



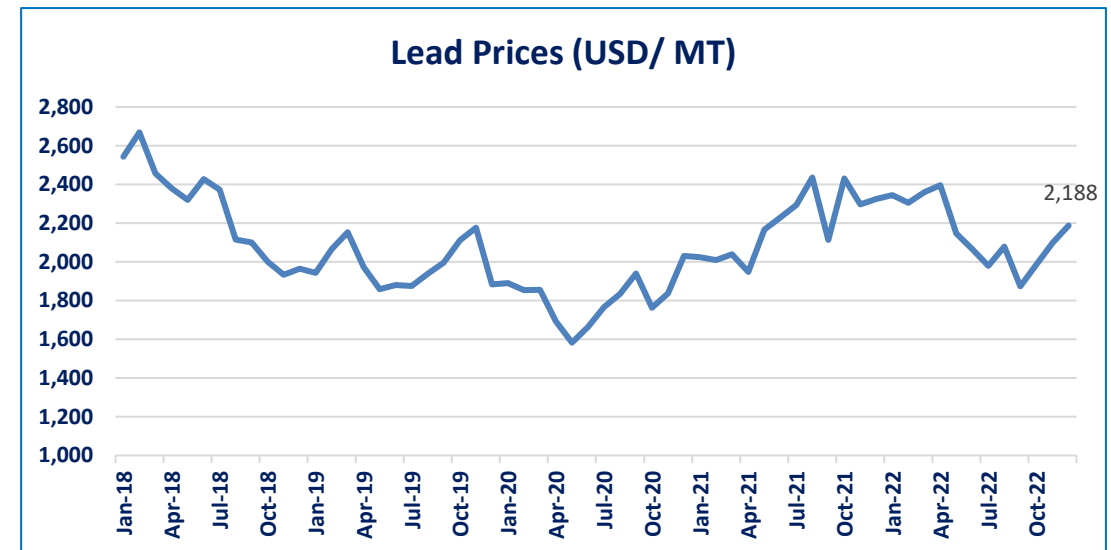
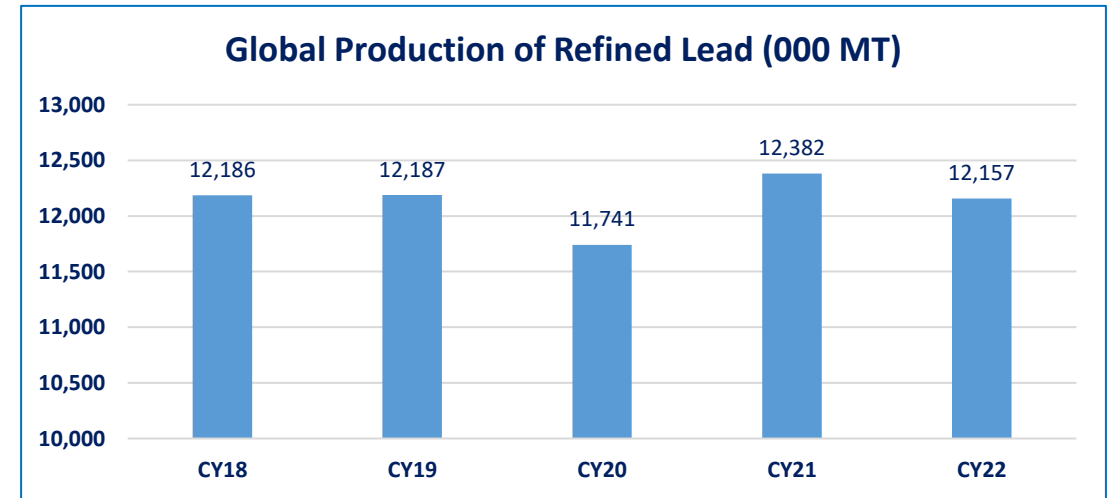
Metals

Sector Study

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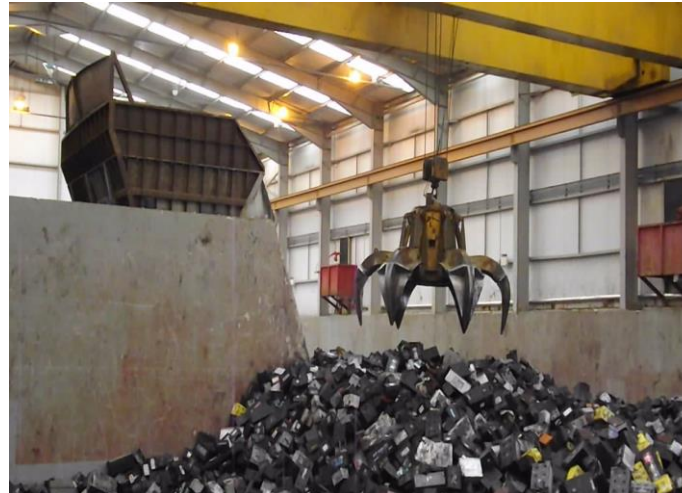
Lead | Introduction

- Lead is one of the most recycled materials in the world due to its high recovery rate. It can be remelted infinitely to remove impurities. In addition, its fundamental properties make it easily identifiable and cost effective to collect and recycle. More than ~50% of lead used in production of new products around the world is sourced from recycled lead. Moreover, the quality of recycled lead is almost identical to primary or unrecycled lead. Therefore, the demand and value of recycled lead is quite high.
- The global production of refined lead in CY22 was at ~12.2mln MT, reducing by ~1.8% from ~12.4mln MT in CY21.
- On a YoY basis, lead prices rose by ~16.7% in FY22. During 2QFY23, prices of lead have exhibited an increasing trend, rising by ~5.8% QoQ (1QFY22: USD~1,977/ MT). According to the World Bank forecast the lead prices are expected to fall by ~9.5% in CY23.
- The most common use of lead is in the production of batteries. Globally, ~85% of lead is used in the production of lead-acid batteries and the most common application of these batteries are in automobiles.
- Other demand drivers of lead include cable sheathing, alloys and pigments, amongst others.



Lead | Recycling Process

1. Collection: products made of lead are collected by metal dealers, recycling businesses and car workshops and sent to smelters.
2. Processing: the collected products are broken and scrap lead is safely separated from other components. Afterwards, lead components are systematically smelted and refined.
3. Use in Production: This refined lead is then used in the production new of lead-acid batteries, building construction material, cable sheathing and for various other applications.



