

Benchmarks give way

How global met coal markets are changing with the adoption of spot price indexes

Metals special report

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Hector Forster

Edwin Yeo

Yi Le Weng

Elizabeth Low



BENCHMARKS GIVE WAY: HOW GLOBAL MET COAL MARKETS ARE CHANGING WITH THE ADOPTION OF SPOT PRICE INDEXES

- Indexation has potential to transform a volatile market
- Met coal pricing mirrors iron ore, with a lag
- China policies impact global pricing
- Indexation seen boosting costs transparency
- Met coal derivatives volumes jump in 2017

Pricing in metallurgical or coking coal markets has entered a distinct new phase.

Increased spot market activity, the use of futures and hedging, and the adoption of different price structures in coking coal are all part of longer-term trends that are transforming the market globally, in a way not unlike the changes seen in the iron ore market earlier this decade.

Since the second quarter of 2017, spot prices have been formally used to determine quarterly contract benchmark prices for met coal in Northeast Asia as a means to lessen the impact of market volatility, which has been stoked by China's growing weight in the market and a succession of weather-related disruptions in key producer Australia.

Major Japanese and South Korean steel mills and coking coal miners have started to use average spot price indexes as a basis for price settlement of premium benchmark grade coals. Because indexation has increased traction in long-term contracts, this means that, at least for premium hard coking coals, bilateral price-setting talks have ceased to be held.

It also means that other market players who refer to quarterly benchmarks have de facto had their exposure to indexes increased.

Before this shift to indexation for benchmark contracts, extensive use of bilateral long-term contracts limited the scale of price commoditization in the sector. Over the past year or so, however, met coal futures have seen significant growth, albeit from a low base. This in turn is allowing the growth of physical hedging options, with more and more players entering the market.

Mirroring iron ore

For coking coal, the parallels with iron ore in the move to spot market price discovery and risk management are increasingly apparent.

In terms of its growing use of indexes, met coal has been mirroring developments in the iron ore market but with a lag that is probably a function of the greater complexity of

the met coal market, which has greater diversity in supply, pricing norms and trade flows.

Iron ore's shift away from bilateral contract pricing in 2010-2011 to indexes led to the development of a global futures market around the commodity, with iron ore derivatives' traded volumes in the past few years surpassing total physical seaborne trade.

A key development in the coking coal market was BHP Billiton's move in April 2011 to adopt index-linked spot market pricing for met coal sales – both into China and for contract and spot sales to other markets. This has allowed met coal to catch up with iron ore's spot pricing practices. According to BHP's 2017 outlook, 60% of its traded volumes were linked to the S&P Global Platts Premium Low Vol index.

Most volatile of bulk commodities

Pricing of met coal has been the most volatile among the major bulk commodities over the past couple of years, with changes to China's domestic steel and mining policies and disruption to exports out of Australia caused by major weather events repeatedly rocking markets.

China has become the biggest spot buyer of met coal, and a rise in import volumes – of some 18% in 2017 – has led the Asian giant to become a leading outright importer by volume, with similar import volumes to Japan. India is the next largest importer, and the fastest growing.

While China is the biggest consumer of coking coal, it does not necessarily exert dominance over global price direction in the same way as in the iron ore market, as it is also the largest producer of coking coal and imports only a fraction of its overall needs.

China imported 69.90 million metric tons of met coals in 2017, including from Mongolia, according to Chinese customs data. Of the total, seaborne coking coal imports accounted for 43.63 million mt. The total imports represented around 15% of its consumption, with most trading on a spot pricing basis.

For iron ore, China imports around three-quarters of its needs – over 1 billion mt/year – and dominates spot trade with fixed and spot index-linked pricing.

However, while China imports a comparatively low percentage of its coking coal needs, its aggressive use of policies to govern domestic production of the commodity have nevertheless provoked international spot market volatility, with structural undersupply at times of pressing demand given that some swing supplies from the US have been removed from the market due to challenging mine geology.

