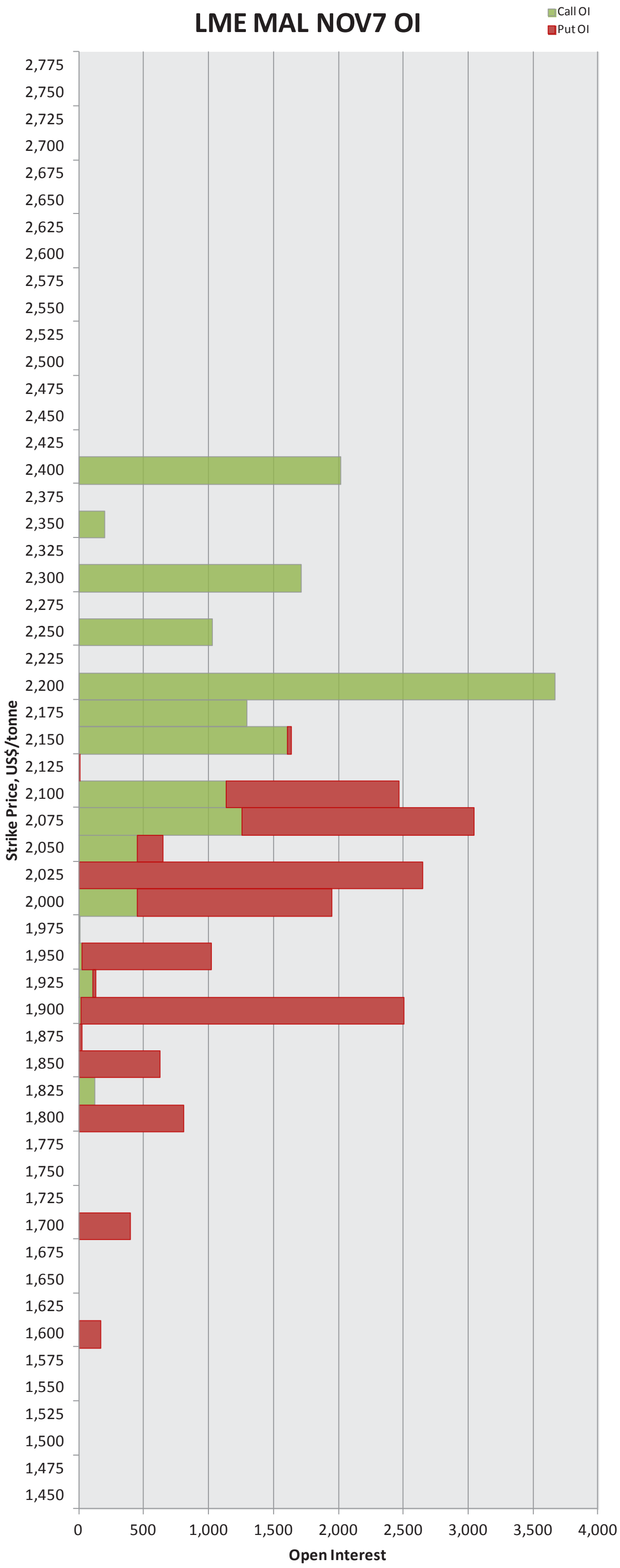
- (27 Sep – 04 Oct) Open interest (OI) rose by 19,269 lots week-on-week to total 203,449 lots on the back of a 12,896 lot increase on calls. Over the short term, speculators favoured the US$2,200/tonne Nov17 call contract, opening nearly 2,000 lots. Further out, call vols are trading above put vols, signalling a bullish sentiment in the market.
- Risk reversals broke above 2017 highs.
- **LME COTR:** shows funds' total net aluminium long position rises to 152,753 lots on 6th Oct from 146,994 lots on 29th Sep.
- **LME STOCKS:** NASAA +500; AL -15,000; AL ALLOY +0.
- Aluminium cash to 3-month contango (US$25.50/tonne) rose by US$3.25/tonne; on-warrant stocks were relatively unchanged week-on-week after reaching a floor on 28th Sep at 1,001,000 tonnes. Current balance stands at 1,003,000 tonnes.
- Aluminium may test resistance at US$2,300/tonne in next three months. Source: Wang Tao, Reuters

