Coal Mining & Trading

Sector Study

July 2023

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Global | Overview

- Coal is a combustible organic rock, composed mainly of carbon, hydrogen and oxygen. It is formed from vegetation, which has been consolidated between other rock strata and altered by the combined effects of pressure and heat over millions of years to form coal seams.

- Coal uses can be classified into two broad categories:

  - **Metallurgical coal** (or "coking coal") is mined to produce the carbon used in steelmaking and allied products.
  - **Thermal coal** is used to make steam that generates electricity and provide thermal energy.

- The global coal reserves are estimated to be over approximately ~1,161bln MT in CY21. United Sates holds the highest reserves of coal in the world of ~252bln tons, 22% of the global share. China is the biggest producer and consumer of coal, but still China comes on number 4 in terms of global coal reserves.

- Coal's share in the global power mix in CY21 was recorded at ~37%.

Country	Reserve (bln MT)	Share in Global Reserves*
USA	252	22%
Russia	179	15%
Australia	166	14%
China	158	14%
India	122	11%
Indonesia	38	3%
Germany	40	3%
Ukraine	38	3%
Poland	31	3%
kazakhstan	28	2%
Others	109	9%
Total	**1,161**	**100%**

*Latest data available is for CY21

Source: Mining-Technology, EIA, IEA

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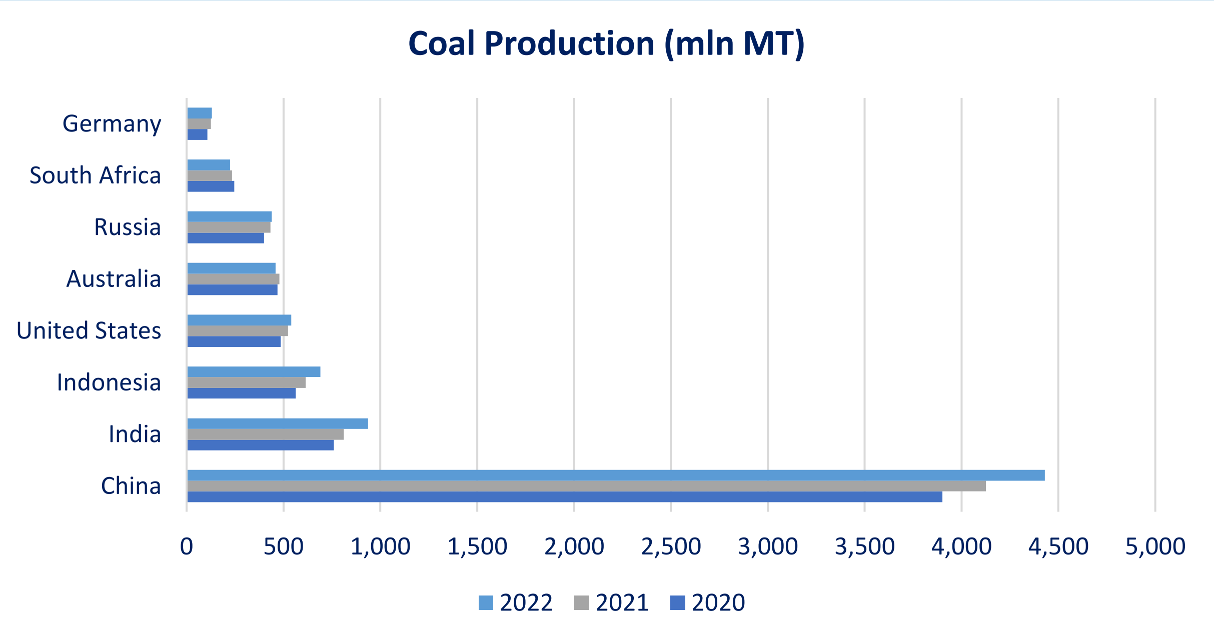
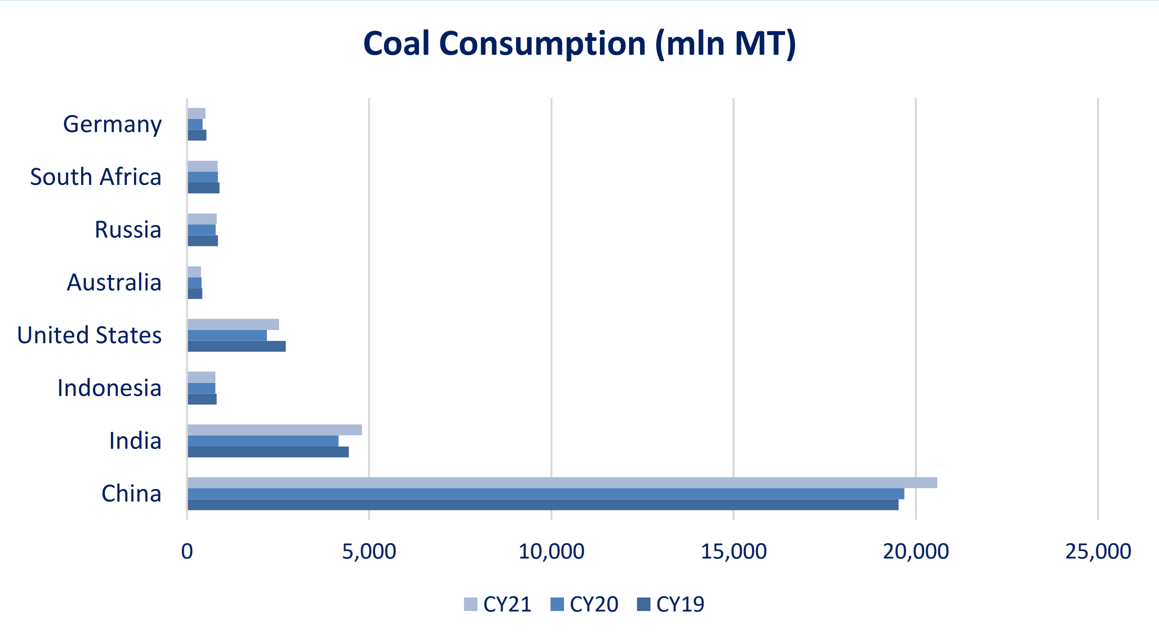
Global | Production and Consumption