For example, in April 2016 China reduced the number of annual working days that its domestic coal mines could

operate to 276 from 330, in a supply-side reform to curb excess coal capacity. This had an almost immediate impact on world prices, as China imported more met coal to meet demand, at the same time helping to make domestic coal mining in China more viable. Imported metallurgical coal prices delivered into China surged to over \$300/mt CFR China by November 2016, more than triple their sub-\$100/mt value in April, according to S&P Global Platts data.

The market volatility has been exacerbated by periodic weather disruption, with three cyclone-driven pricing rallies in the past 10 years. Most recently, when Cyclone Debbie caused flooding and key Eastern Australian coal rail lines to shut in early 2017, spot prices doubled within three weeks from \$151.50/mt FOB on March 24 to a high point at \$304/mt FOB Australia on April 17 for Premium Low Vol.

Such extreme spot price volatility has resulted in a gradual breakdown in bilateral negotiated coking coal benchmark pricing, bringing ever greater spot market activity along with the increased adoption of futures and hedging tools.

Developments in Asia Pacific spot indexes

The shift in Northeast Asia to utilize FOB Australia premium HCC spot pricing as the closest reference for the traditional benchmark hard coking coals such as Peak Downs, Saraji and German Creek has been driven both by greater price volatility and also increased spot trade information, which allows for more accurate measurement of a standardized and daily transactable value for coking coal.

In the second quarter of 2017 there were moves towards using spot index three-month averages with a one-month lag for quarterly contract pricing, replacing bilaterally-negotiated contracts. This has been seen in Japan, South Korea and other markets utilizing benchmark-tied contracts for premium HCC and other grades.

CFR China pricing is both a regional and global reference, with a relationship to China's domestic met coal and steel pricing.

Pricing volatility in the coking coal market has been the principal driver of spot indexation adoption for sales in this region. However, some market players may prefer to use an average of pricing assessments around the laycan or the month or period of loading in order to represent a tradeable value in the future in line with the market, which potentially helps facilitate counterparty performance and benchmarking with industry and steel costs and prices.

Over the past five years there has been greater usage of spot indexes in a range of transactions. Indexes have been used in invoicing spot volumes, along with determining monthly and quarterly pricing for contracted volumes, usually via annual or multi-year contracts.

For cargoes of coal origins and grades without similar liquidity to grades sold from Queensland or with weaker price correlations when tracked with other coking coals, negotiated fixed pricing may be more common.

Fixed pricing can offered and agreed more frequently when coals are sold on a delivered basis, with the freight costs built in and the buyer's option around timing nomination to lift (or load) the cargo not included.

China's spot market dominance

China remains the biggest spot buyer of seaborne met coal, accounting for 73% of all seaborne coking coal spot trade volumes tracked by S&P Global Platts in 2017, of which 98.5% has counterparty verification.

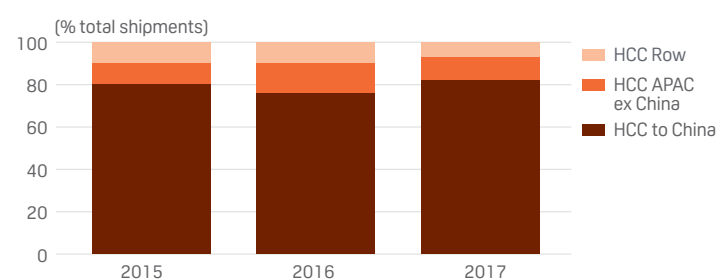
Total global spot traded volumes of coking coal stood at 61.94 million mt in 2017, of which 45.39 million mt went to China. A further 19% of spot volume was sold to other Asian markets, including India, and 8% to markets outside Asia.

Prime hard coking coals, including benchmark-grade brands, play an important part in the overall trade volumes. Low-vol and mid-vol coking coals with high coke after strength reaction (CSR) and other properties have generally been contracted on a longer-term basis to Japanese steel mills, with pricing negotiated on an annual and a quarterly basis.