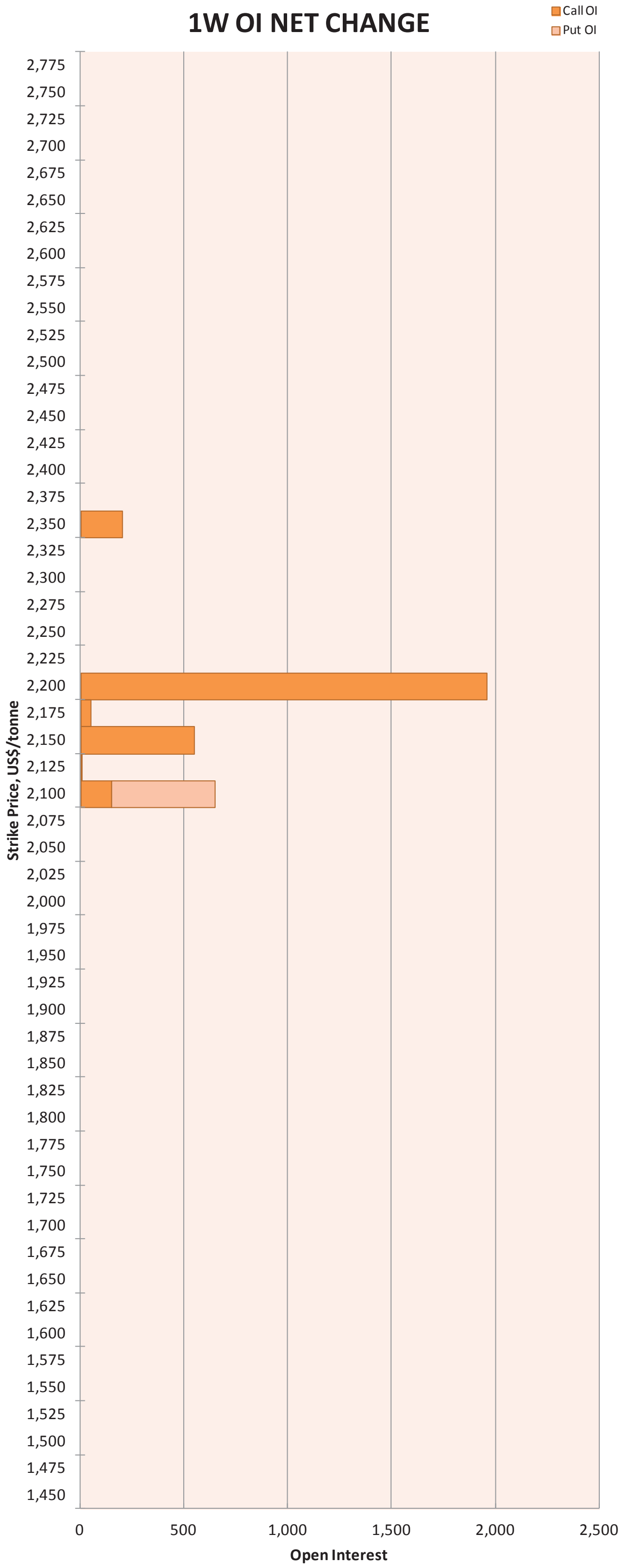
Month	Call				Strike	Put			
	RIC	OI	N.CHG	IV %		RIC	OI	N.CHG	IV %
DEC7	MAL1850L7	750	0	20.0	1850	MAL1850X7	7,895	0	20.0
DEC7	MAL1800L7	821	0	20.7	1800	MAL1800X7	6,477	-350	20.7
DEC7	MAL1700L7	-		19.4	1700	MAL1700X7	6,200	0	19.4
DEC7	MAL2400L7	6,152	1000	21.2	2400	MAL2400X7	-		21.2
DEC7	MAL2300L7	4,890	0	19.9	2300	MAL2300X7	-		19.9
NOV7	MAL2200K7	3,668	1960	19.8	2200	MAL2200W7	-		19.8
DEC7	MAL2000L7	1,955	0	18.3	2000	MAL2000X7	3,614	1052	18.3
DEC7	MAL2200L7	3,561	652	18.6	2200	MAL2200X7	-		18.6
DEC7	MAL2075L7	3,504	0	17.8	2075	MAL2075X7	500		17.8
DEC7	MAL1950L7	1,106	0	18.8	1950	MAL1950X7	3,300	100	18.8

