Silverbergh Partners

SP-INSIGHTS | 5/2017

Metallurgical coal: ‘From Dusk Till Dawn …’

October 2017

Study

A few pressing questions are evolving after a period of low met coal prices and recent price spikes: 'How will tomorrow`s met coal prices develop? What will be the key drivers for future prices?'

This report discusses a market outlook into 2021. Potential implications for market participants are explored.

This report investigates the price development in the metallurgical coking coal market. It details the key levers for this development and assesses the likelihood of future development. The evolution of the met coal market is expressed in some distinct scenarios, with the underlying drivers for the respective developments discussed. Implications for different groups of market participants are highlighted as well.

The report is based on the analysis of future supply-demand economics and the behaviour of market participants. The evolution of physical and financial wholesale and trading markets has been assessed in the context of the past evolution of other commodity wholesale and trading markets. Expectations of market participants and their view of the evolution of met coal markets have been reflected in this assessment.

In previous years, met coal prices have softened ...

Met coal prices have been decreasing for quite some time.

- **Before 2014:** Price spikes of more than USD 300/t could be perceived (Q2/2011)
- **Early 2014:** Prices decreased below USD 150/t (PLV, FOB Australia) coming down from more than USD 200/t
- **Q2/2015:** Prices decreased below USD 100/t, staying below that mark for about 12 months

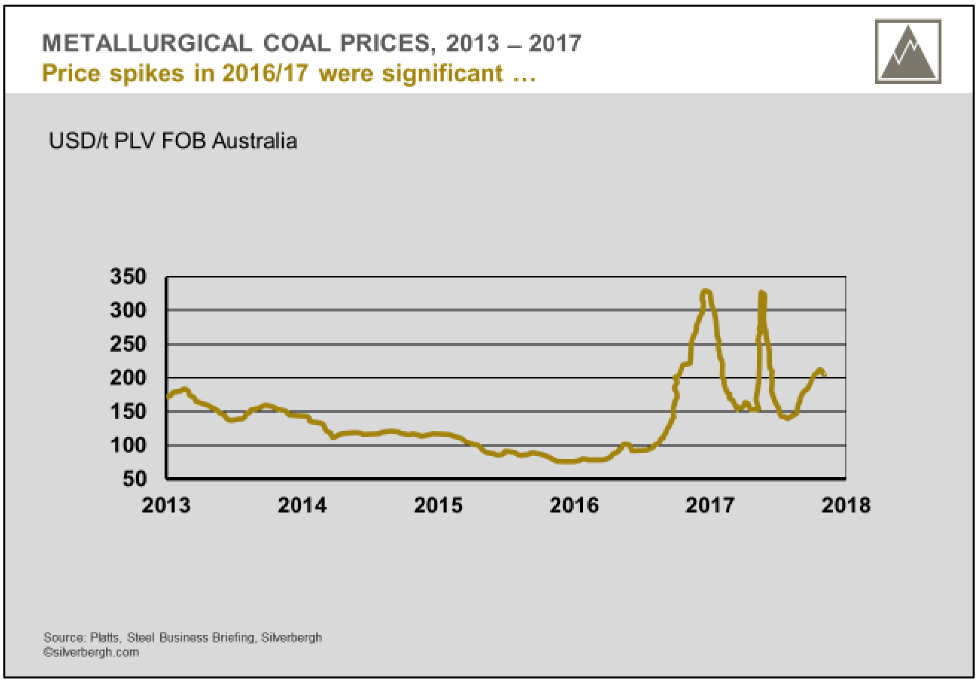
There has been a correlation between iron ore prices and met coal prices. Iron ore demand has been growing driving met coal demand but the demand growth rate has been declining. In 2014, demand started to plateau due to stabilizing demand in Asia. This had an impact on met coal prices. Met coal prices consolidated. Given declining profitability in the mining sector, mining companies started to reduce met coal production capacity. As a result, production economics of the intramarginal mines stabilized.

... but more recently prices have recovered ...

Before 2016, marginal costs of production had been in the USD 130/t range. As mining companies restructured, high cost US met coal production capacities diminished. Therefore, the supply curve flattened. Marginal costs of production went down to USD 100/t.

However, supply constraints caused price increases. Chinese domestic production stalled. Logistics bottlenecks occurred and Australia faced production shortages as weather-related events lead to termination of some operations.