Collection

Processing

Use in Production

Copper | Introduction

- Copper, a chemical element, is an extremely ductile metal with a reddish hue that is a great conductor of electricity and heat. Copper is commercially produced through the process of smelting. The majority of copper produced in the world is used by electrical industries and the remaining is largely used to form alloys by combining with other metals, such as brass and bronze. Common applications for copper and copper alloys are for making electrical wiring, building construction and industrial machinery.
- Copper is found as a primary mineral in many locations around the world. The total global production of copper from mines amounted to ~21mln MT in CY21, as compared to ~20.6mln MT in CY20. Meanwhile, the production of refined copper, through process of smelting, stood at ~26mln MT during CY21, as compared to ~25.3mln MT in CY20. The world's leading copper producer is Chile, producing ~5.6mln MT during CY21, due to the presence of the world's largest copper mine in the country. Other major producers are Peru, China, Congo and the United States.
- There are two copper mines located in Pakistan, the Reko Diq mine and the Saindaq mine, both of which are located in the province of Balochistan. The Reko Diq mine contains copper and gold reserves of ~4.5bln MT. However, the mine remains undeveloped due to a legal dispute that arose after exploration and mining license was given and then withdrawn from an international firm. The government of Pakistan has now awarded the development contract of the Reko Diq project to a Canadian company, Barrick Gold.



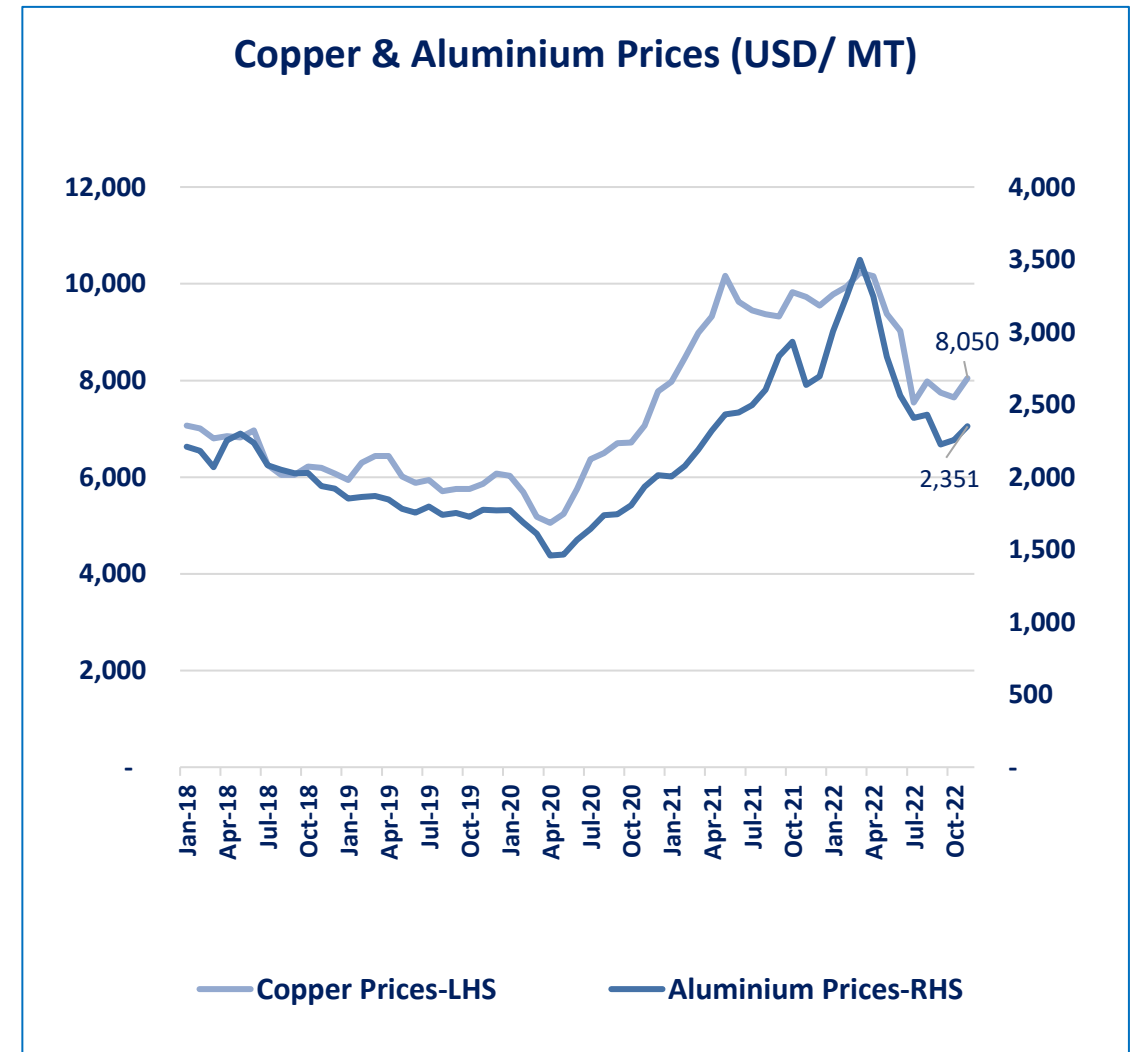
Aluminium | Introduction

- Aluminium is a light-weight silvery white metal which is the most abundant metallic element in the Earth's crust and the most widely used non-ferrous metal. Aluminium is added in small amounts to certain other metals to improve their properties for other uses.
- Aluminium and its alloys are used extensively for producing aircrafts, building material, household appliances and utensils, electrical conductors and other equipment. It is a ductile and highly malleable metal which can be drawn into wires or rolled into thin foils.
- During CY21, the global primary production of aluminium stood at ~68mln MT as compared to ~66.1mln MT during CY20. The largest producer of aluminium is China, with production of ~39mln MT of aluminium in CY21.



Copper & Aluminium | Price Movements

- Copper and aluminium tend to exhibit similar trends in price movement, as depicted on the graph. Both commodities have recorded a rising trend since hitting their lowest in April 2020, likely due to global economic slowdown during the pandemic.
- Post-Apr'20, aluminium prices peaked in Mar'22 at USD~3,498/MT, while copper prices were the highest in Apr'22 at USD~3,244/MT. However, soon after, prices recorded a downward movement as the world economy was hit by the Russia-Ukraine war which began in February 2022. In Nov'22, copper prices reached USD~8,050/MT, while aluminium prices recorded at USD~2,351/MT (increase of ~5.2% and ~4.2% since Apr'22 and Mar'22, respectively).
- Copper is a key input for phone lines, cables and other infrastructure. It is used in all sorts of building materials and historically has traced industrial activity around the globe.
- Between Apr'20 and Mar'22, both aluminium and copper prices more than doubled, with aluminium prices increasing by ~140% to USD~3,498/MT and copper by ~102% to USD~10,230/MT as global economic activity improved. Since then, prices have witnessed a downward trend which may be indicative of economic recession in the foreseeable future.
- Going forward, the World Bank forecasts prices for aluminium and copper to fall by ~11% and ~16% YoY, respectively, in CY23.