Source: Thomson Reuters Eikon



OPEN INTEREST – NOVEMBER 2017





Source: Thomson Reuters Eikon

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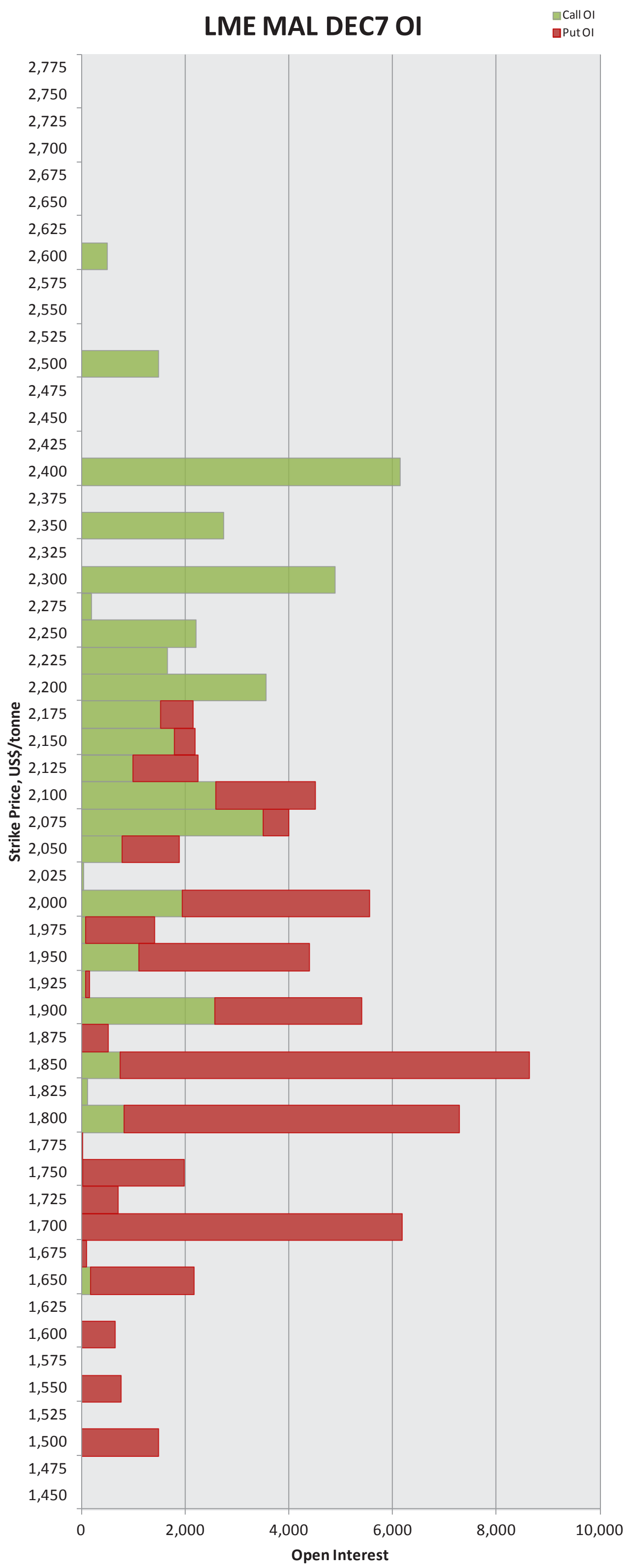
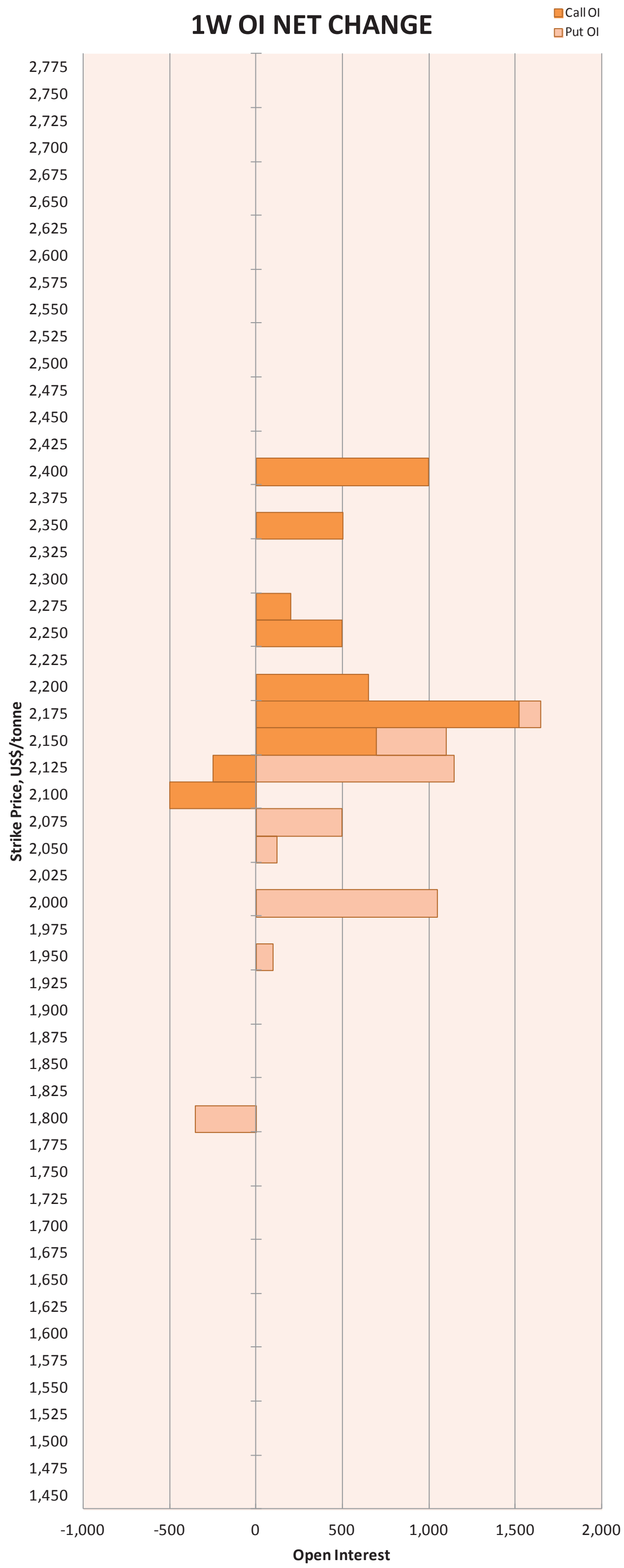
OPEN INTEREST – DECEMBER 2017