- By CY25, global coal demand is forecast to flatten out at around ~8bln MT due to environmental concerns. Usage of coal is expected to vary by region over the next five years. In Europe and North America, coal continues its decline due to more reliance on renewable and eco-friendly energy alternatives.

- The prominent segment that drives the demand for coal across the globe is industry usage. A huge chunk of global coal is used towards electricity generation, cement production and metallurgy. Rising environmental concerns about coal consumption due to its carbon content and green house effect resulting in global warming is a major threat to demand, going forward. The world is paving its way towards renewable/cleaner energy sources. Coal production and consumption maybe expected to reduce in CY23 due to a possible economic slowdown in China and USA.





Source: EnerData, IEA

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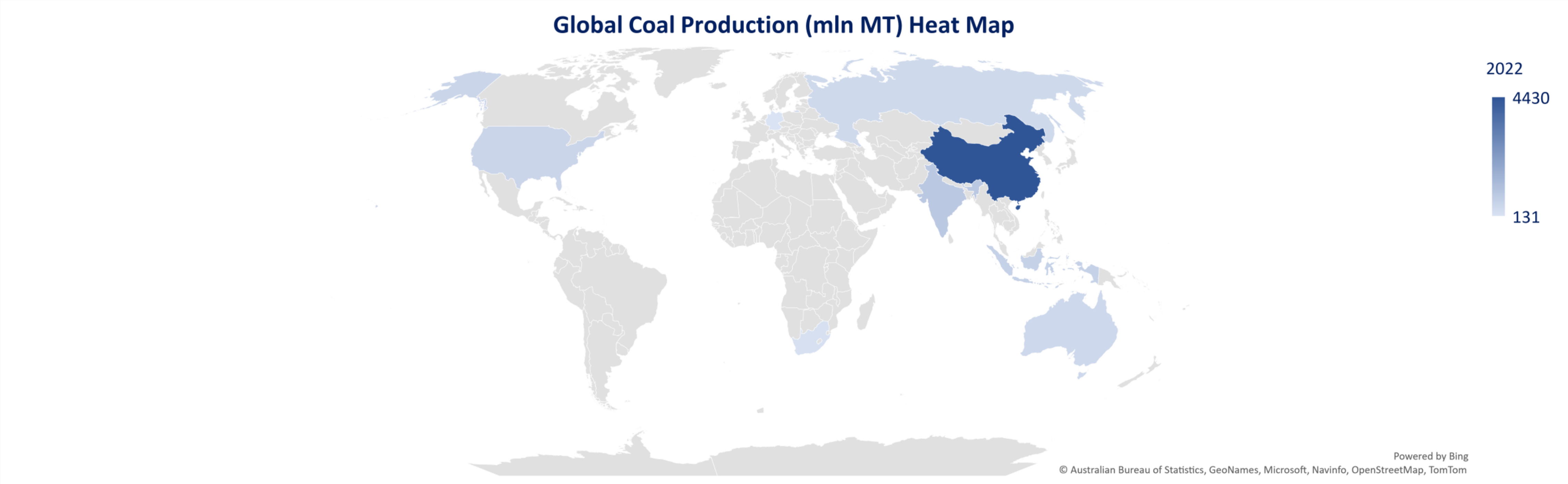
Global | Heat Map



- China's influence on coal markets is difficult to overstate. China's power generation, including district heating, accounts for one-third of global coal consumption. China's overall coal use is more than half of the global total ~51%. India's growing appetite for coal is expected to result in coal production to surpass ~1bln MT. Coal prices reached all-time highs in early October CY21 (USD~253/MT) due to supply and demand imbalances, but China and India expedited production to lower the prices.
- However, Russia's invasion of Ukraine in Feb'22, however, sparked a surge in gas prices. Later , when Russia reduced gas flows to the EU during the 2HCY22, it caused European energy companies to buy more coal that pushed prices up even further. Subsequently, API 2 coal prices hit a new all-time high of USD~425/MT in Aug'22.

