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Discussion-Opinion-Editorial™

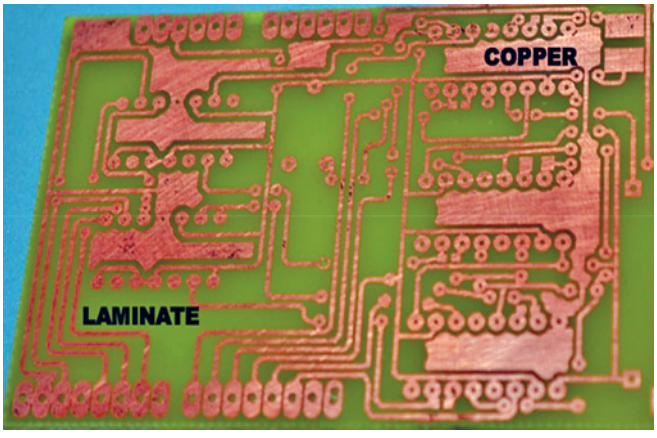
Why, from now on, Tesla, Apple, and the Elk will have interests in securing minerals at the beginning of the supply chain

Scarcity will bring desperation

The war on securing minerals is intensifying. It is going beyond national interests and soon, it will begin to involve the high-tech companies of the world. Companies will find it difficult to depend on moves and machinations of the national governments and the raw material sourcing crisis will soon force them to see the start of their supply chains, i.e., the mines and the mineral properties. Very interestingly the scale and control dichotomy will play out; for margins the large tech firms will leverage on high purchases but operationally and geographically they will find managing the business more problematic.

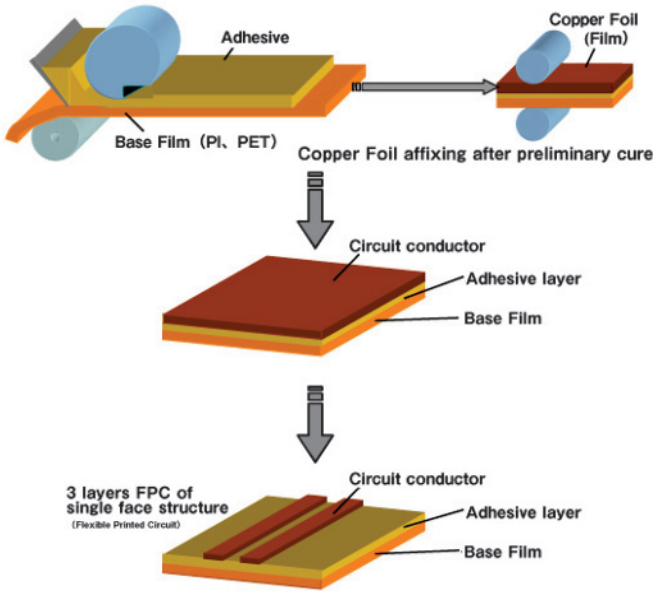
The case of CCL in PCB

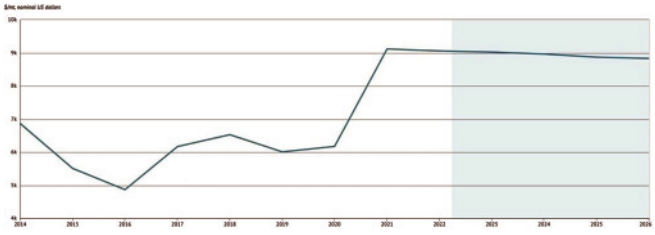
Let us take the case of copper. The primary raw material for Printed Circuit Boards (PCB) is the copper clad laminates (CCL). Copper Clad Laminate, abbreviated to CCL, is a type of base material of PCBs. With glass fiber or wood pulp paper as reinforcing material, a copper clad board is a type of product through lamination with copper clad on either one side or both sides of reinforcing material after being soaked in resin. Copper clad laminates (CCL) are made up of Copper foil + Glass fiber + Resin. The breakup of the raw material costs as percentage of CCL, would be 30-50% towards copper foil, 24-40% towards Glass Fiber and 25-30% towards Resin.



A typical copper clad laminate in a PCB

CCL or Copper Clad Laminate is the fundamental building block of a printed circuit board. PCB fabricators use copper clad laminates to build several types of boards, most notably, single-layer, double-layer, and multi-layered boards. Laminate manufacturers use various types of materials to build copper clad laminates, and classify them according to material, characteristics, and performance. Depending on the application, characteristics of the copper clad laminate must change, and must conform to several standards.