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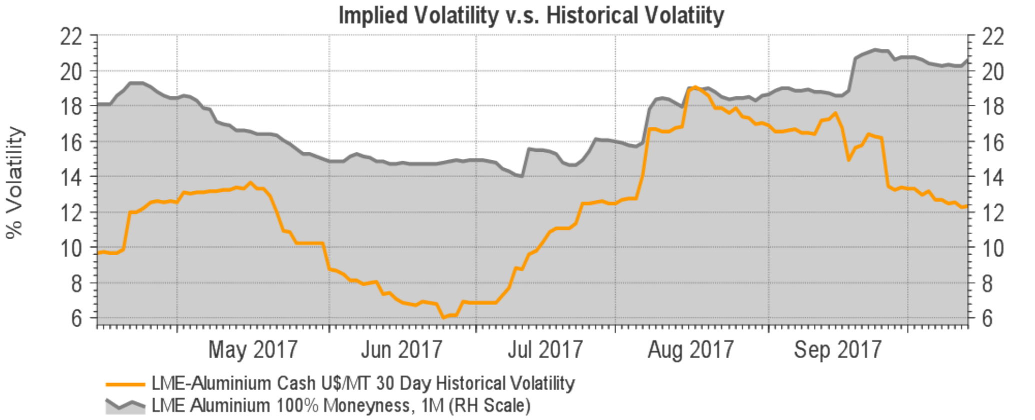

Source: Thomson Reuters Datastream

Source: Thomson Reuters Datastream

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Deal Screener: Metals & Mining

Abstract

M&A in the mining sector started the year strongly with Rio Tinto's announcement that it planned to divest its Hunter Valley coal assets. The planned sale, announced on 24th January 2017 with a deal value of $2,450 million was the fifth consecutive month with a single deal value greater than $1bn. The upswing, however, has tailed-off with year-to-date deal value currently down 33% compared to 2016. Gold and coal are at the top of the ranking table as target commodities, with lead-zinc in a strong third position. And with Glencore's Volcan acquisition announced early October, that gap is closing.

Bruce Alway

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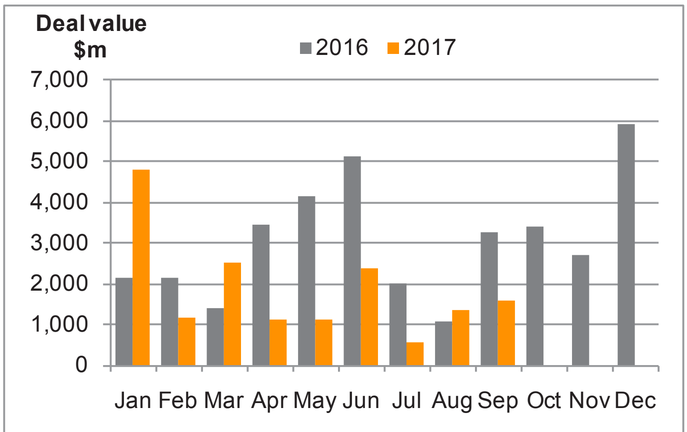
Merger and acquisition activity in the Metals & Mining sector* on a value basis amounted to $16.66bn (to end-September 2017), representing an $8.17bn, or 33% decline compared to the same period in the previous year. The number of deal transactions totalled 231 compared to 367 in 2016, a 37% drop year-on-year.