API 2: Argus/McCloskey's Coal Price Index

Source: IEA, Ener data

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Local | Industry Snapshot

- Coal in Pakistan is made available broadly from two sources, extraction and imports. Exports of coal to other countries are almost non-existent.
- Pakistan has an estimated ~186bln MT of coal reserves as of 9MFY23, with ~99% coal reserves of the country found in Sindh.
- The local price is linked to international price of coal, exposing the consumers to international price fluctuations and exchange rate risk.
- During the 9MFY23 period, the import of coal stood at ~6mln MT. The consumption of coal in cement has significantly declined from~42mln MT in FY22 to ~15mln MT in 9MFY23 (9MFY22 : ~22mln MT) and in percentage terms a decline of ~30% from 9MFY22 to 9MFY23.
- In terms of sectoral usage, power sector uses most of the coal and the share has increased to ~47% during 9MFY23 from ~44.5% during the corresponding period last year.

Particulars	FY22	9MFY22	9MFY23
Coal Consumption (mln MT)	42	22	15
Local Production (mln MT)	10	10	9
Imports (mln MT)	32	12	6
Regulatory Authority	Ministry of Energy (Petroleum Division)		
Association	All Pakistan Mines & Minerals Association		
Coal Used in Power Generation (mln MT)		9.8	
Avg. Coal Price (USD/MT)** ***(as at period end)	218.9	184.8	270.6

**Avg. of South African and Australian coal.*

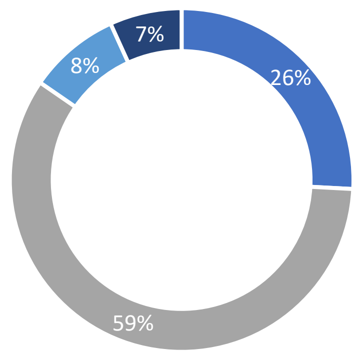
Source: PBS, PES, WB

Local | Demand

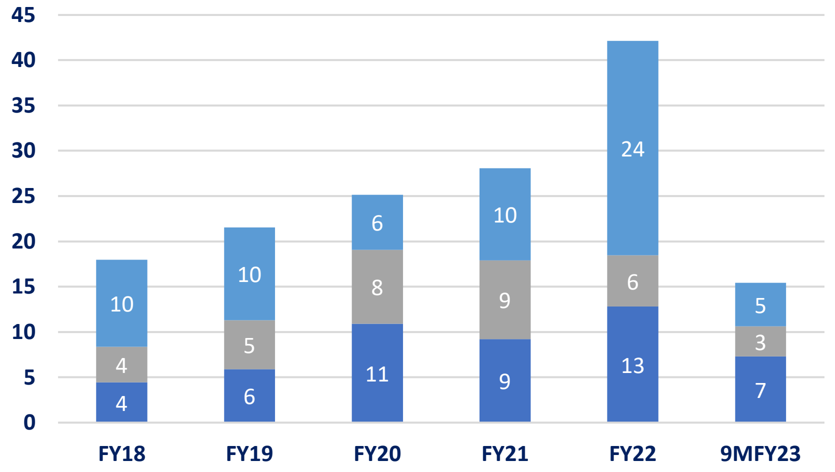
- Over the 9MFY23 period, coal consumption by the power sector was recorded at ~47.3% (9MFY22: ~45%). The percentage share of hydel in total installed fuel-wise capacity has marginally increased to ~26% during 9MFY23 (9MFY22: ~25%, FY22: ~21%). The percentage share of thermal remained the same in 9MFY23 ~59% when compared to 9MFY22, although there is not much of a difference in the installed MW (9MFY23: ~24,095MW compared to ~24,710MW during SPLY).

- Cement accounts for ~31% of the total coal consumed in 9MFY23 (9MFY22: ~24%). With an uptick in economic activity, especially from the construction side, demand is expected to receive a boost in the coming years. Bricks demand is also linked to construction and increased demand pull is also expected as bricks production is increased to meet construction demand.

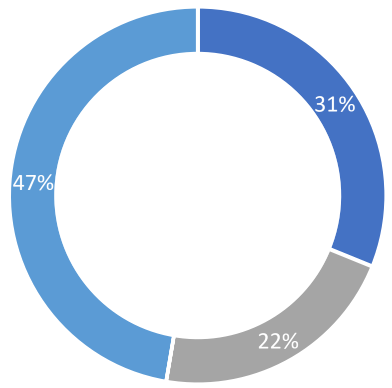
Power Fuel Breakup (Installed Capacity) | 9MFY23



Coal Consumption | mln MT



Consumption Breakup | 9MFY23



Note: *Power Fuel Breakup data in ES is available up to Apr'22. Renewables include wind, solar and bagasse, Thermal includes RLNG, RFO, coal and gas.*