Copper price outlook 2023-30 (the data after 2022) is uncertain but one can see the forecasted price would still to be at $9000.00 level

The Case of Copper in PCB in the recent years

1. In 2020 copper output from the mines have had a year-on-year drop, due to Covid related issues.
2. Global annual copper demand around 28 million tonnes in 2020, expected to grow by 2030 to a 38 million tonnes annually.
3. Bloomberg reports, a leading metals trader predict Copper could surge above a record to $12,000 a ton in 18 months on new demand from green initiatives
4. On the longer horizon, declining rate of copper deposit discovery poses a long-term threat to copper supply

Copper Foil

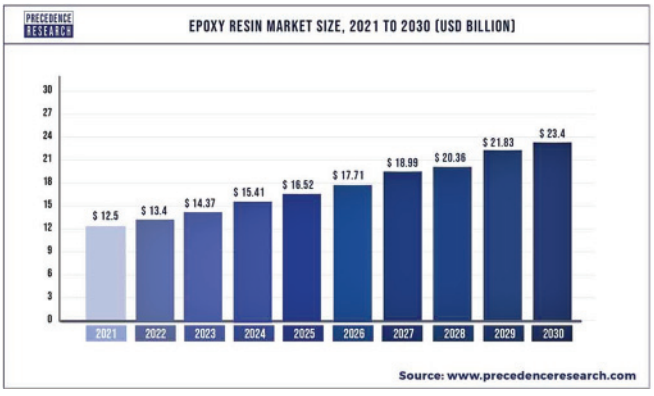
1. Demand for copper foils has increased for e-vehicles battery production.
2. Copper coil factory repurposed their production to maximize SQM output for light weight foils 1oz/35micron and less used for lithium battery production.
3. There is a complete breakdown in supply for heavy copper foils 2oz/70 micron and above.
4. Coil foil capacity utilization at 99% for CCL and PCB.
5. With the forecast growth for battery demand, long lead-times, and high investments costs to increase copper foil manufacturing capacity, this situation is unlikely to ease given the policy statements and green agendas of most governments for the coming 5-10 years.

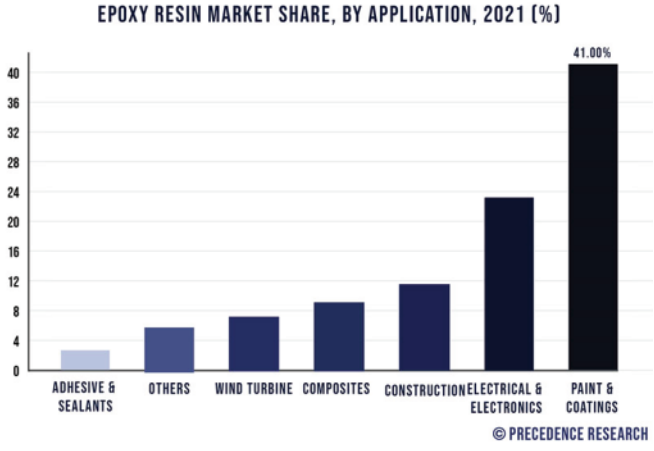
Glass Fiber and Resin: Year 2022 case

Most common epoxy resins are produced from a reaction between epichlorohydrin (ECH) and bisphenol-A (BPA), though the latter may be replaced by other raw materials (such as aliphatic glycols, phenol and o-cresol novolacs) to produce specialty resins. The epoxy resins can be obtained in either liquid or solid states. The raw materials for epoxy resin production are today largely petroleum derived, although some plant derived sources are now becoming commercially available (e.g. plant derived glycerol used to make epichlorohydrin). The global epoxy resin market size was estimated at USD 12.5 billion in 2021 and is expected to hit around USD 23.4 billion by 2030 and expanding growth at a compound annual growth rate (CAGR) of 7.22% during the forecast period 2022 to 2030.

a. High demand for epoxy resins for green energy applications (wind turbine blades).
b. High growth in consumer and green energy applications is also pushing up glass yarn and glass fabric prices and limiting availability.
c. Glass fabric manufacturers tend to follow the demand for those materials which have lower quality demands and command higher market prices, than those demanded by the PCB industry.
d. Two major explosions at epoxy resin plants Guodu Chemical Resin Plant followed by explosion at Suzhou Xingya plant, interrupted the supply of resin.
e. Fire at LG Chemical Yeosu plant in South Korea, interrupting the production of ethylene and propylene.
f. The glass cloth supply are primary controlled by Nitto Boseki and a few other chemical manufacture in Japan.

g. In July 2020, the Nitto Boseki's plant was damaged by fire leading a surge in prices into 2021, as PCB manufacturer bid higher to secure priority allocation of the product supply.
h. Due to explosion, local authorities have increased the safety audits at epoxy resin manufacturers and other raw material suppliers. Due to the increased audits, material production has decreased and worsened the supply situation.
i. Due to the atmospheric emission reduction requirements, some epoxy resin companies cannot operate at full capacity.
j. Shortages and significant (60%) price hikes for CCL manufacturers.
k. CCL manufacturers expect that this trend will cause laminate shortages, particularly for rigid materials.