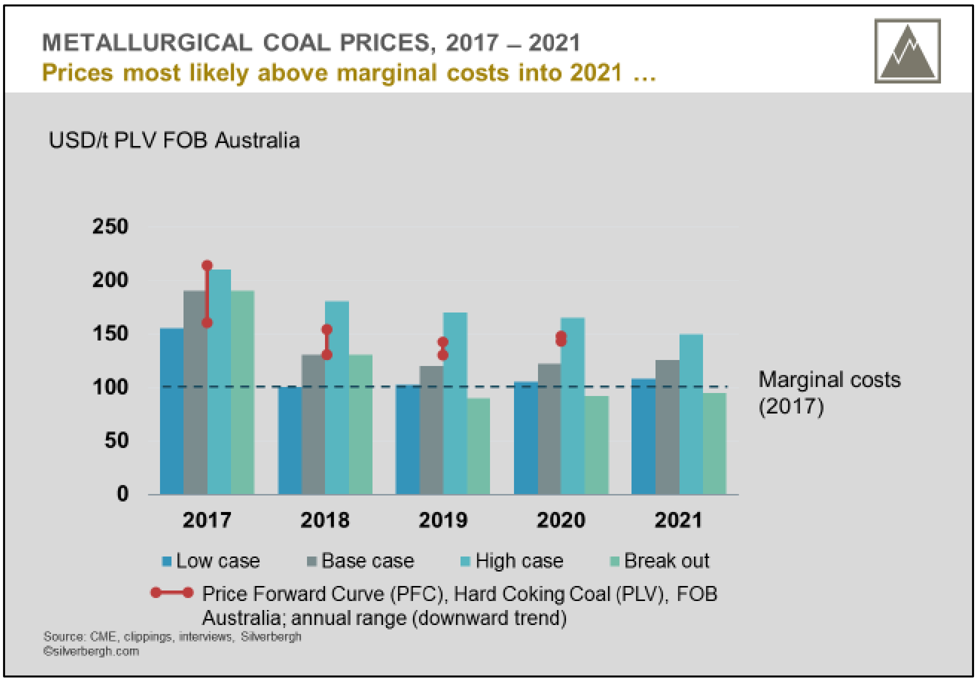
- **Q2 2016:** Prices increased continuously above USD 100/t and above USD 150/t in Q3/2016
- **Q1/2017:** Prices increased to more than USD 300/t. As such, it took 6 years to reach the same price levels as in Q2/2011



This is a very attractive price environment for producers and steel mills with integrated mining and steel positions.

... and have started to decline again

Since then prices have been declining. In September 2017, prices (PLV, FOB Australia) were still above USD 200/t. Prices CFR China dropped below USD 200/t.



Market participants are concerned about the future price environment and market conduct

Market participants are increasingly concerned with the market outlook. Depending on how prices are expected to evolve, strategic decisions about future positioning in the market are impacted.

- **Ownership in production capacity** – expansion vs. closure vs. acquisitions of equity coal positions
- **Establishment of marketing contracts** and offtake agreements
- **Pricing of steel** as input costs might change
- **Build-out of trading activity** for prop trading and hedging activities

In the physical market, the demand side will gain importance

Unlike in the recent past, the market equilibrium will be increasingly influenced by demand side developments as supply constraints are removed. Future price evolutions can be expressed in scenarios characterized by underlying assumptions.

- **Base case:** In this scenario, the supply-demand balance is stable. This is a solid basis for profit generation of miners.
  - **Supply side:** Australian production will recover. Supply constraints in China will be removed. After the 19th National Party Congress in October 2017, supply constraints will most likely be confirmed (but balanced in order to avoid GDP impact).
  - **Demand side:** Structurally, the demand composition will not change and demand will continue to grow.
  - **Assessment: LIKELY** – Short-term, this scenario is in line with financial market expectations. Longer-term, the scenario is less certain and will depend on the evolution of monetary policies and the economic health of the global economy.

- **Low case:** In this case, high prices today will stimulate production. Mines will open, productivity will increase, and demand will start to contract.
  - **Supply side:** Australian output will increase by more than 12 Mt by 2021. New supply sources will develop as planned, e.g. in Mozambique and Indonesia.

  - **Demand side:** Chinese demand will be balanced. Demand for residential housing construction will be limited and shifted to support a further build-out of infrastructure developments. Indian import demand growth will slow.
  - **Assessment: SOMEWHAT LIKELY –** The supply side might expand more strongly as opportunities arise, which would be in line with market conduct as experienced in the past.

- **High case:** This case is characterized by overshooting prices as supply-demand will be out of balance.
  - **Supply:** Chinese domestic supply will be significantly constrained. Australian production capacity additions will enter the market as planned. Domestic restrictions, met coal capacity additions and productivity increases will be more severe than anticipated today, e.g. labour. Today, total capacity additions are expected to be in the range of Mt 12 p.a. by 2021. They will not be reached. High cost US suppliers will increasingly act as swing suppliers as Australian production fails to meet demand.
  - **Demand:** Longer-term demand will increase due to the following influences: Urbanization will increase and steel intensity of global GDP will decline less than expected. Steel intensity in China will increase, African steel demand will pick up. Modernization/relocation of Chinese steel mills will lead to higher seaborne import demand. Access to credit, especially in China and Japan, will remain unconstrained and hence construction activity will continue to grow.
  - **Assessment: LESS LIKELY –** The combination of significant supply and demand assumptions is probably less realistic.