Deal rationale in 2017 has focused on streamlining portfolios (54% of total deal value), and merger/growth strategies, (40% of the total deal value). This marks a significant shift from rationale in 2016, which was dominated by debt reduction (accounting for 48% of total deal value). Deal rationale is a subjective measure. We tag each deal under one of four categories: regulatory/legal, merger/growth, streamline portfolio and debt reduction.

The shift from debt reduction to streamlining portfolios can, in our view, be regarded as a transitory stage before the next cycle of acquisitions. First, as commodity prices crash, producers repair their balance sheets. Second, as prices bottom out, shareholders are promised higher returns. To this affect management focus their efforts on the disposal of non-core assets to concentrate scarce capital resources on higher margin assets. And lastly, as commodity prices recover, (and because all mines have finite resources) miners look, once again, to grow through acquisition. The difficultly of 'not growing' in the resource space is one of diminishing market share. Shrink too much, and an acquirer risks becoming a target.



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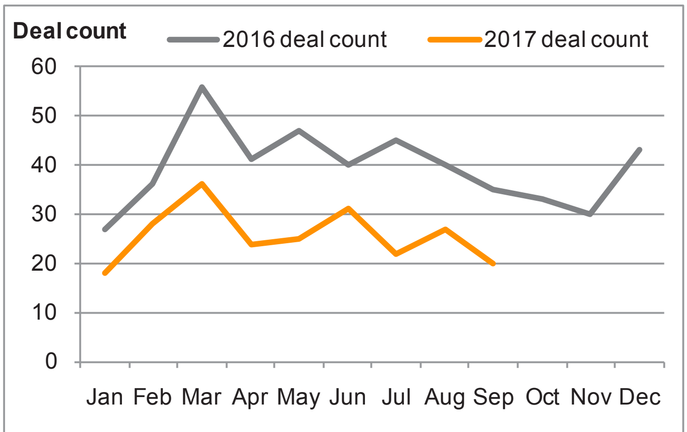


Source: Thomson Reuters Eikon

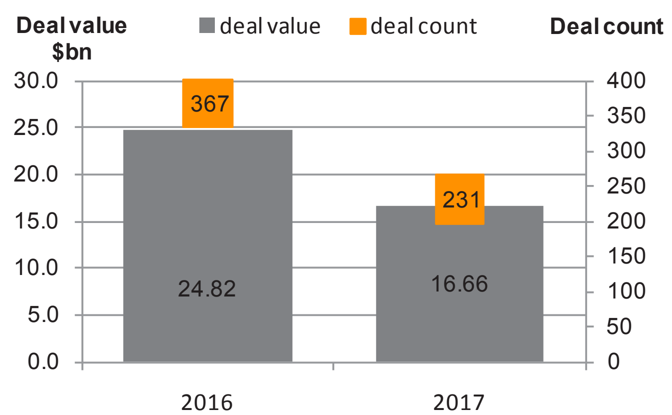
Gold in pole position in target commodity ranking

Gold is the highest ranked target commodity in the sector so far this year (ranked in third position in 2016) with coal currently in second place (ranked ninth in 2016). Lead-zinc makes an impressive jump from 15 in 2016 to third place in 2017, followed by copper in fourth (a drop from its second place rank in the previous year). See table below for the top ten target commodities (ranked by deal value).