Local | Overview

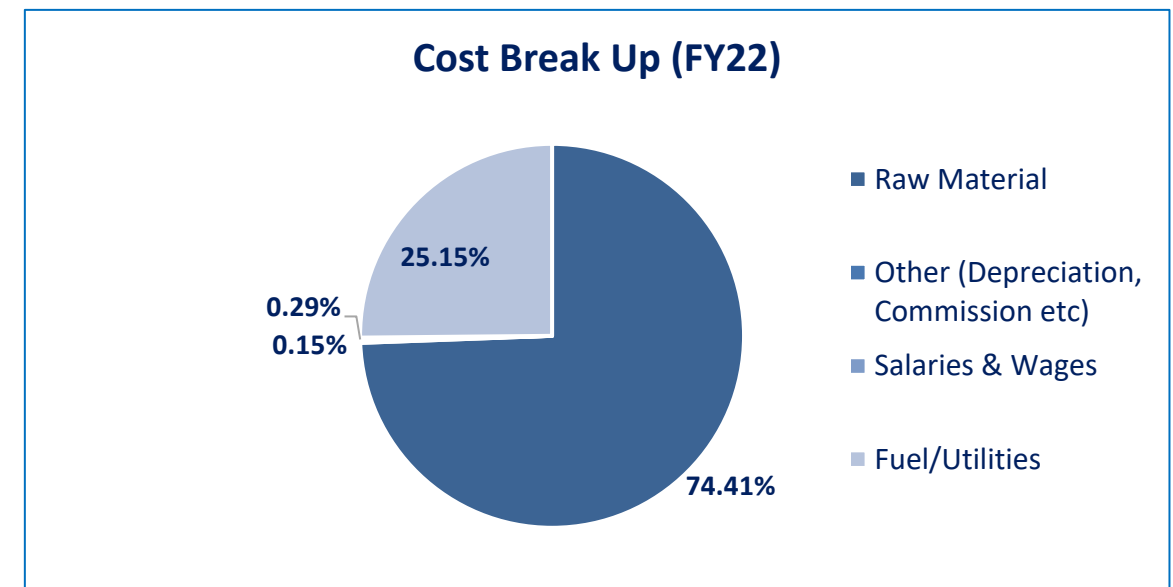
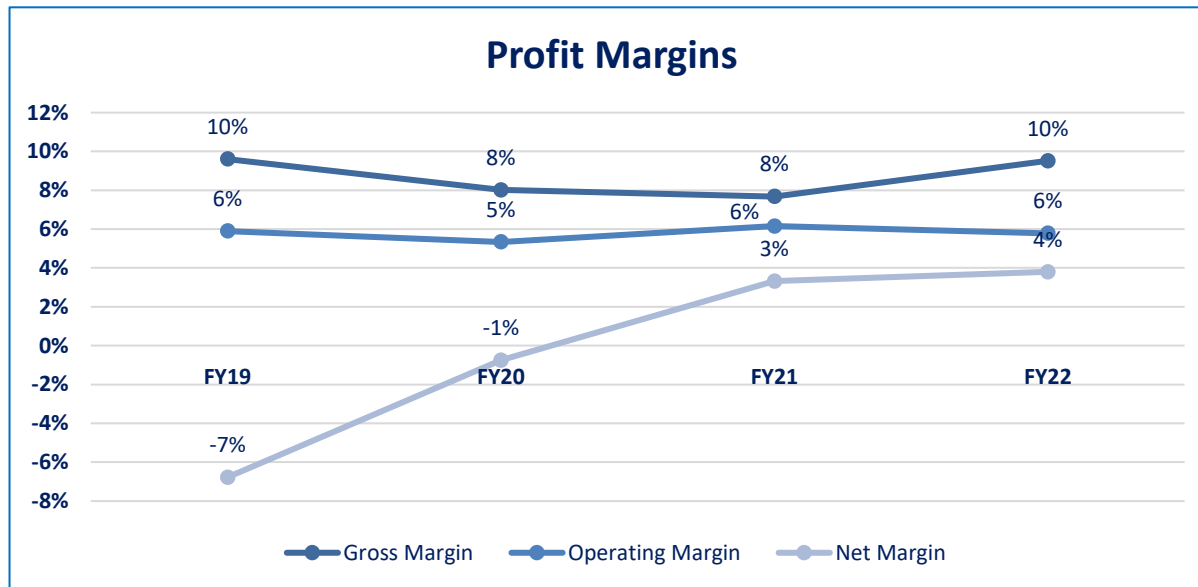
- The local lead recycling market is dominated by two players, having a total average capacity of ~136,400 MT. Both players are private-limited companies, engaged primarily in the business of recycling & disposal of used lead acid batteries, lead plates, and other lead articles. Their products also include Re-melted Lead, Refined Lead, Antimonial Lead Alloy and Calcium Lead Alloy.
- Lead has major uses in Batteries, Construction Material, Cable Sheathing, and Radiation Sheathing.
- The local copper and aluminium market comprises ~4 major players. They are involved in products like copper & aluminium scrap, ingots, billets, rods and strips.
- Copper and aluminium products, in turn, have multiple uses, as they are employed in wiring, building material, industrial machinery, household appliances and utensils, among others.

Lead Recycling	
Players	Annual Capacity (MT)
Malik Mij Chunxing Resources Recycling Co. Ltd	~50,000
International Metal Industries (Pvt) Ltd	~86,400

Copper & Aluminium	
Players	Description
Allah Tawaqal Metals (Pvt) Limited	Converts copper & aluminium scrap into ingots. Capacity of ~40,000 MT per annum.
KBS Metals	Converts copper scrap into products such as wires, strips, rods and billets.
Cannon Metals	Deals in the recycling/ processing of various metals including aluminium, copper, lead etc.
BR Metals	Deals in the recycling/ processing of various metals in scrap form including aluminium and copper.