Source: PES

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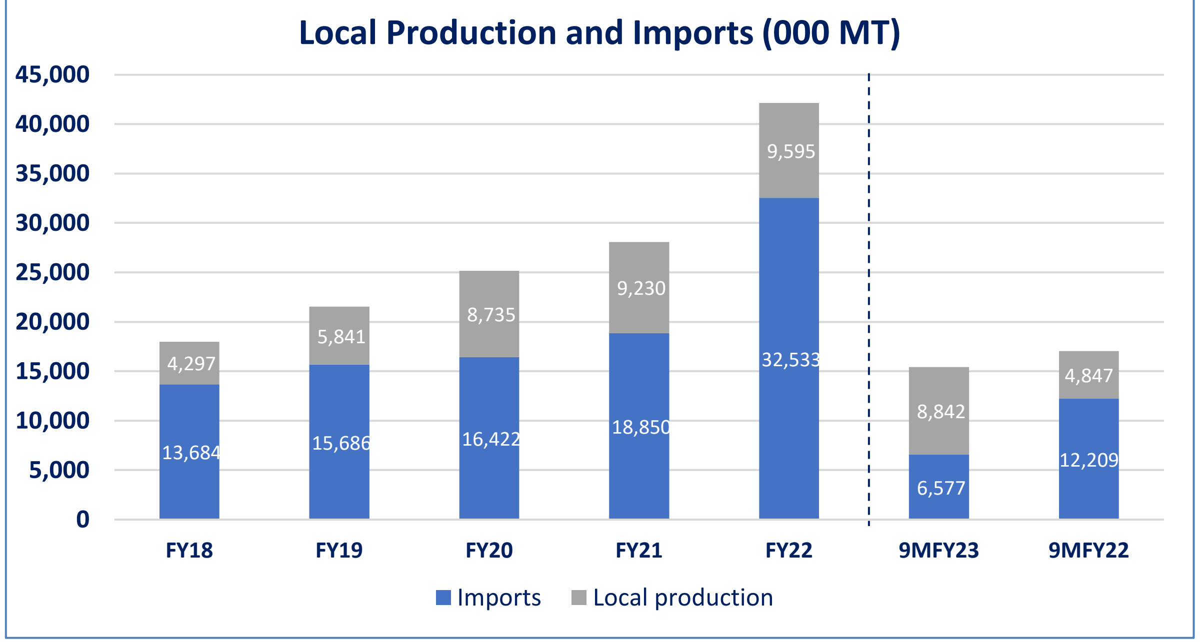
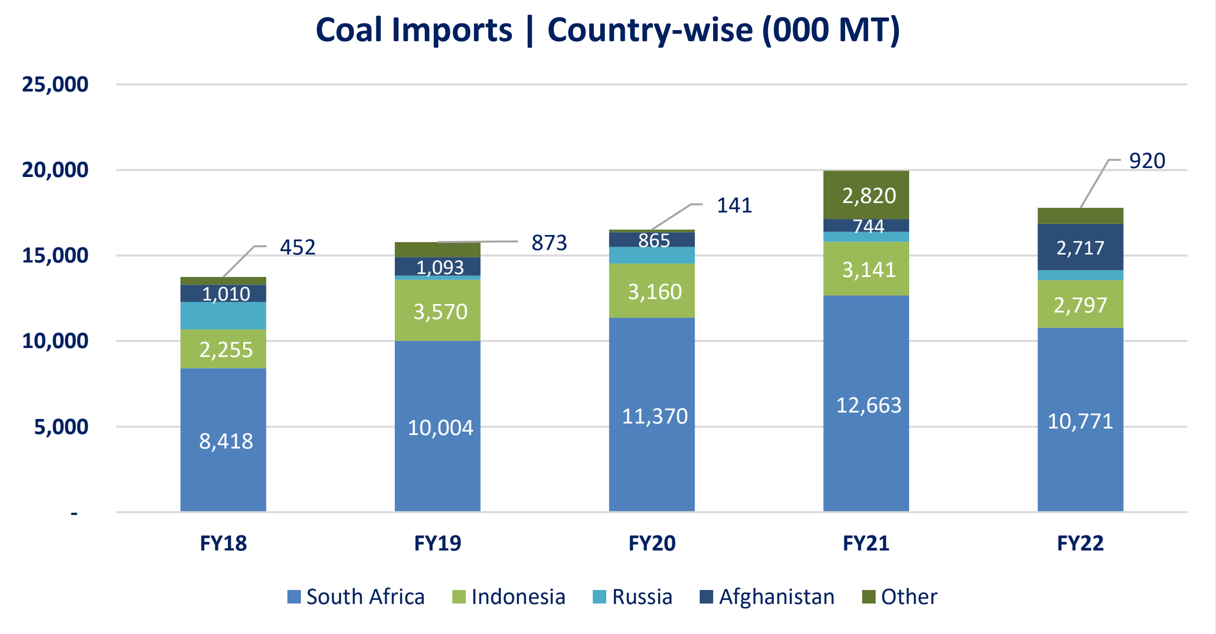
Local | Supply

- The share of imported coal has significantly decreased in the supply mix of the country from ~33mln MT in FY22 to ~6.6mln MT in 9MFY23 (9MFY22: ~12mln MT), in percentage terms the decline from FY22 to 9MFY23 is ~80%, largely owing to high coal prices and PKR devaluation, in addition to import restrictions imposed by the SBP during the said period. Moreover, during FY22, Pakistan imported ~59.1% of the coal from S. Africa (SPLY: ~63.5%), ~15.3% from Indonesia (SPLY: ~15.7%) and ~14.9% from Afghanistan (SPLY: ~3.7%).

- Electricity generation from coal clocked in at ~35,634GWh during FY22, ~8.2% YoY decline. During the 10MFY23 period, this figure was recorded at ~16,254GWh (SPLY: ~20,495GWh). Electricity generation configuration is relying heavily on imported coal but this trend is likely to change as three Thar coal-based power plants have been added to the electricity generation mix during the FY23, while their total installed capacity has reached ~3,300 MW.





