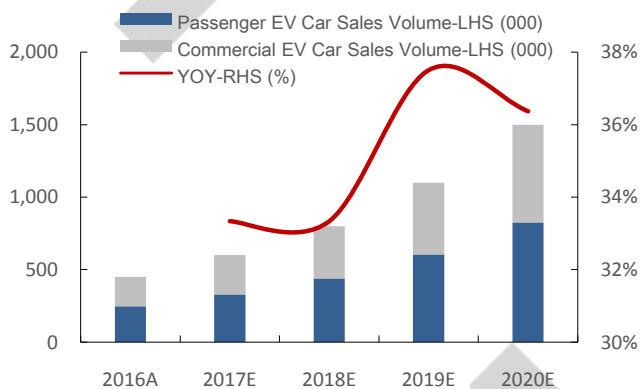


Demand of Cobalt and Nickel to Benefit from China's EV Subsidy Policy in 2018

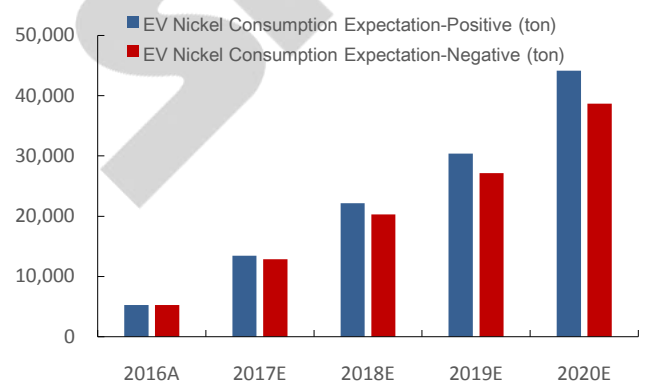
The declining amount of China's subsidies to EV in 2018 is the focus recently. The market expects that the upcoming subsidy policy will transform the EV market into more high-mileage and high-energy-density focused. The subsidy for EVs with mileage < 150 km will be cancelled and the high-energy-density trend is to benefit the NCM-type battery (622 and 811 type).

Chart 1: 2016-2020 China EV Sales Volume (000 units)



Source : SMM

Chart 2: 2016-2020 China EV's Nickel Consumption (ton)

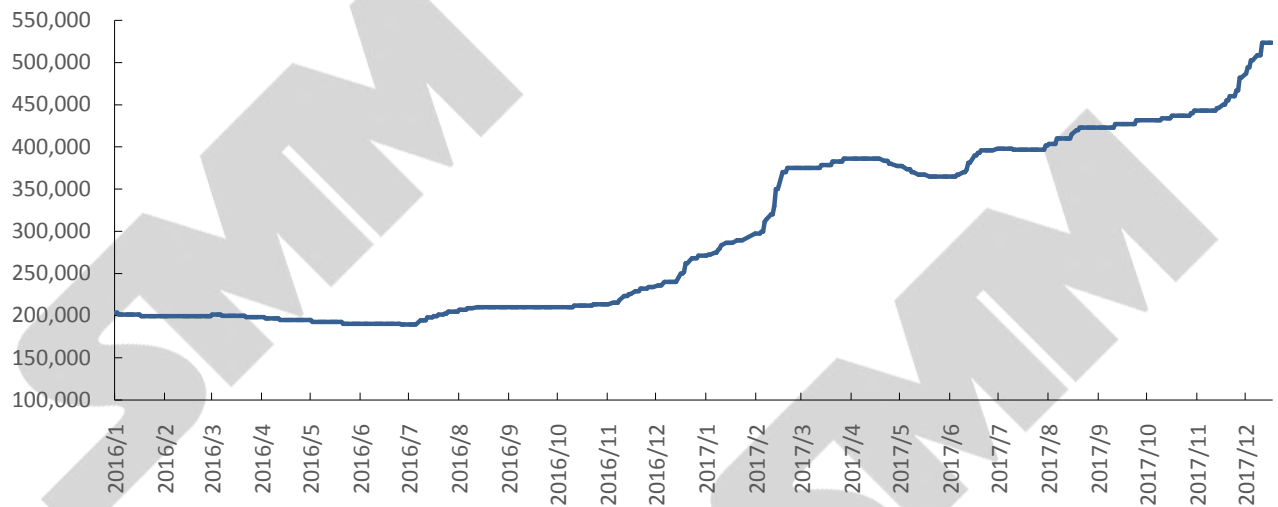


Source : SMM

Glencore Restarts Katanga Mine, in Anticipation of Doubled Cobalt Output in the next Two Years