In 2016, China accounted for 54% of PHCC spot trade volumes, with other Asian countries procuring 46% of PHCC spot volume, compared to 41% in 2015. In 2017, however, this swung back heavily towards China, where steel production expansions and a focus on coastal mills operating larger blast furnaces strengthened demand for premium HCC. The shift was also helped by strong steel Chinese margins following the government's drive to eliminate steel production via induction furnaces during the year. This helped tackle an overcapacity problem via removing less efficient, highly-polluting and sometimes illegal steelmaking capacity from the market.

According to 2017 spot trade volumes tracked by S&P Global Platts, China procured 63% of total PHCC seaborne coal volumes during the year, with 26% procured by India and other Asian buyers, and 11% sold in spot transactions to buyers outside Asia.

HARD COKING COAL SEABORNE TRADE FLOWS



Source: S&P Global Platts

In markets such as second-tier hard coking coal (HCC) and pulverized coal injection (PCI) products, China's dominance of spot market trades is more apparent. China procured 82% of all second-tier HCC spot trades in 2017, up from 76% in 2016, with 11% going into other Asian markets, and 7% into markets outside Asia.

This was similar for spot PCI trade, which saw 85% traded to China, 12% to Asia and 3% to markets outside Asia, according to Platts' data.

US and other non-Australian coal trade and price relativities

In Atlantic coking coal markets, spot trade is also growing. There is frequent cargo-by-cargo and index-based pricing, as buyers seek to increase flexibility and take away longer-term fixed pricing risk.

Negotiated spot pricing under terms established for so-called framework volume deals are becoming more common for US and some Australian exports, as buyers want the certainty of coal volume with the option to negotiate or use indexes periodically to buy in line with the wider spot markets.

Some of these deals may price with fallback to spot indexes, such as S&P Global Platts' series of Atlantic indexes – US low-vol HCC, US high-vol A and US high-vol B – as well as several Australian indexes, such as Platts Premium Low Vol.

As a result of this broader usage of spot pricing in the Atlantic – away from the annual and quarterly benchmark references – the use of indexes is now impacting pricing and price negotiations more frequently and more directly.

The majority of US East Coast deals for high-vol coals such as Leer, Mountain Laurel and Rocklick, and low-vols such as Buchanan and Pinnacle, are now being priced this way, according to market participants.

Strictly open spot offers and bids for US cargoes are seen more often into Turkey, Egypt and the Ukraine, as well as China. This involves pricing negotiation without linkage to prior contractually bound commitments, according to trade information compiled by S&P Global Platts.

The US mining industry makes ample use of Platts' spot US met coal and Australia met coal indexes in a range of sales. At the same time, quarterly benchmark references remain strong negotiating points, even as indexation replaces the former pricing system.

As the benchmark for HCC has evolved into using a three-month index average, the tendency for US coals is to increasingly price off a mixture of specific US indexes, Australian indexes, and fixed pricing.

Prevailing quarterly indexation-derived pricing is an important reference in negotiating additional spot cargoes

and forming decisions around the pricing basis for subsequent spot cargoes.

For example, the Q3 2017 period for benchmark-related deals, using June-August 2017 index averages for Australian premium HCC, averaged around \$170/mt FOB Queensland. For September-November 2017, the average rose to around \$192/mt.

Atlantic purchasing on a spot basis fell as indexes in Australia over August and September 2017 reached daily prints of over \$200/mt FOB.

US spot coal prices trended at a bigger discount to the PLV index over this period, as regional demand and US supply kept pricing at lower levels than in spot deals for Australian coal confirmed paid in China and India.

US met coal: index usage

Market players often ask how the US is able to differentiate met coal pricing and trading conditions around the usage of indexes, and future quarterly benchmark references. Here it is important to gauge met coal's pricing in relation to other coals, coke and steel markets in the US and export markets.

US met coal pricing transparency is increasingly cited as potentially aiding the industry to overcome barriers to securing new growth capital, on top of working capital and other regular financing.