Note: *For country-level import data, figures are the latest available and are limited to three HS code, namely – 2701.1200, 2701.1900 and 2704.0010, REPRESENTING ~55% of total coal imports during FY22.*

Source: PES, PBS, SBP

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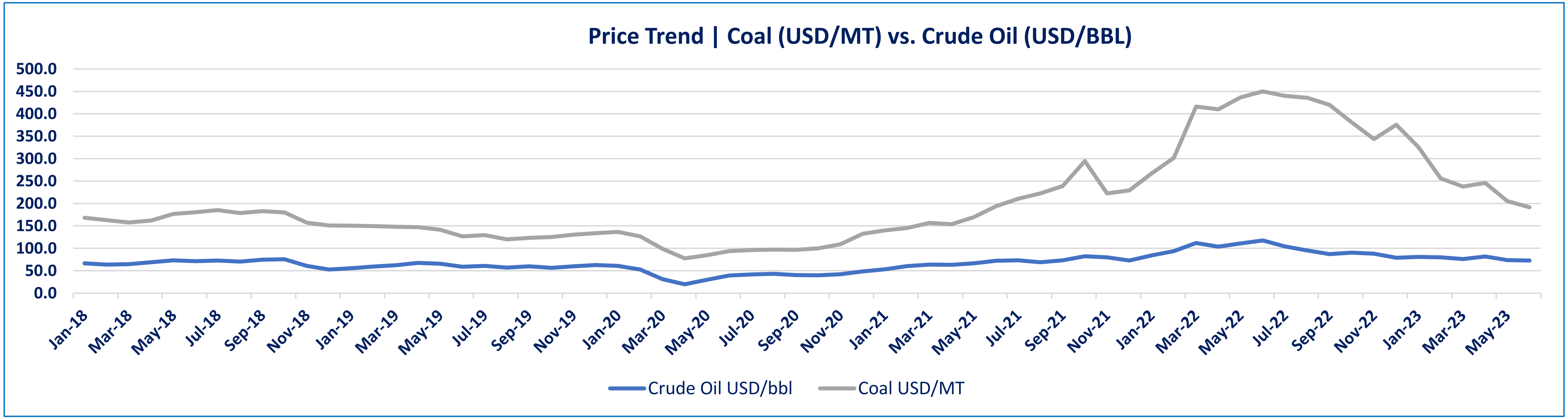
Business Risk | Pricing

- International crude oil plays a vital role in determining the global coal price. Rising concern about global warming, negativity towards fossil fuels and a shift towards decarbonization as well as Russia-Ukraine war have led a negative effect on the price of both coal and oil. The trend is observable in the price movement of these two fossil fuels and it largely remains in the same direction. Also, as major portion of the energy products is imported into Pakistan, both sectors are exposed to exchange rate movement as well.

- Coal prices have registered a steeper decline than crude oil during the May’22-Nov’22 period, largely owing to increased demand form India and China, where, for the former, electricity generation shifted away from natural gas. On the supply front, exports by S. Africa and Columbia partially offset exports by Russia during CY22, The recorded coal prices were the highest in Aug’22 at USD~340/MT, while currently, these came in at USD~119/MT as at June’23. Going forward, coal prices are expected to remain low, however, this could be affected by rising natural gas prices.



Note: *For coal, avg. coal price of South African and Australian coal have been taken. For crude oil, avg. oil price of crude WTI and Brent crude have been compiled.*

Source: World Bank

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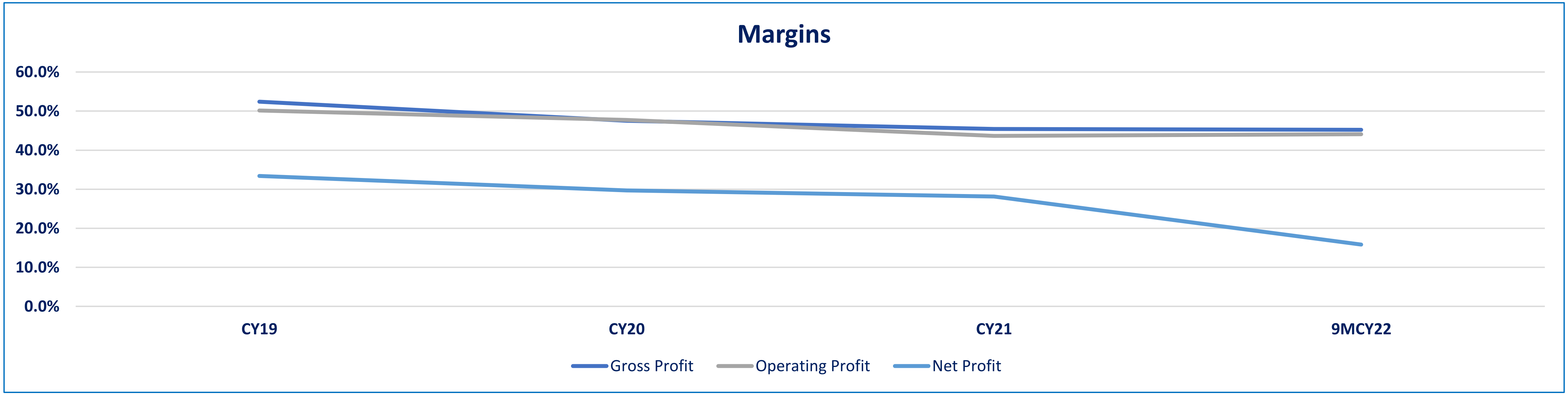
Business Risk | Mining