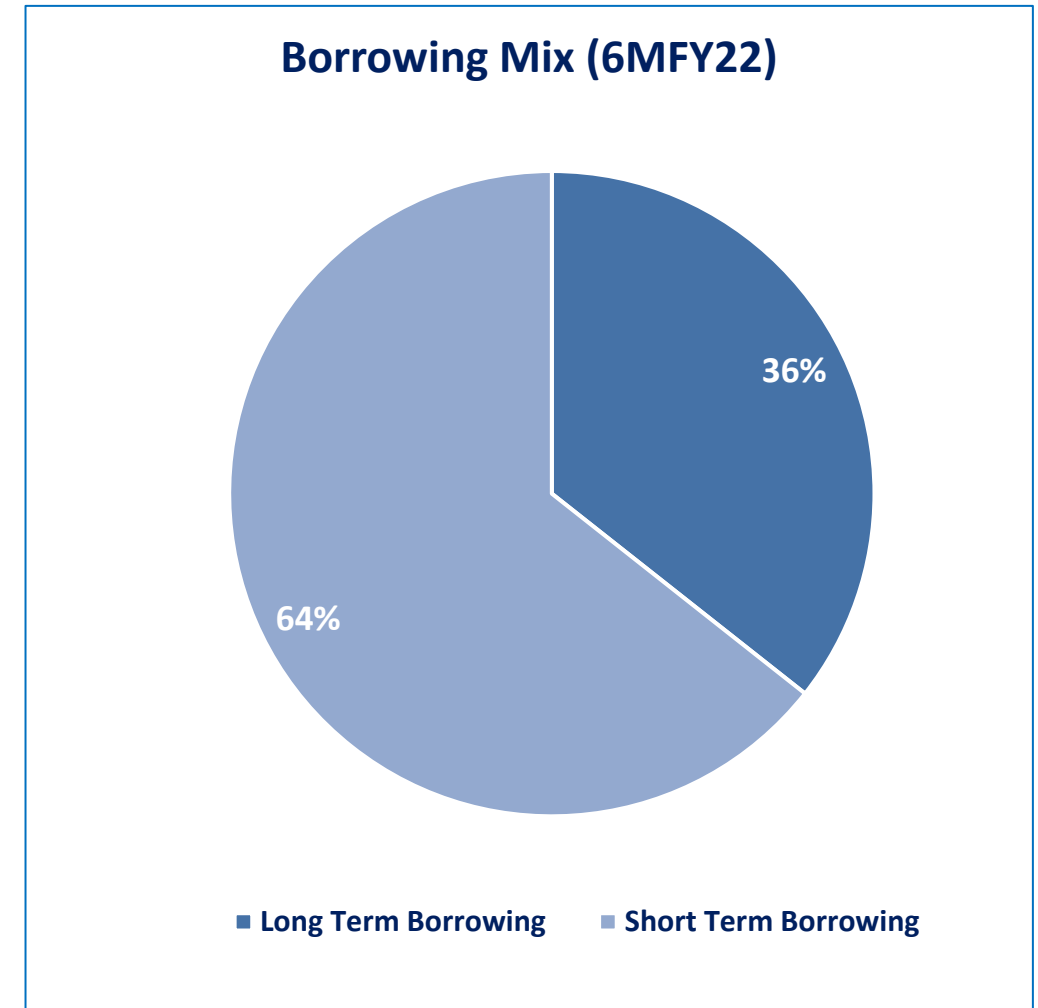
Lead Recycling | Margins & Cost Structure

- Lead recycling sector's margins recorded an improvement during FY22, with gross margin clocking in at ~10% (FY21: ~8%). This increase in the margins can be attributed to the increased sales of batteries that majorly derive demand for the lead. Meanwhile, the net margin improved to ~4% during FY22 as compared to ~3% during FY21 as a result of increased sales of ~92.4% in FY22, despite the finance costs displaying an increase of ~117% due to policy rate hikes in FY22.
- The largest component in the lead recycling sector's direct costs are the raw materials which contribute ~74% to total direct costs. The raw material consists of used lead products.