US domestic markets remain underpinned by annual fixed-price business, usually concluded in the second half of each year, prior to the new calendar term.

For 2018, pricing emerged in September and October, with talk of high-vol A at \$90-105/short ton FOB Mine, low-vol in a similar but slightly lower pricing range, and high-vol B in a \$75-85/st FOB Mine range.

Some US miners and traders are utilizing a range of sales and pricing terms with counterparties to enable flexibility in allocating material for either the domestic or export market. Domestic buyers are also leaving open some volume for spot purchasing, given dynamic steel output needs and coke demand.

Russia prices into two regions

Russian hard coking coal and PCI exports are priced into two regions. These are the Asia Pacific region, where Japanese quarterly benchmark pricing and indexation in HCC and PCI are strong references, and Europe and South America, where PCI pricing is on a quarterly negotiated basis and with increasing use of spot Australian FOB PCI indexes transferred to FOB pricing to Baltic and Murmansk ports.

The ability of Russian miners and international traders to switch tons between the two pricing regions, which is set to increase with further capacity expansion expected at the

port of Vostochny in the Far East of Russia, where cargo turnover is expected to increase in a current third phase expansion by 20 million mt by 2020 (up to 40-45 million mt of coal per year). This looks likely to increasingly align Russian PCI pricing in both markets with other benchmark grade PCI products sold from Queensland.

US miners may also sell material such as PCI products into export markets, with the trade referring to Russian and Australian-delivered PCI pricing, and adjusting for quality.

Offers of Russian high-vol coals are now expanding into markets such as Europe, Turkey and Northeast Asia as alternatives to Australian and US coals.

Central and Eastern Europe: negotiated using Australian indexes

Polish and Central European met coal and coke pricing was historically linked to the quarterly Northeast Asia benchmark. However, coking coals are now being negotiated using Australian spot indexes with varying tenors as references.

European producer coke prices are finding references from local markets and hard coking coal pricing, along with Chinese coke prices.

High price increases are being seen due to earlier spot trends. Blast furnace (BF) coke was heard in Q4 to have increased to the equivalent of \$330-340/mt ex-works, from the mid \$200s/mt in Q3. Foundry coke pricing rose less in Q4, due to higher levels already secured in Q3.

Colombia: using Australian indexes

Colombian mid-vol blend HCC is trading with a variety of Japan benchmark pricing reference sales into Asia and Brazil.

Colombian high-vol blended coal is traded with negotiated pricing with reference to US met coal indexes such as high-vol B into markets such as Turkey.

This is resulting in interest from Colombian traders to track pricing structures established on a three-month average of Australian premium HCC indexes, with a minus-one month framework, to determine how the FOB pricing from Colombia would work.

Colombian mid-vol blends may typically be subject to a freight discount due to having higher voyage rates to Asia than for Australian coals, and may be adjusted for quality using a fixed or negotiated penalty.

Colombian BF spot coke pricing references FOB China coke prices, with some discount, according to market participants. Colombian export sales have increased as China FOB pricing was high through 2017: India is taking more from Colombia since it introduced antidumping duties on Chinese coke.

Deal reporting and non-disclosure agreements

BHP Billiton, the largest met coal miner, has promoted market transparency by moving sales of its Australian coal produced in joint ventures with traders Mitsubishi and Mitsui away from benchmark contract pricing. This follows its move in April 2011 to adopt index-linked spot market pricing for met coal sales.

The move was intended to improve operational and pricing efficiency by ensuring there is a transparent market price for customers lifting tons, and to prevent pricing disagreements.

Still, there is widespread recognition that an expansion in index use on contract coal sales needs greater transparency and trade data to validate index pricing.

China and India's increased met coal imports have been accompanied by a wider and more regular sharing of information on spot deals across various coal grades and brands.

Different coking and PCI technologies, along with a mixed usage of iron ore products such as sinter, lump and pellets, mean there is complex differentiation in costs and operations between steel sites and companies.