- The primary operation of mining companies is mining of coal. Sindh Engro Coal Mining Company (SECMC) is the largest coal mining player in the segment and provides lignite quality coal to power producers in Pakistan.
- Mining Segment has operations planned in different phases (blocks), due to which operations and management (contractors) cost is high ~43% CY21. The portion of depreciation in total cost accounts for ~16%, mining business is highly capital intensive in nature, as large machinery and heavy equipment is required. Meanwhile, smaller players have labor intensive operations.
- In 9MCY22, net profit significantly reduced to PKR~5,841mln (CY21: PKR~11,008mln) owing to extremely high cost of financing for the mining segment. Net profit margin dropped to ~16% in 9MCY22 from ~28% in CY21.
- With the increased demand for renewable energy and shift towards decarbonization, the margins of this segment could be adversely affected further.



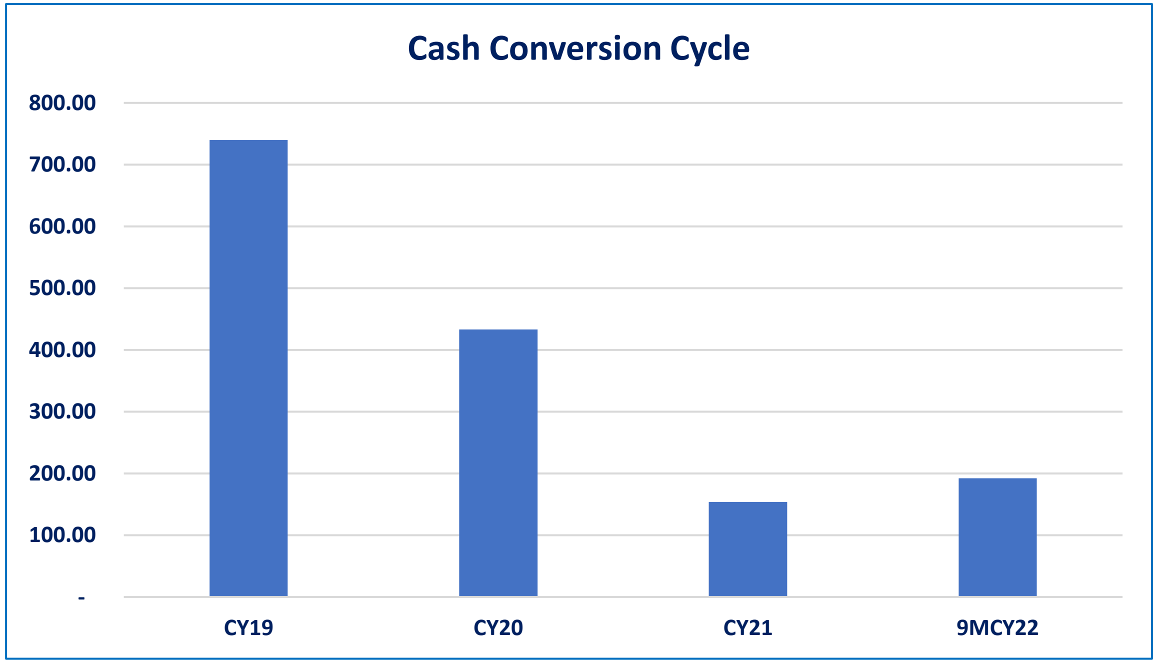
Note: *Data based on PACRA-rated client.*