Glencore announced that it has recently restarted its Katanga mine in Congo and produced the first batch of copper. The mine is expected to produce 11,000 and 34,000 tons of cobalt in 2018 and 2019 respectively. SMM views the global cobalt market is a seller's market currently, with the market controlled by Glencore (30%), hand-pick mines (20%) and several traders (50%). Glencore plans to double its cobalt output in the next two years, to grow its market share and gain bargaining power. SMM expects the cobalt price will continue to rise in 2018 due to rising demand from the EV industry. SMM forecasts that the annual average price of cobalt to be 450,000 RMB/ton in 2018, up 18.42% YoY.

Chart 3: Cobalt price ($\geq 99.8\%$ Rmb/ton)



Source: SMM

Nickel Has Strong Fundamentals, Price to Range within US\$9,000-14,500/ton in 2018

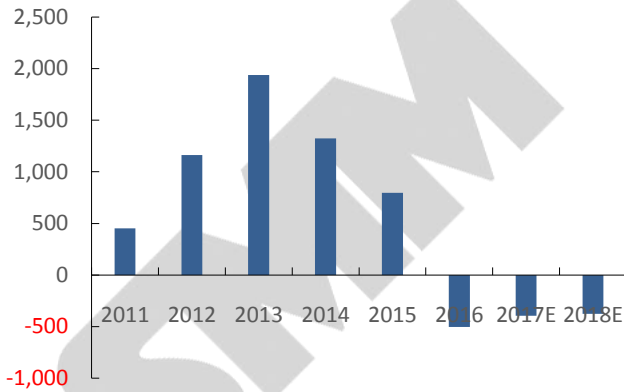
SMM expects nickel demand in 2018 to be supported by rising domestic consumption and the rebound of exports driven by improving economies in Europe and the US. China announced last week that the import tax of nickel sulphate to be reduced from 5.5% to 2% in 2018. Non-alloy nickel import tax will be raised from 1% to 2%, while the export tax of steel products will be eliminated. Therefore, we expect nickel price to be supported in the short term.

SMM thinks that in 2018 the supply of nickel plate will remain tight, and the pattern of weak domestic nickel price while strong overseas price will be reversed. The growing demand for nickel sulfate will further squeeze the supply of nickel plate.

The relaxation of the export of Indonesian laterite nickel ore will drive up the expansion of global NPI capacity in the next three years. SMM predicts that global NPI output in 2018 will be about 700,000 tons, with China at 460,000 tons and Indonesia at 240,000 tons. SMM expects that Indonesian NPI capacity will account for around 50% global market share in 2020, like China. The new low-cost NPI capacity will ramp up rapidly, impacting higher cost RKEF producers. About 20% of NPI capacity will be impacted in future.

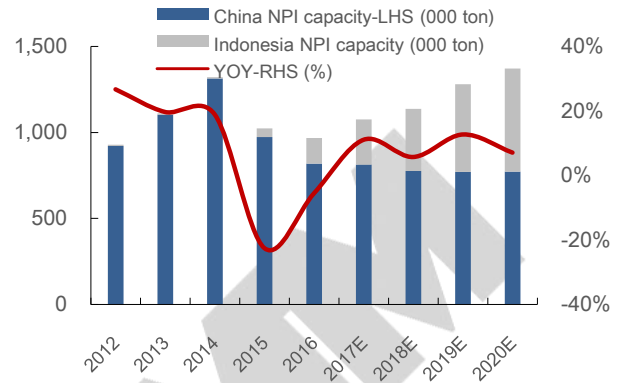
Overall, SMM is bullish on nickel demand next year, and forecasts the nickel price at \$9,000-14,500 / ton in 2018.