- **Break out:** This scenario is in line with the base case into 2018. As of 2019, prices might drop below the marginal cost of production of about USD 100/t.
  - **Supply:** Significant investments will be made and will foster additional supply. Productivity improvements will go beyond the expected rate. Australia will build out capacity beyond the Mt 12 p.a. by 2021. This would be more in line with productivity estimates around the 2014/15 timeframe. Mozambique will expand production beyond Mt 10 p.a. by 2021.
  - **Demand:** Demand will be contracting induced by central bank policies, access to credit, and/or Chinese demand regulations, especially in process industries and electricity generation. This will also affect mining and steel manufacturing. Indian demand will increase but will stay below expectations.
  - **Assessment: SOMEWHAT LIKELY –** Quantitative easing (QE) of monetary policies of central banks is phasing out. Access to credit and exchange rates might be impacted within a five-year timeframe.

There are some other influencing factors on met coal demand which might gain relevance to the end of the forecast period or after 2021.

- Use of blast furnace vs. arc furnace (and use of scrap metal)
- Traditional blast furnace vs. pulverized coal injection (PCI) may lead to increased demand of soft coals. This would result in narrowing met coal price differentials (hard coals vs. soft coals)
- Demand substitution, e.g. in automotive (aluminium substituted by steel)
- Change in steel product mix, e.g. long vs. flat products (potentially influenced by Chinese regulation)

Across all scenarios, profitable production economics are expected

To summarize the evolution in the physical market, there are a few takeaways:

1. **Today´s high prices will not remain.** Over time they will come down to reach significantly lower levels much more in line with historic prices.
2. **Prices will stay above marginal costs of production until 2018/19 in all market scenarios.** Only in the 'Break out' scenario will prices drop slightly below marginal cost. Only price setting mines will be challenged to earn their variable costs. All other mines will generate profits and (part of their) capital costs of mine expansion and productivity, increasing investments. However, as the supply curve flattens, the inherent profitability of intramarginal mines

should decrease (as the producer surplus decreases).

3. **Very low prices are not expected.** In 2015/16 prices were significantly below USD 100/t. This situation is not expected to return.
4. **Price setting is expected to remain linked to spot prices.** Although there are some efforts being made to squeeze out intermediaries, which in part has been successful, a broad return to quarterly contract prices is not expected. As prices have become transparent a fixed price regime would be associated with costs. A price differential between a fixed price contract and a spot market linked contract can be observed. The challenge with spot price linked contracts, however, is to deal with increased price volatility.

From today`s perspective, the next five years are expected to exhibit a higher and more stable price environment compared to the previous five years.

Financial markets are developing

Financial markets are developing. The Chicago Mercantile Exchange (CME) as well as the Singapore Exchange (SGX) are quite active in met coal trading and offer a range of products. SGX just recently launched an options market. Over the counter markets (OTC) have become more liquid.

Chinese traded paper markets, however, have consolidated over time. They are significantly influenced by the inflow of speculative capital. Volatility is significant, owing to speculation and still limited daily trading volumes. This is a burden for price discovery and hence will prohibit a healthy accumulation of market liquidity, as forward sales and hedging activity are hindered. However, speculation is not a problem per se. Once there is more market liquidity and decreasing influence of speculation on market prices, speculators will contribute to robust market conditions as they provide additional liquidity and facilitate risk transfer.

Market participants might want to review their positioning to capture upside

Every market participant might want to establish a view how he is potentially impacted by future market conditions. He might also explore the evolving opportunity space.

- **Mining houses:** Should the mining portfolio be reconfigured? How much capital should be devoted to mining extensions and greenfield developments vs. exploitation of existing brownfield operations? Should more flexibility be built into the portfolio to better cope with future price fluctuations? How can miners offer steel mills price stability and what would be the business case associated with this?
- **Traders:** How should met coal offtake agreements be negotiated? How should some of these met coal positions be sold-off into the market by providing price stability to met coal consumers and at the same time monetizing today's high prices? How should cross-commodity plays be built out?
- **Steel mills:** How should met coal (and iron ore) be bought going forward? How should the commodity volatility be managed? How should financial hedging vs. other mitigation techniques be applied?
- **Professional investors:** Is this an opportunity to seek more met coal (and iron ore) exposure? If so, what would be the right mix of financial instruments, e.g. equity investments? Should individual investment opportunities or portfolio choices be revisited?

As several market participants have a positive perspective about the future market evolution they are already addressing some of the above questions. There are still opportunities to be captured but positions are already being taken.

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