Monthly highlights

September 2017: Alamos Gold targets gold in Ontario; copper miner Central Asia Metals looks to diversify; Coeur d'Alene's silver mine deal sweetened by lead and zinc

Alamos Gold announced its planned acquisition of gold producer Richmont Mines in **September.** Richmont's flagship asset, the Island Gold Mine in Ontario, Canada, is an underground operation with well advanced plans to develop a higher-grade million ounce resource directly below current mining activities. The deal delivers immediate earnings and cash flow to Alamos' shareholders and fits well with the company's existing footprint; three operating mines in Canada, and two in Mexico. In the base metals space, copper miner, Central Asia Metals announced its proposed acquisition of Lynx Resources, owner of the Sasa underground zinc-lead mine in Macedonia. The combined business transforms Central Asia Metals from a pure copper play into a diversified miner with a resource mix of copper (39%), zinc (25%) and lead (36%). Lastly, was Coeur Mining's planned acquisition of privately-held JDS Silver Holdings, owner of the Silvertip Mine, a newly-constructed underground operation with commercial production targeted by late Q1 2018. The mine benefits from high zinc and lead grades which lifts the planned 3Moz per annum of silver production to a silver equivalent of 10Moz.



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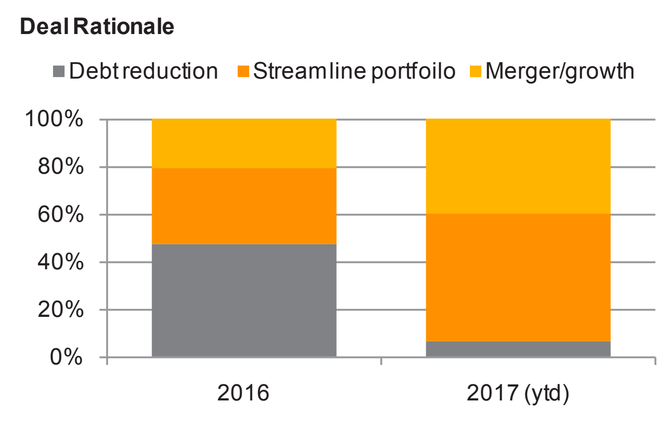

The biggest deal in **August** was the sale by Teck Resources of its two-thirds interest in the Waneta Dam in British Columbia, Canada for C$1.2 billion cash. The sale to BC Hydro, which owns one-third of the Waneta Dam assets, exercised its right of first offer and means that the purchase agreement between Fortis and Teck, announced on 12 May 2017, has now been terminated (with Teck obligated to pay Fortis a break fee of approximately C$28 million). Other noteworthy deals in August include the disposal of African Rainbow Minerals and Vale's 80% interest in the Lubambe copper mine in Zambia to EMR Capital, a specialist resources private equity management firm, and Macarthur Minerals' acquisition of 15% of Yalgoo Exploration, a gold and lithium explorer in Western Australia.

August 2017: Teck Resources divests interest in non-core power business; private equity buys 'high cost' copper mine in Zambia

M&A deal value by Target Commodity

2017 ytd	2016		2016	2017 ytd
1	3	Gold	5,070	4,621
2	9	Coal	819	4,567
3	15	Lead-Zinc	138	1,490
4	2	Copper	5,331	1,157
5	1	Copper-Gold	5,760	794
6	5	Oil & Gas	3,244	775
7	6	PGMs	2,180	488
8	7	Iron ore	1,749	320
9	19	Silver	-	306
10	18	Lithium	93	168

July 2017: Coal bidding rivals Yancoal and Glencore form new joint venture; Russian players Polyus consolidated ownership at the giant Sukhio Log gold deposit.

China-based Western Region Gold, a gold, iron ore and chrome producer, announced plans in **July** to acquire a 51% stake in Xinjiang Baiyuanfeng Mining Co for $180 million. Elsewhere Polyus announced plans to acquire a 25% stake in SL Zoloto (SL Gold) for $146 million, while Polymetal increased their stake in the Nezhda gold project with an option to acquire the remaining 75.3% for $105 million. The first will see Polyus consolidate 100% participation interest in SL Gold, the holder of the Sukhoi Log deposit licence, one of the world's largest greenfield gold projects. Polymetal, meanwhile, was granted an option to acquire the remaining 75.3% interest, which it did not already own in the Nezhda gold deposit (Nezhdaninskoye). Concurrently, Polymetal raised its stake to 24.7%, from 17.7%, by acquiring a 7% stake in Nezhdaninskoye. Lastly, and allowing Glencore to claim a "half" victory in the coal bidding war, Yancoal announced on 27 July 2017 plans to establish a 51:49 joint venture with Glencore in relation to Hunter Valley Operations (HVO). With Glencore to acquire a 49% interest in HVO for $1,139 million in cash of which $710 million will be paid to Mitsubishi Development Pty Ltd and US$429 million paid to Yancoal. And the assumption of a 27.9% share of US$240 million of non-contingent royalties and 49% of the HVO contingent royalties payable by Yancoal in respect of the Coal & Allied acquisition.