Chart 4: Global Nickel Plate Supply Gap (000 ton)



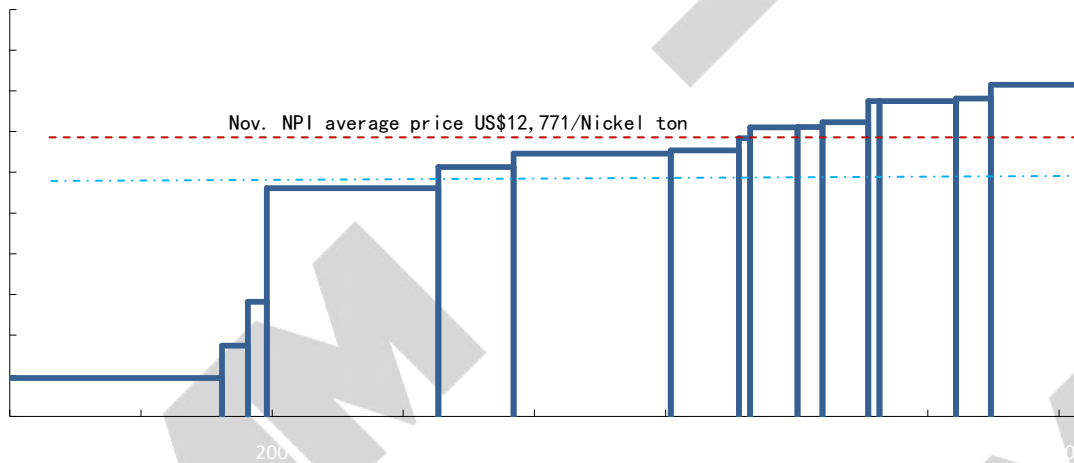
Source : SMM

Chart 5: Global NPI capacity (000 ton)



Source : SMM

Chart 6: Global NPI cost curve (US\$/ton)



Source : SMM

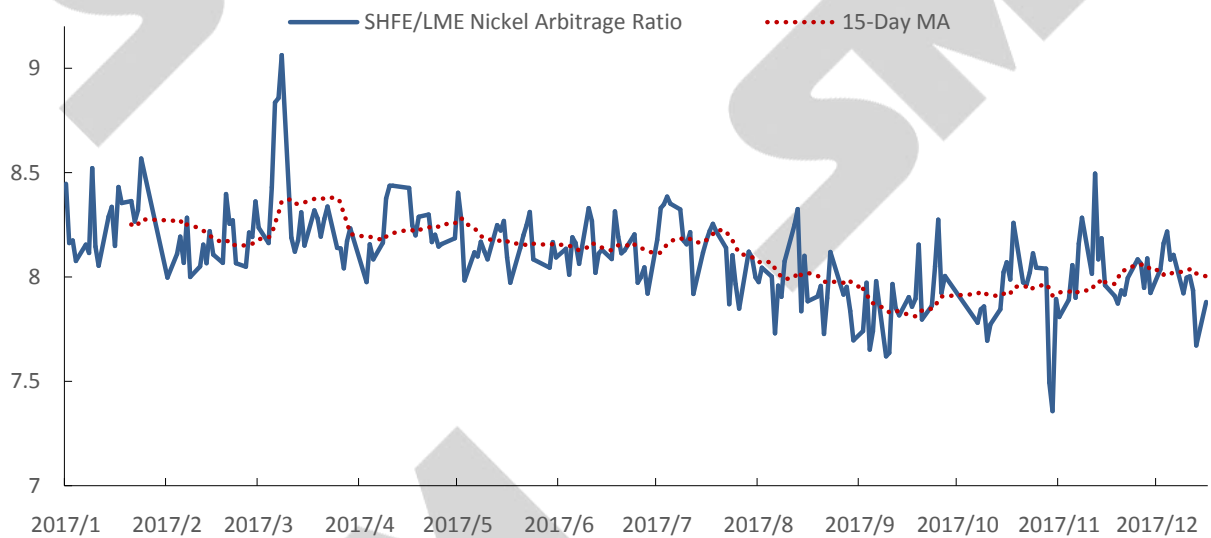
SMM has comprehensive **China Cost Database** for nonferrous and ferrous metals, by conducting regular field trips and interviews with all Chinese metal producers, from large-scaled to small-scaled, from SOEs to private-owned. We collect their detailed cost breakdown for individual plants/mines and for the whole production process, and update the database regularly as well as keep close track of any updates/changes.