China's spot-orientated steel sales encourage spot purchasing of raw materials, and visibility in the industry's pursuit of the lowest raw materials prices. Chinese companies operate in the spot market in tandem with domestic coal and iron ore suppliers and with regular pricing announcements and centralized policies around trade and imports.

European, US and Brazilian steel mills are typically used to buying raw materials through long-term contracts, which carry nondisclosure terms.

Disclosure to the market at large around purchasing may be controlled via corporate reporting to stock exchanges and debt markets, or other shareholders and stakeholders.

The previous widespread adoption of Japanese bilaterally-negotiated coking coal prices as an industry benchmark, including in India, Europe and Brazil on an annual and latterly on a quarterly basis, has provided some transparency to costs. However, the extent to which these pricing references are used remains a matter for individual bilateral negotiations with suppliers.

Before China's rapid growth boosted spot demand for met coal, the global market was predominantly contract-based, with a high degree of usage of benchmark pricing and confidential additional sales. Spot trades being reported to the market was a rare feature until this decade.

Any additional cargoes transacted with contract suppliers

may extend the same terms around confidentiality terms, and hinder the ability to report spot deals.

Risk management: met coal futures take cue from iron ore

Northeast Asian steel mills' increased usage of indexation for quarterly HCC pricing has led more miners, traders and steelmakers to look into hedging strategies, boosting derivatives trade.

Previously, market participants cited insufficient traded volumes as a major hindrance to effective coking coal hedging strategies. But traded volumes for coking coal derivatives increased significantly in 2017. Banks started offering structured hedging programs, making this a more viable and attractive option.

Participation by traders, banks and miners has created growth in the coking coal derivatives market, with improved liquidity and regular bids and offers.

In part driven by the high price volatility Cyclone Debbie provoked in the physical market last year, traded volume for coking coal futures and options on the Singapore Exchange (SGX) and Chicago Mercantile Exchange (CME) totaled 16.19 million mt in 2017, an increase of 191% compared to the 5.55 million mt traded on the two platforms in 2016.

The SGX also launched coking coal options contracts in September, citing "burgeoning demand", with CME Group following suit in October.

The futures market has seen open interest grow at the SGX, while activity on CME Group has reduced.

The CME previously saw trade on its HCC 64-based contract, with hedging activity around physical trade in Australia, Indonesia and Colombia linked to this index, but hedging interest has since moved to premium coal indexes.

The CME still has open interest on Premium Low-Vol contracts, and has launched a futures contract with settlement on the Platts TSI Premium HCC coking coal

price, along with options on the futures, to expand its offering in the commodity.

The TSI PHCC, also used for clearing on the SGX, is published daily (Monday to Friday) using a calculation framework based on data collection.

US miners see basis risk between their coal qualities and the trading conditions in the Atlantic market against the FOB Australia spot price. In the absence of US coking coal-specific futures, traders are getting around basis risk by seeking to define and agree relative differentials to the Australian FOB indexes with buyers.

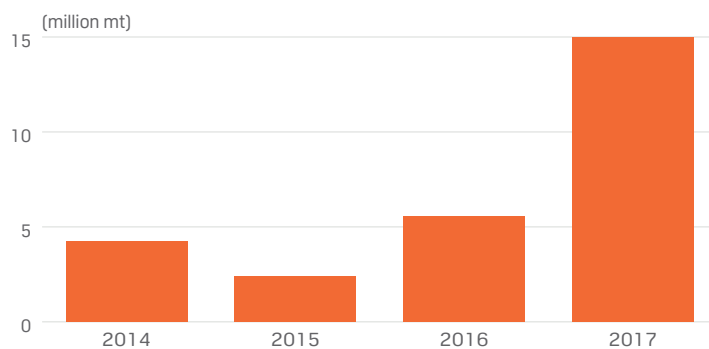
Where this is possible, the ability to hedge and lock in forward margins may be an option. The risk left is on the resultant bilateral terms on coal quality.

Mills and miners: different hedging needs

Steelmakers may wish to factor coking coal indexation pricing into steel prices as direct components in pricing formulas or as triggers and escalators. Whether steel buyers are willing to accept such terms linked to coking coal prices remains an important issue.