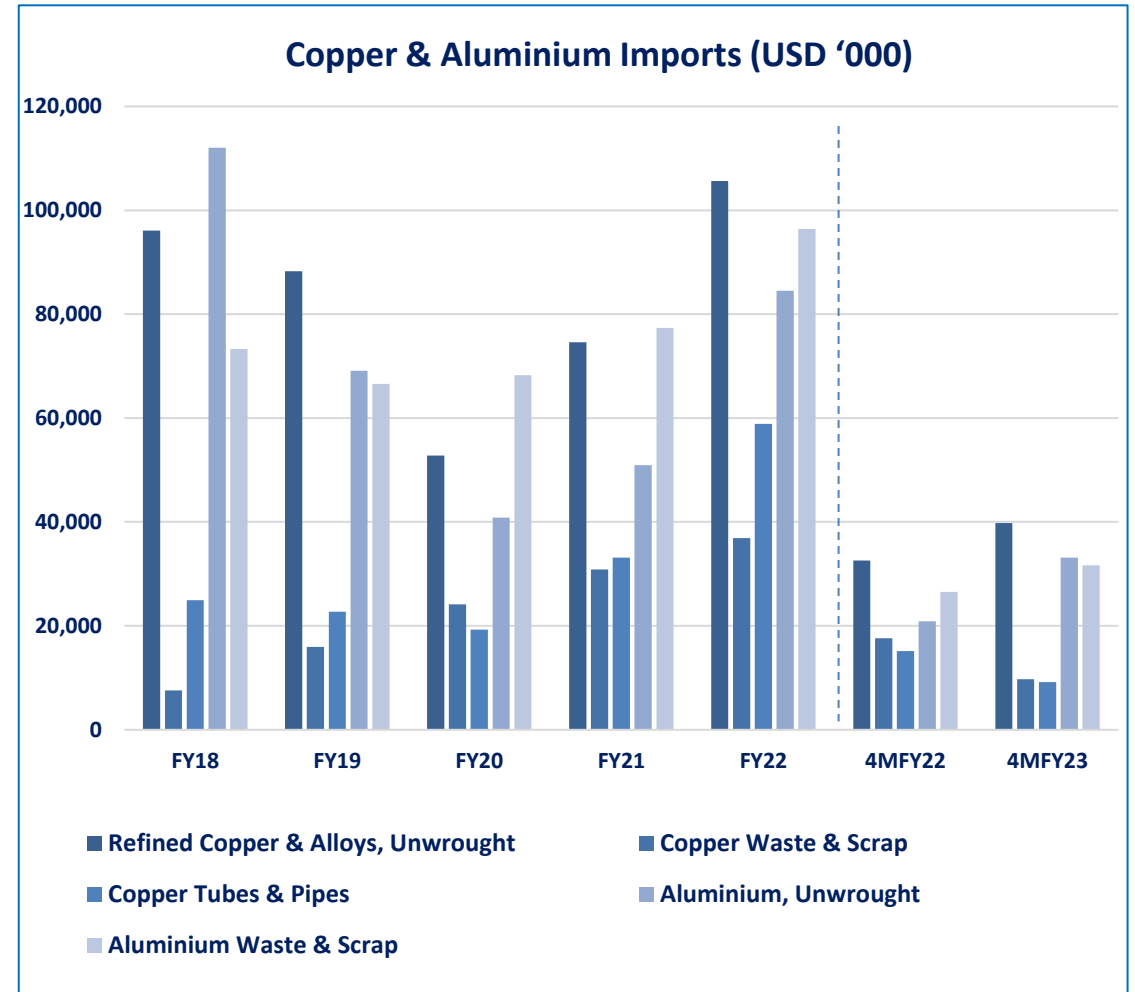
Lead Recycling | Borrowings Mix

- The borrowings mix of the sector as of 6MFY22 consisted of ~36% of long term borrowing amounting to PKR~ 1,010mln (FY21: PKR~1,005mln), registering a meagre increase of ~0.5%.
- The short-term borrowings made up ~64% of the borrowing mix in 6MFY22 with a value of PKR~1,825mln (FY21: PKR~1,927mln), reducing by ~5.6%. There was no current portion of long-term borrowing in this period, however, in FY21, they stood at PKR~157mln .



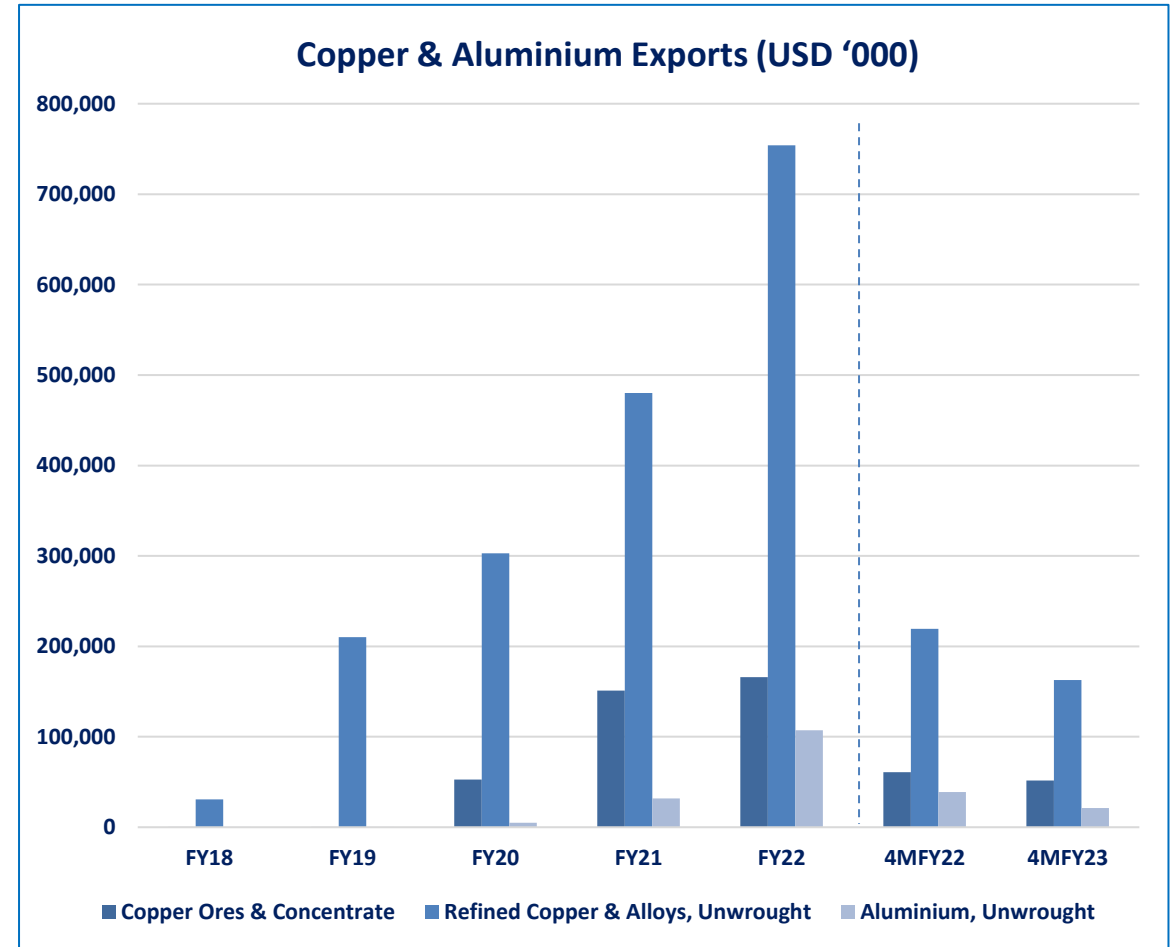
Copper & Aluminium | Imports

- Pakistan’s copper and aluminium imports have recorded an increasing trend during FY20-22 with a CAGR of ~37%. Metal imports, as described below, represent ~0.5% of the total imports of the country and amounted to USD~382.3mln in FY22 (FY21: ~0.5%, with a value of USD~266.8mln).
- Major components of metal imports are Refined Copper & Alloys, Unwrought, Copper Waste & Scrap, Copper Tubes & Pipes, Aluminium, Unwrought and Aluminium Waste & Scrap.
- Refined copper imports, having the largest share in metals’ imports, amounted to USD~105.6mln in FY22, an increase of ~41.7 from last year (FY21: USD~74.6mln). Unwrought aluminium’s imports surged by ~65.9% in FY22 to a value of USD~84.5mln (FY21: USD~50.9mln).
- During 4MFY23, most of imported metal segments witnessed an increase as compared to the same period last year, except copper waste & scrap and copper tubes & pipes, which declined by ~45% and ~39%, respectively.



Copper & Aluminium | Exports

- Pakistan’s exports of copper and aluminium have recorded a continuous upward movement since FY19 with a CAGR OF ~70%. This is largely due to increase in exports of these products to China which is the largest export destination for refined copper, copper alloys and unwrought aluminium in particular. Metal exports, as described below, formed ~3.2% of the total imports, amounting to USD~1,027mln in FY22 (FY21: ~2.6%, with a value of USD~662.8mln).
- During FY22, refined copper & alloy exports recorded a significant rise of ~57.1%, with a value of USD~754mln in exports (FY21: USD~480mln). China had a share of ~79% of the total refined copper and alloy exports. For the same time period, exported refined copper clocked in at ~90,421 MT (FY21: ~63,334 MT).
- Unwrought aluminium exports have also surged in FY22 reaching USD~107mln, an increase of ~238% (FY21: USD~31.6mln), with China again having the largest share of exports around ~78.6%. In FY22, aluminium prices rose by ~2.6%, however, the greater impact on the increased value of exports can be attributed to the PKR~28% devaluation against the greenback in the same time period.
- During 4MFY23, the majorly exported copper and aluminium commodities recorded a decline with copper ore & concentrates falling by ~15%, refined copper & alloys by ~26% and aluminium unwrought by ~45%, compared to SPLY.