June 2017: Glencore counter bid for Rio's Hunter Valley Coal assets but Rio unmoved in its backing for Yancoal

The biggest deal in **June** was Glencore's counter proposal to acquire Rio Tinto's 100% interest in Coal & Allied Industries Limited (C&A has a 67.6% interest in Hunter Valley joint venture assets) on 09th June for $2.55bn plus a coal price linked royalty. Conditional on completion, Glencore further announced an agreement to purchase Mitsubishi's 32.4% interest in the Hunter Valley joint venture and 28.898% interest in the Warkworth joint venture for US$920m. On the 23rd June, Glencore raised its offer for C&A to $2.675 billion. Despite the improved offer, Rio's board confirmed, on 26th June, its recommendation that shareholders vote in favour of the sale of C&A to Yancoal Australia Limited. Among the supporting statements, the board expect "a faster and more certain timetable, with the deal expected to complete during the third quarter of 2017, whereas any transaction with Glencore is unlikely to complete until the first half of 2018 at the earliest". Rio Tinto shareholders followed the board's recommendation and approved the Yancoal Australia's acquisition of Coal & Allied Industries on 29 June 2017.

May 2017: Teck sells green power to pay down debt; Eldorado Gold buys junior explorer Integra Gold; Newmont buys a slice of explorer Continental Gold.

In **May** the headline deal was the proposed sale by diversified miner Teck Resources of two-thirds of its interest in the Waneta Dam and related transmission assets in British Colombia, Canada, to energy provider, Fortis. Don Lindsay, Teck's CEO, had previously targeted getting down debt levels to at or below $5 billion, which he regarded as "an appropriate capital structure for this kind of world where it's so volatile." Gold also featured in May as a target commodity with two significant transactions. The first, announced on the 15 May 2017, was the proposed acquisition of junior gold explorer Integra Gold Corporation by Eldorado Gold. The second saw Newmont Mining agree to purchase 37.38 million shares of Continental Gold for a total investment of $109 million in a private placement. Continental Gold is an advanced stage exploration and development company and CEO, Ari Sussman commented that "with Newmont as a partner and the completion of financing, the company is well positioned to build Buriticá and create significant value for our shareholders with first gold pour on track for early 2020."

April 2017: Barrick partner with China miner Shandong Gold - Veladero sale and development options discussed at Pascua-Lama

Gold was the focus in **April** with Barrick's announcement of a strategic co-operation with state-owned Chinese miner Shandong Gold. The agreement outlines three steps. First the sale of 50% of Barrick's Veladero mine in Argentina for $960 million. Second, a commitment to form a working group to explore the joint development of the Pascua-Lama deposit, and lastly, both companies will evaluate additional opportunities on the El Indio Gold belt on the border of Argentina and Chile, host to a number of world-class gold miners and projects including Veladero, Pascua Lama, and Alturas.

March 2017: Goldcorp and Barrick form joint venture in the Maricunga Gold belt in Chile to consolidate infrastructure, reduce capital and operating costs

In **March** headline activity involved three of the world's largest gold miners, Barrick Gold, Goldcorp and Kinross in the construction of a 50/50 joint venture targeting potential synergies in the Maricunga Gold Belt in Chile. The three-way deal left Goldcorp with a 50% interest in the joint venture through the purchase of Kinross Gold's

25% stake in the Cerro Casale copper-gold project and a further 25% interest purchased from Barrick Gold. In addition, Goldcorp announced the planned acquisition and pooling into the joint venture of Exeter Resources and its 100%-owned Caspiche project located roughly 10 kilometres to the north of Cerro Casale. Goldcorp's CEO stated that the formation of a 50/50 joint venture with Barrick Gold has "the potential to allow us to consolidate infrastructure to reduce capital and operating costs, reduce the environmental footprint and provide increased returns compared to two standalone projects." Barrick, on the other hand, noted that the agreement would "allow us to direct capital elsewhere in our portfolio, while ensuring shareholders retain exposure to the optionality associated with one of the largest undeveloped gold and copper deposits in the world."

February 2017: Anglo American Platinum announces sale of Union Mine and Masa Chrome to Siyanda; includes a seven year offtake agreement

January 2017: Rio Tinto announces agreement for the sale of its wholly-owned Australian subsidiary Coal & Allied Industries Limited to Yancoal Australia

In **February**, Anglo Platinum's disposal of the Union PGM mine was one of the biggest deals for the month which also included the acquisition (or part acquisition) of Hanking Australia (gold), Mineral Bull (lead-zinc), Terrafame Oy (nickel-zinc) and Luna Gold (gold). Deal activity in **January** included Rio Tinto's Hunter Valley Coal assets, Goldcorp's sale of its Los Filos gold mine and Coeur Mining's disposal of the Joaquin silver project.