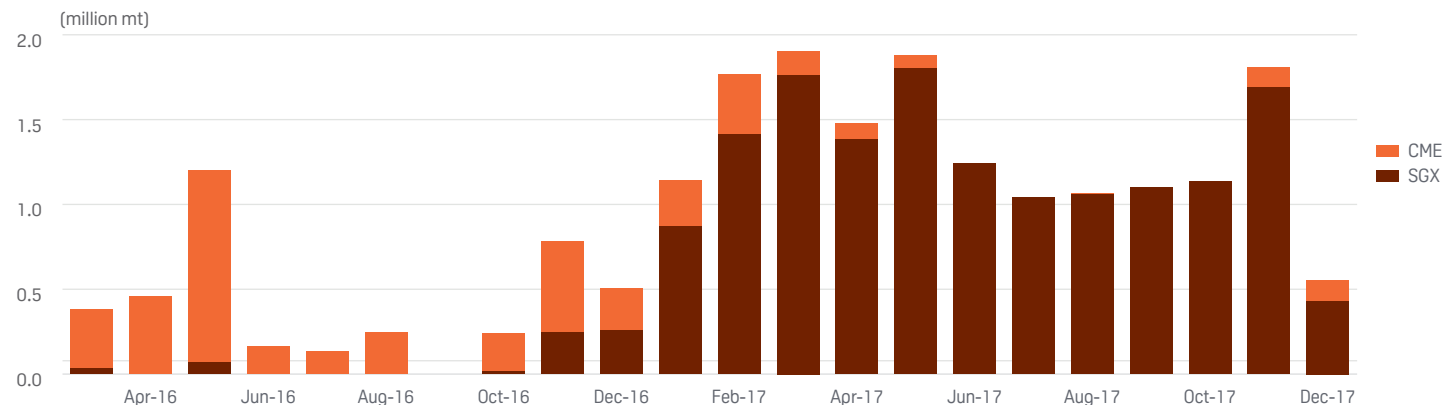
Steel market dynamics, along with steel contract pricing frequency, specifications and volumes, need to be considered, as these may complicate the use of iron ore and coking coal

ANNUAL COKING COAL CONTRACT VOLUMES TRADED



Source: Singapore Exchange, Chicago Mercantile Exchange

PICK UP IN MET COAL DERIVATIVES CONTRACTS TRADED VOLUMES



Source: Singapore Exchange, Chicago Mercantile Exchange

prices in the calculation of steel invoices for end-customers.

Steel prices are still largely bilaterally negotiated, or may be too complex for coking coal futures to factor in as an effective hedge, according to one coking coal miner with a futures hedging program.

This is seen to be limiting interest from some steelmakers in hedging coking coal prices forward.

For miners, with relatively known costs and production plans, hedging the forward price of coking coal is more straightforward, and potentially attractive depending on the forward curve values on offer, he said.

S&P Global Platts' assessment process for Premium HCC FOB Australia

Platts' Premium Hard Coking Coal FOB Australia index uses FOB Australia export market inputs to form the assessment, provided this information meets S&P Global Platts' editorial standards. Platts may also consider delivered

indications to markets, on a netback basis to Australia, to test against FOB indications, provided that these inputs reflect sufficient liquidity, as well as price consistency and repeatability for multiple destinations.

Platts has noted that FOB Australia trade has increased as transactions, bids and offers made on an FOB or delivered basis to countries other than China has increased, also allowing for trade in cargoes without fixed destination to China, along with the consistency and repeatability of these inputs.

In 2010, Platts launched a freight netback value calculated using the Platts' Premium HCC CFR China assessment calculated back to an FOB Australia basis, using Platts' published Panamax freight rate from Hay Point (Australia) to Qingdao (China). This provides added data for the analysis of region-specific pricing trends.

— *Edited by Diana Kinch and Alisdair Bowles*
— *Digital content leader: Mark Pengelly*

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