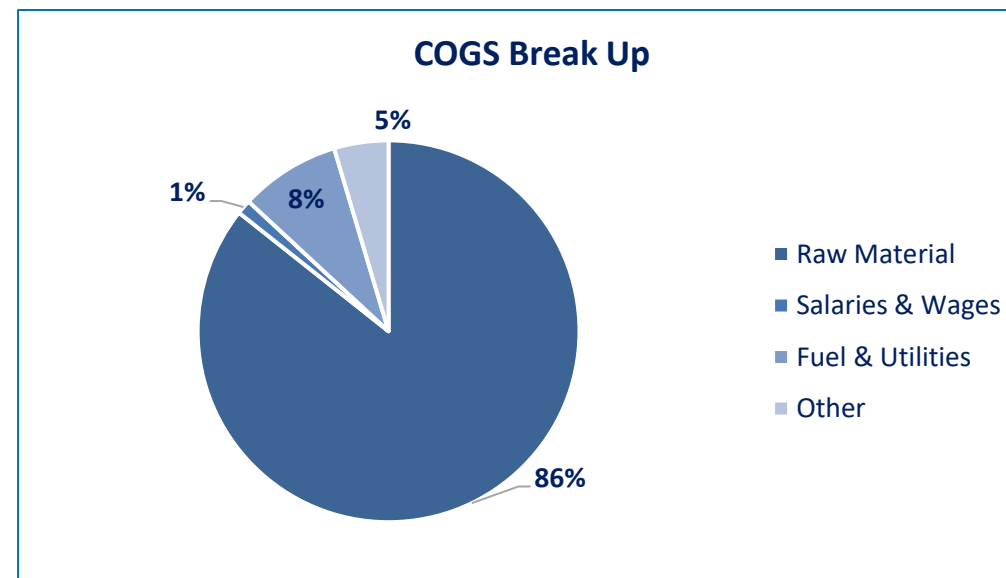
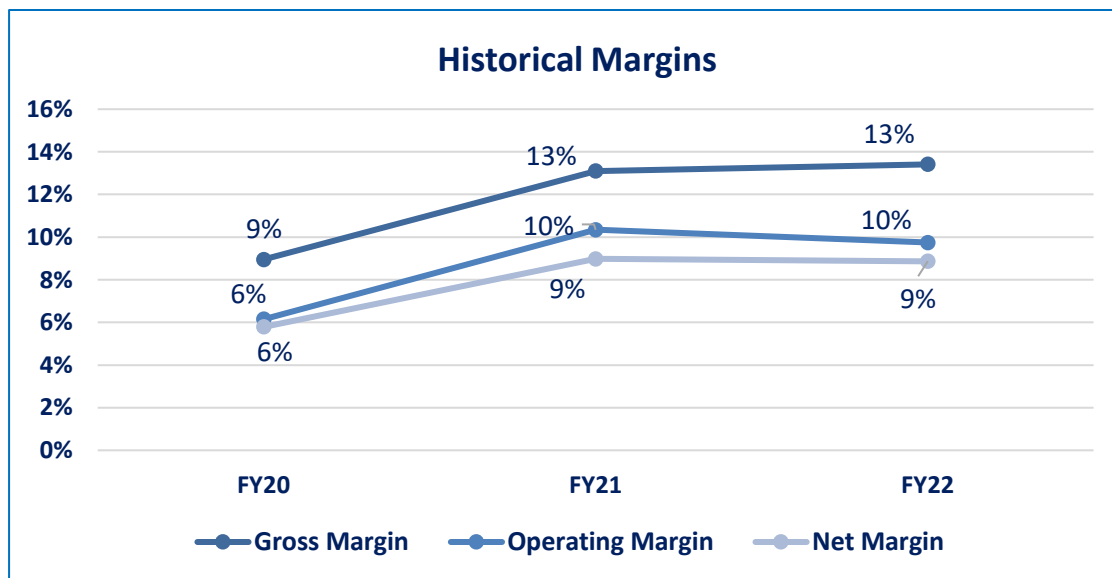