We also have Cost Database for Steel, Iron Ore, Aluminum, Copper, Copper Mine, Nickel, Nickel-Pig-Iron (NPI), Tin, Manganese, Lead and Lead Ore, etc.

SHFE/LME Nickel Arbitrage Ratio is the Focus

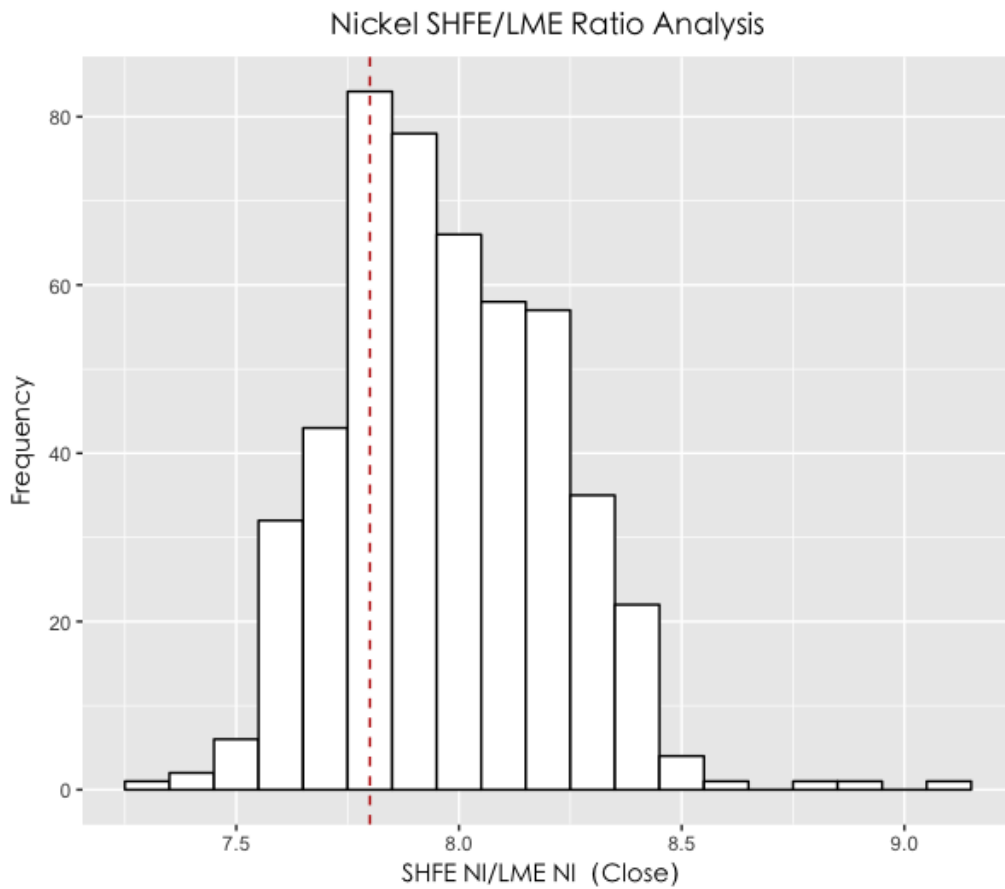
The SHFE/LME Nickel arbitrage ratio has been moving downward in 2H, vs. its resilient trading pattern previously. By Dec 18, 2017 close, the ratio was 7.88, lower than 63% of the total samples observed. As China has announced to raise the import tax on melting refined nickel from 1% to 2% in 2018, we expect the SHFE nickel prices will continue to perform well and therefore resulting in a higher arbitrage ratio.

Chart 7: SHFE/LME Nickel Arbitrage Ratio



Source: SHFE, SMM

Chart 8: Nickel SHFE/LME ratio analysis



Dash line: Currently ration by 18/12/2017

Source: SHFE/LME/SMM

Quantile	Ratio
1%	7.47
5%	7.61
25%	7.8
75%	8.14
95%	8.36
99%	8.52

Source: SHFE & LME