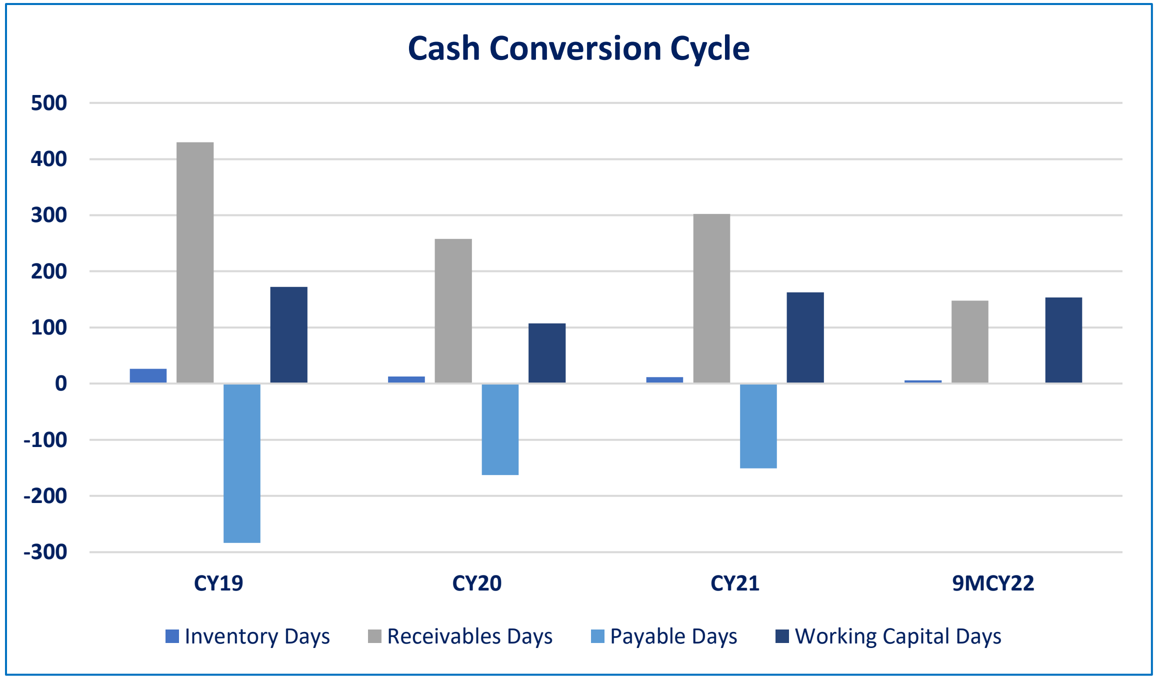
Source: PACRA Internal Database

Financial Risk | Mining

- The cash conversion cycle increased from ~107 days in CY20 to ~163 days in CY21 (9MCY22: ~153) owing to significant increase in receivables. Receivables days stood at ~258 days in CY20 and increased to ~302 days in CY21.

- Leverage ratio has exhibited improvement in the last two years (CY19-21) as it declined from ~72% in CY19 to ~61% in CY21 (9MCY22: ~58%). However, the sector still remains highly-leveraged. Interest coverage rose from ~3x in CY20 to ~4x in CY21 owing to reduced interest cost in low interest rate environment but with an increase in interest rates in 9MCY22 the interest coverage deteriorated to ~-1x. Overall, the financial risk of the segment remains high.



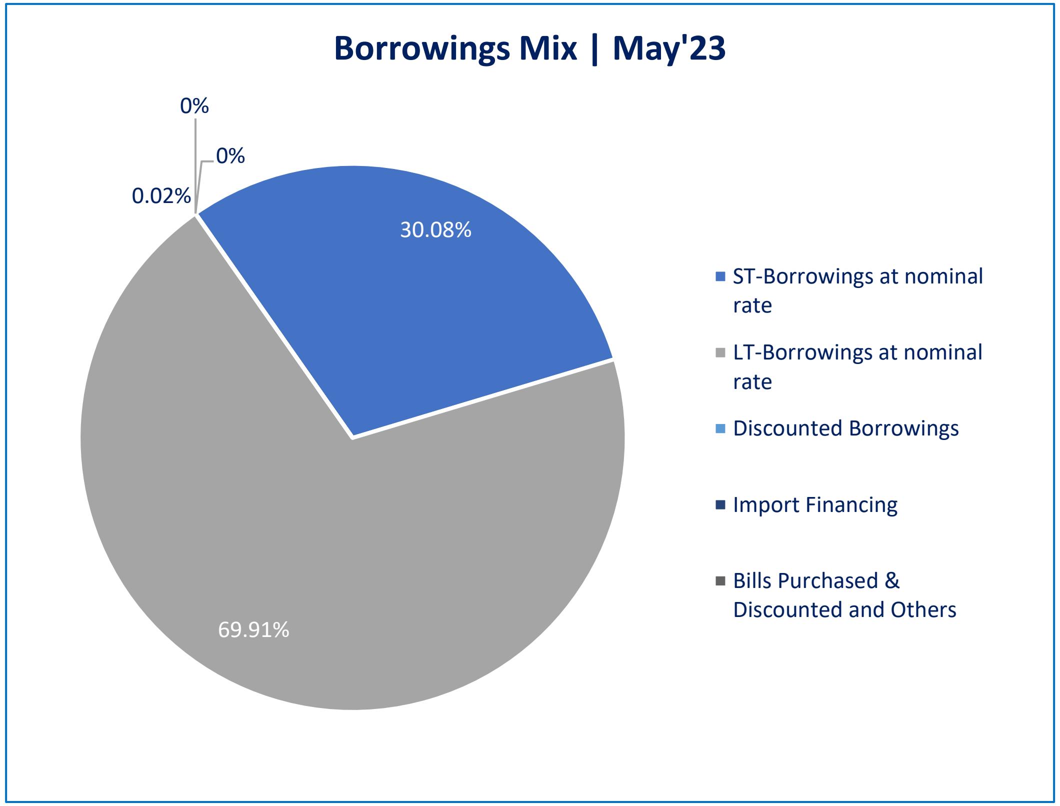


Note: *Data based on PACRA-rated client.*

Source: PACRA Internal Database

Financial Risk | Mining

- The coal mining segment's borrowings as at May'23 stood at PKR~53bln (May'22: PKR~41bln), posting a growth of ~29% YoY.
- Segment ST-borrowings at nominal rate grew by an extraordinary percentage of ~221% YoY and stood at PKR~16bln (May'22: PKR~0.7bln), representing ~30% of the total borrowings mix.
- Segment LT-borrowings at nominal rate declined by ~8% YoY and stood at PKR~37bln (May'22: PKR~40bln), representing the largest share of ~70% in the total borrowings mix.
- Segment discounted borrowings in terms of LTFF, TERF and EFS remained at PKR~8mln, representing a share of ~0.02% in the borrowings.