Copper & Aluminium | Business Risk

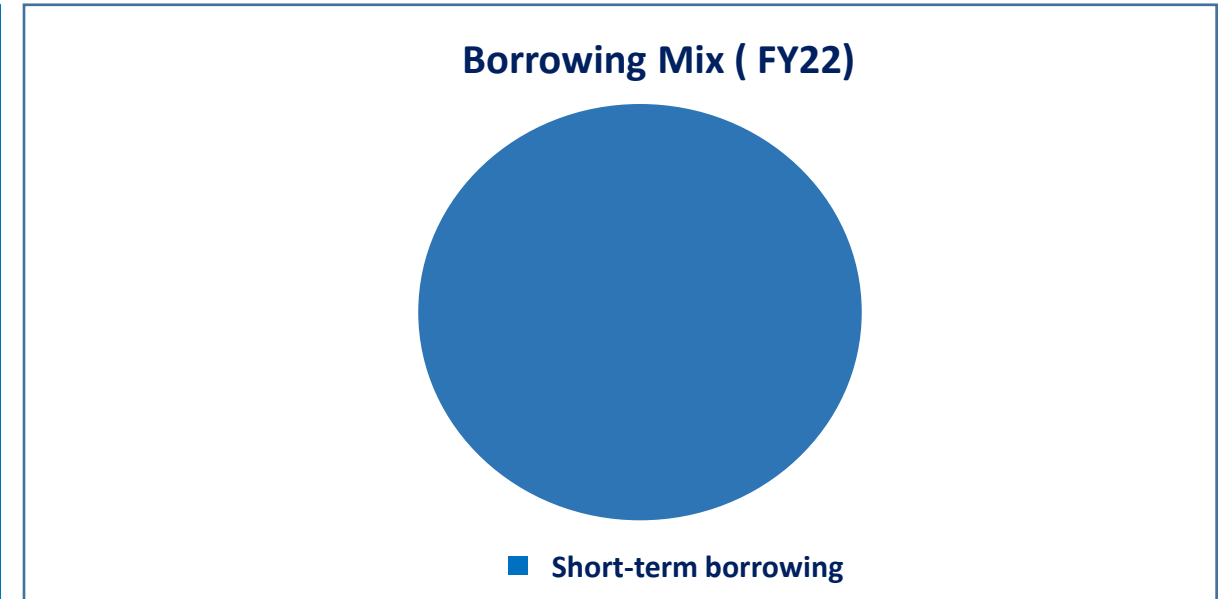
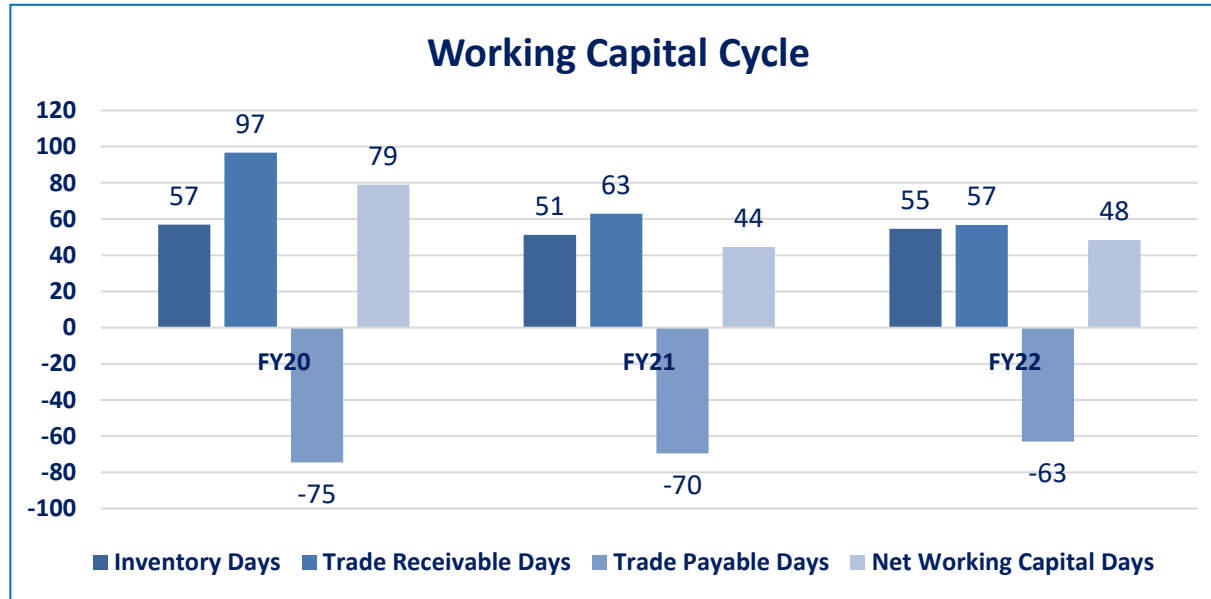
- **Demand Drivers:** Copper and aluminium have a variety of applications such as electrical wiring, building material, household appliances and utensils. However, the largest industry from which demand for copper and aluminium is derived is the construction sector where there is significant use of wiring, pipes, tubes and extrusions made from either type of metal. In addition, aluminium also has considerable application in the automobile industry.
- In Pakistan, consistent increase in imports of copper and aluminium scrap materials over recent years indicates continued demand for copper and aluminium products. With respect to exports, copper and aluminium ingots exported to China reached a value of USD~581.1mln during FY22 an increase of ~214% (FY21: USD~184.9mln), while during 4MFY23 the number stood at USD~176mln, an increase of ~36.6% YoY (FY21: USD~128.8mln). The Reko Diq project, which is now functional, would prove to be a game-changer for Pakistan, since it represents one of the largest, albeit under-developed, copper and gold reserves in the world, capable of producing ~200,000 MT of copper and ~250,000 ounces of gold.
- **Environmental Concerns:** Copper and most of its compounds are not hazardous, however, recycling of copper scrap without taking appropriate measures can be harmful for the environment. While other countries, such as China and Malaysia, have introduced import restrictions which only allow high-grade copper scrap to be imported, no such measures are in place to regulate or monitor copper recycling in Pakistan.
- With regards to aluminium recycling, it produces a substance known as dross which is hazardous for the environment. Therefore, there are more stringent regulations in place to regulate the import of aluminium scrap. Import of aluminium scrap is only permitted if the company has adequate recycling facilities, obtains NOC from Ministry of Climate Change and is certified by the provincial Environment Protection Agency (EPA). These restrictions are in place to prevent the import of hazardous scrap while allowing recyclable scrap to be imported.
- **International Prices:** Local prices of metals are determined by international price trends. Earlier, prices of both copper and aluminium have witnessed a rising trend which kept the margins of local players tight. However, recently the prices of aluminium and copper are witnessing an overall downward trend in line with the global economic slowdown.

Copper & Aluminium | Margins & Cost Structure

- The copper and aluminium segment's margins remained largely stable during FY22, with gross margin staying as 13%, the same as recorded during FY21. Meanwhile, net margins remained at 9%. Even though the revenue increased by ~140% in FY22 as compared to FY21 due to higher demand which was majorly because of higher export levels, the cost of goods sold also increased by ~131% in FY22 restraining the margins from showing an upward trend.
- The segment's direct costs consist almost entirely of raw material. The raw material consists of copper and aluminium either in its raw form or in the form of scrap material which accounts for ~86% of the total cost.



Copper & Aluminium | Financial Risk



- The average working capital cycle is a function of inventory, trade receivables and trade payables. Inventory consists largely of raw material and finished goods, with little work-in-process inventory due to a short production process.
- During FY22, the working capital cycle has stood at ~48 days. Inventory days rose to ~55, receivable days reduced to ~57 days and trade payable days decreased to ~63 days.
- The copper and aluminium segment has a moderate level leveraging of ~42%.
- Meanwhile, the borrowing mix entirely consists of short-term borrowings. Short-term borrowings increased to PKR~766mln in FY22 from PKR~436mln in FY21, an increase of ~75.5%.