Suppliers

China based copper foil suppliers have been more aggressive on price increase, with Guangdong Chaohua Technology increasing price by 30% in March, 2022. Taiwan based copper foil suppliers including Co-Tech and Nan Ya plastics are under pressure to increase prices. Due to on-going crisis, it is reported that laminate vendors ITEQ and Shengyi have stopped supply of laminate for 2 layer PCB. Kingboard, Elite Material, Iteq, Taiwan Union Technology and Ventec International increased prices for some specific product items before the Lunar New Year holidays. Further increases are expected later in 1H22.

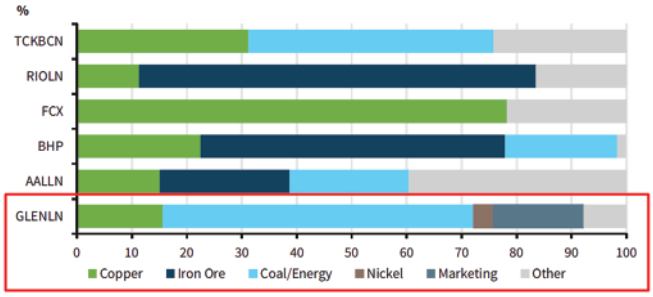
The start of the Supply Chain

The FT recently reported that Tesla (NASDAQ:TSLA) and Glencore were in talks to discuss the auto company taking a 10% to 20% stake in the mining giant. This came following calls from Tesla CEO Elon Musk that "[Tesla] might actually have to get into refining and mining directly at scale unless costs improve." The prices for nickel, cobalt, and lithium (i.e. the battery metals) have risen exponentially since early 2021, imposing a serious challenge on electric car producers (and soon, all car producers). The deal fell through because of the environmental impact of Glencore's coal business or, more likely, because costs had begun to decrease as the economy deflates.

Russia's invasion of Ukraine led to a serious shake up in global metals markets, with Russia-based Norilsk Nickel – among the world's largest nickel miners – facing heavy sanctions. This was good news for competitors such as Glencore, which has taken over much of the Russian miner's business. The fact remains that demand for these metals is very strong, and will only continue to grow, and Glencore is well positioned to produce much of the supply, especially with Nornickel out of the picture in the medium term.

Who will be in demand

The diversified mining companies with various assets will likely to be in the block. For example, Glencore's London stock exchange listing (LSE : GLENLN). Glencore's production mix is still well-diversified which gives it a great competitive edge. Glencore's superior portfolio mix makes it a leader within the battery metals segment. Competitors such as Australian BHP (ASX : BHP) and Brazilian Rio Tinto (LSE : RIO) are much too centred on iron ore, while Freeport-McMoRan (NYSE : FCX) almost uniquely produces copper. In the figure below see the portfolio mix of various mining companies and their likely share of production of various metals and coal/energy.



Source: Company reports, Barclays Research

Other Considerations

Valuation

Glencore's above-industry dividend and buybacks ($3 billion) are well covered by its free cash flow (FCF) generation, given a ~25% FCF yield. The company also trades at an EV/LTM EBITDA of 3.41x: a discount compared to its peers Rio Tinto and BHP. With a P/NTM EPS of 4.8x, Glencore is reaching an unforeseen low, far beneath the multiple recorded at the height of the pandemic. Given the continued energy crisis and the persistence of the current bull cycle in commodities, Glencore outperforms its competitors in terms of asset quality and diversification and this competitive edge was confirmed in the latest results. Despite the recent spike in the stock price, at only 2.3×2024 expected EBITDA, Glencore remains a solid opportunity.

Caveat

Like most companies operating in this segment, Glencore doesn't come without its fair number of risks including a downturn in the volatile commodities market, higher input prices, as well as political and regulatory restrictions.

EV Market

While the auto giant, Tesla has EV metals contracts with suppliers across the globe, its goal to produce 20 million vehicles annually by 2030 – what Musk called an "aspiration, not a promise" – will require vastly more supplies of metals. Tesla produced just under 1 million EVs last year. Other automakers and executives including Carlos Tavares, the CEO of Tesla rival Stellantis NV, have warned the auto industry faces a metals supply shortage.

Tesla has no experience with the time-intensive and laborious task of building and operating a mine, so industry analysts have advised the automaker to focus on buying an existing operator. Many in the mining industry have noted that buying an existing metals producer would cost far less than the $43 billion Musk offered to personally buy social media network Twitter Inc earlier.