Note

* The focus of this analysis is on the major mining houses and any involvement (i.e. target or acquiror) within the metals and mining sector (TRBC industry classification). So for example, deal flow in the data above includes divestments of oil, gas and coal from companies in metals and mining and mining sector, but excludes deals between two companies within the energy sector. As this analysis is centred on miners / mining rather than upstream activity, we exclude deal flow related to manufacturing, processors, recycling, support services, merchants/metal wholesalers and steel mill/foundry operators.

Deals (completed, pending and intended) are included on their announcement date. Data is subject to change and deal values/deal count do not account for deals with undisclosed values. We do not include buybacks, debt restructuring or internal reorganisations.

Appendix - Top 30 M&A deals

Rank	Announced Date	Completion Date	Deal Value	Target Asset	Target Commodity	Target Name	Acquiror Name
1	24/01/2017	01/09/2017	3,100	Hunter Valley	coal	Rio Tinto	Yancoal Australia
2	09/06/2017	Pending	1,379	Hunter Valley	coal	Mitsubishi	Glencore
3	01/08/2017	Pending	961	Waneta Dam	power	Teck	BC Hydro
4	06/04/2017	30/06/2017	960	Veladero	gold	Barrick Gold	Shandong
5	05/01/2017	13/02/2017	922	Mutanda	copper	Mutanda Mining (Glencore)	Glencore
6	31/03/2017	Pending	775		oil & gas	Glencore	Haihang Group Financial
7	11/09/2017	Pending	745	Island Gold	gold	Richmont Mines Inc	Alamos Gold Inc
8	15/02/2017	Pending	488	Union	PGMs	Anglo American	Siyanda Resources
9	14/05/2017	10/07/2017	431	Lamaque	gold	Integra Gold	Eldorado Gold
10	13/03/2017	Pending	430	Rosh Pinah/Perkoa	lead-zinc	Glencore	Trevali Mining
11	22/09/2017	Pending	403	Sasa	lead-zinc	Lynx Resources Ltd	Central Asia Metals PLC
12	28/03/2017	09/06/2017	300	Cerro Casale	copper-gold	Kinross	Goldcorp
13	28/03/2017	09/06/2017	300	Cerro Casale	copper-gold	Barrick Gold	Goldcorp
14	12/01/2017	07/04/2017	296	Los Filos	gold	Goldcorp	Leagold Mining Corp
15	13/06/2017	Withdrawn	286		gemstones	Gemfields	Fosun Gold
16	12/01/2017	23/01/2017	279	iron ore	iron ore	Shanghai Hongda Mining Co Ltd	Shanghai Jingci Invest Mgmt
17	11/09/2017	Pending	251	Silvertip	silver	JDS Silver Holdings Ltd	Coeur Mining Inc
18	19/06/2017	Pending	199		lead-zinc	Bumi Resources	NFC Metal Pte Ltd
19	06/06/2017	20/06/2017	195	Côté Gold	gold	Iamgold	Sumitomo
20	15/02/2017	20/04/2017	193	Southern Cross Gold	gold	Hanking Australia Pty Ltd	Shandong Tianye Grp Bid Co
21	28/03/2017	02/08/2017	181	Caspiche	copper-gold	Exeter Resources	Goldcorp
22	18/07/2017	Pending	180		unclassified	Xinjiang Baiyuanfeng Mining Co Ltd	Western Region Gold Co Ltd
23	21/03/2017	Pending	158	Nezhdaninskoye	gold	Polyus	undisclosed
24	27/05/2017	Pending	152		lead-zinc	Inner Mongolia Xingye Mining Co Ltd	Changzhou Yaoxiang Ruitian
25	11/07/2017	Pending	146	Sukhoi Log	gold	SL Zoloto OOO	Polyus Krasnoiarsk
26	22/02/2017	Pending	141		lead-zinc	Mineral Bull Pte Ltd	Pixie Group Ltd
27	19/05/2017	26/06/2017	138		gemstones	Gemfields	Pallinghurst
28	10/05/2017	Pending	109	Buriticá	gold	Continental Gold	Newmont
29	17/07/2017	Intended	105	Nezhda	gold	Nezhdaninskoye gold deposit	Polymetal International PLC
30	16/08/2017		97	Lubambe	copper	Vale/African Rainbow	EMR Capital Pty Ltd

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