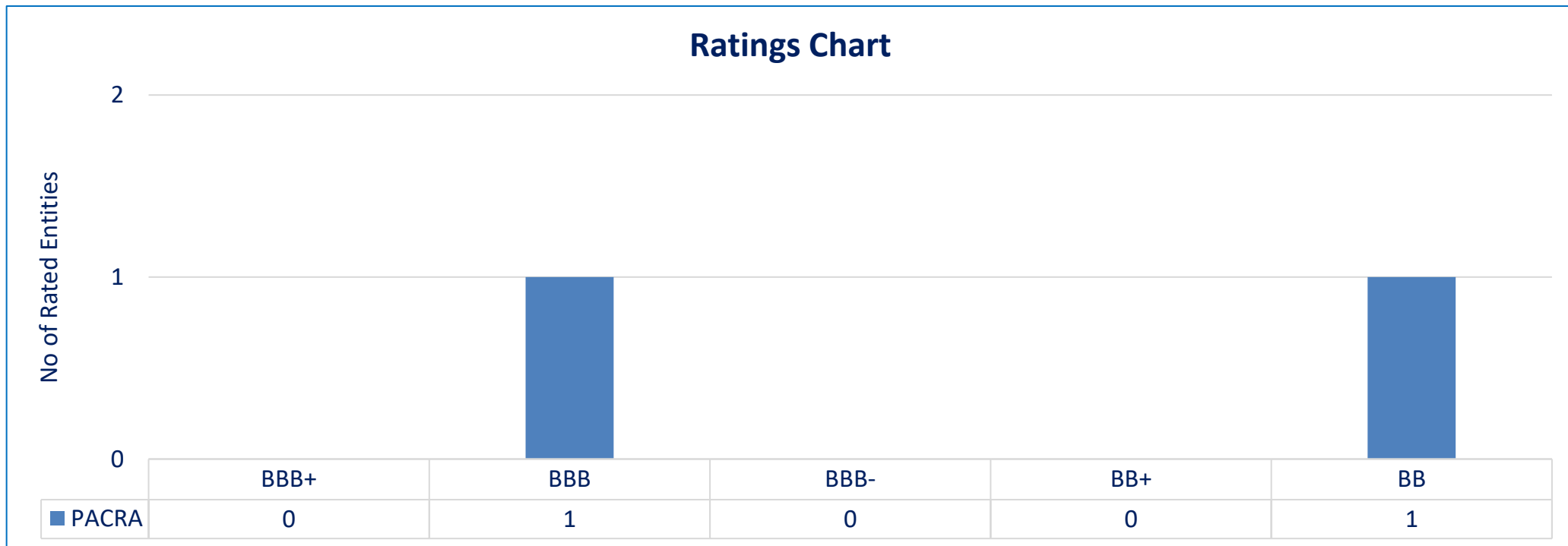
Regulatory Framework

- With respect to Income Tax, the metals sector is under the Normal Tax Regime (NTR). Further, Minimum Tax @ 1.5% of turnover is also applicable, if tax liability under NTR is lower than minimum tax.
- The sector’s custom duty structure has remained unchanged from the previous year. It largely provides protection to the local manufacturers with lower duties on raw materials and higher duties for finished goods.

PCT Code	Description	Custom Duty		Additional Custom Duty		Total	
		FY21	FY22	FY21	FY22	FY21	FY22
26.03	Copper Ores & Concentrates	0%	0%	0%	2%	0%	2%
26.06	Aluminium Ores & Concentrates	0%	0%	0%	2%	0%	2%
26.07	Lead Ores and Concentrates	0%	0%	0%	2%	0%	2%
78.01	Unwrought Lead (including refined lead)	0%	0%	0%	2%	0%	2%
78.02	Lead waste and scrap	0%	0%	0%	2%	0%	2%
78.04	Lead plates, sheets, strip, foil, powders and flakes	16%	16%	4%	4%	20%	20%
74.01 - 74.07	Copper Mattes, Unrefined Copper, Refined Copper & Alloys, Copper Waste & Scrap, Copper Bars & Rods etc.	0%	0%	0%	2%	0%	0%
74.08 - 74.12	Copper wire, plates, sheets, foil, tubes and pipes	0-20%	0-16%	0-6%	0-11%	0-26%	0-27%
76.01 - 76.03	Unwrought aluminium, waste or scrap, powders and flakes	0%	0%	0%	2%	0%	2%
76.04 - 76.09	Aluminium bars, rods, wires, plates, sheets, tubes and pipes	3-20%	0-20%	2-6%	2-6%	5-26%	2-26%

Ratings Chart

- PACRA rates 1 player in the lead recycling segment with a long-term rating of BBB and 1 player in the copper and aluminium segment with a long-term rating of BB.



Outlook: STABLE

- As the global economy recovered in FY22 post-COVID, the industrial activity picked up pace, which also boosted the demand for metals. However, this recovery was disrupted due to the Russia- Ukraine war. In the local economy, political unrest in Apr'22 resulted in additional uncertainty. This situation was further worsened as Pakistan was hit by devastating floods that impacted more than ~80 districts and affected ~33mln people. Going forward, the economy as a whole is expected to slow down in FY23 with GDP growth rate forecast at ~2%.
- Major demand for metals emanates from segments such as car batteries, electrical wiring, building construction, industrial machinery and household appliances. With a ~2.89% decrease in the LSM during 4MFY23, the demand for metals is likely to be adversely impacted as well.
- Metal imports have recorded a continuous increase since FY20-22 (CAGR of ~37%), increasing by ~43% to USD~382.3mln in FY22 (FY21: USD~266.8mln). This shows that a significant amount of metals are imported and the sector is prone to exchange rate movements. The PKR declined by ~28% in value against the USD in Nov'22 alone. The sector's exports have also surged since FY18-22 at a CAGR of ~70%, with a YoY increase in FY22 of ~55% and a value of USD~1,027mln (FY21: USD~662.8mln). China is one of the main export markets of Pakistan, having a ~79% share of the total refined copper and alloys exported.
- Margins of the lead sector improved as gross margins increased from ~8% in FY21 to ~10% in FY22. Meanwhile, sales increased by ~92.4% in FY22. Net margins for the sector improved only by ~1%, indicating high finance costs and international prices. The copper and aluminium sector, on the other hand, remained stable as all margins remained the same as last year (gross margins were ~13% and the net margins stayed at ~9% in FY22). International aluminium and copper prices have witnessed a downward trend since Mar'22, which may be indicative of an economic recession.
- As of Dec'22, Reko Diq has been reconstituted and is expected to have a transformative impact on the under-developed province of Balochistan. This might contribute positively to metals exports and an overall improvement in the sector, seeing as the project is expected to yield ~80mln MT p.a. high-quality copper-gold concentrates.

- State Bank of Pakistan (SBP)
- Pakistan Bureau of Statistics (PBS)
- PACRA Database
- Pakistan Stock Exchange (PSX)
- Federal Board of Revenue (FBR)
- Lead and Zinc Study Group
- Business Insider
- U.S. Geological Survey, Mineral Commodity Summaries
- World Bank
- UN ComTrade
- Bloomberg

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