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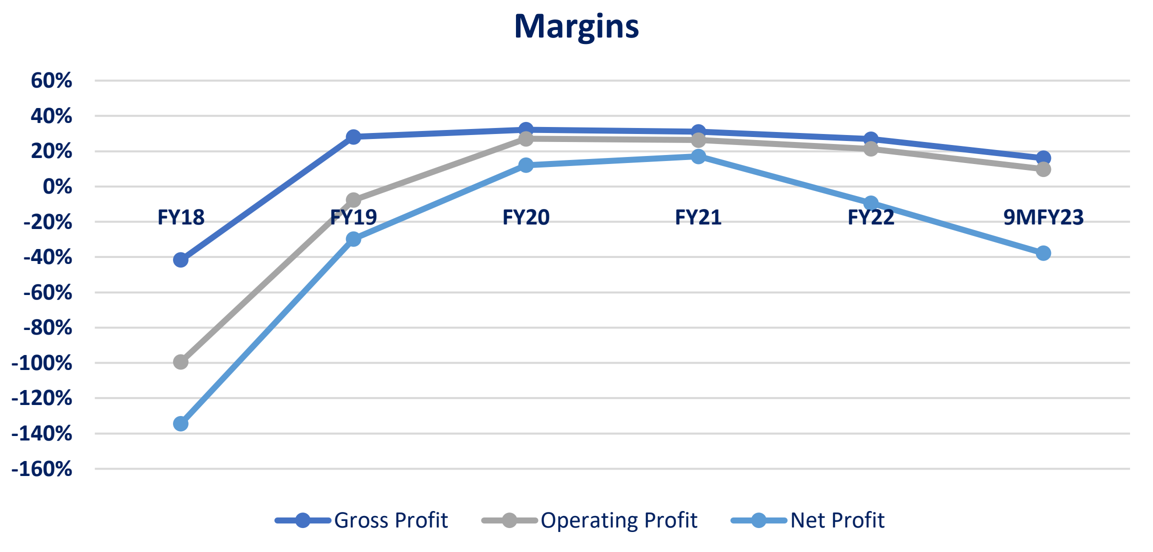
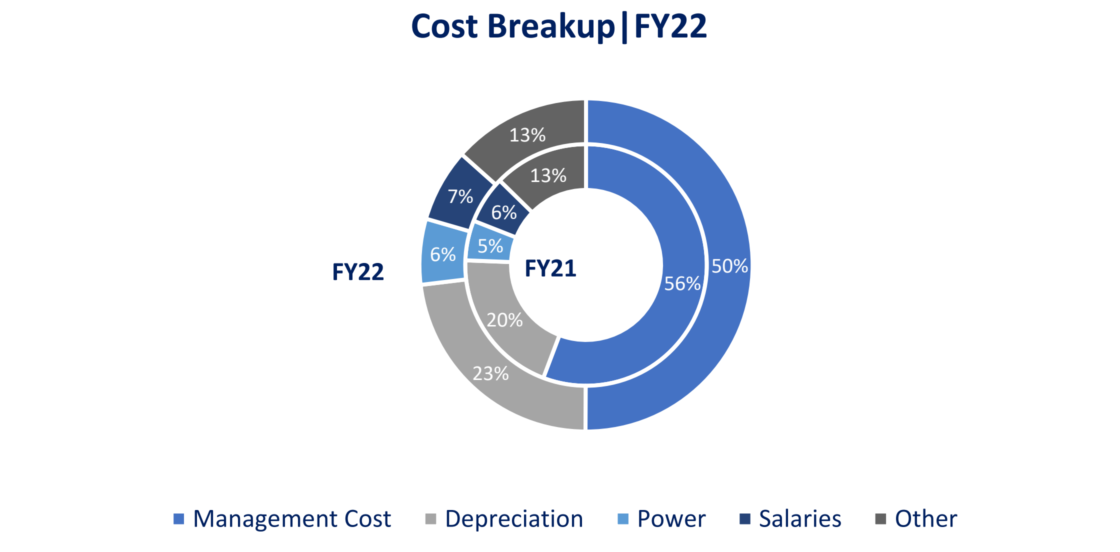
Business Risk | Terminal

- The primary operations of the terminal segment in the coal sector is the handling of imported coal on the port. In FY22, management cost constituted major portion of the terminal operations (~56%) compared to FY21 level of ~50%, followed by depreciation ~20% (FY21: 23%), and power and salaries, with ~5% and ~6% shares, respectively. Dominated by a single player in the segment, competitors' presence is non-existent.

- With respect to segment's margins, gross profit margins decreased from ~31% in FY21 to ~27% in FY22 (9MFY23: ~16%; 9MFY22: ~26%). Similarly, during the said period, operating profits declined to ~21% from ~26% in FY21, the decline was by a larger percentage ~13% when operating profit comparison done from 9MFY22 to 9MFY23.





Note: *Data based on PACRA rated client.*

Source: PACRA Internal Database

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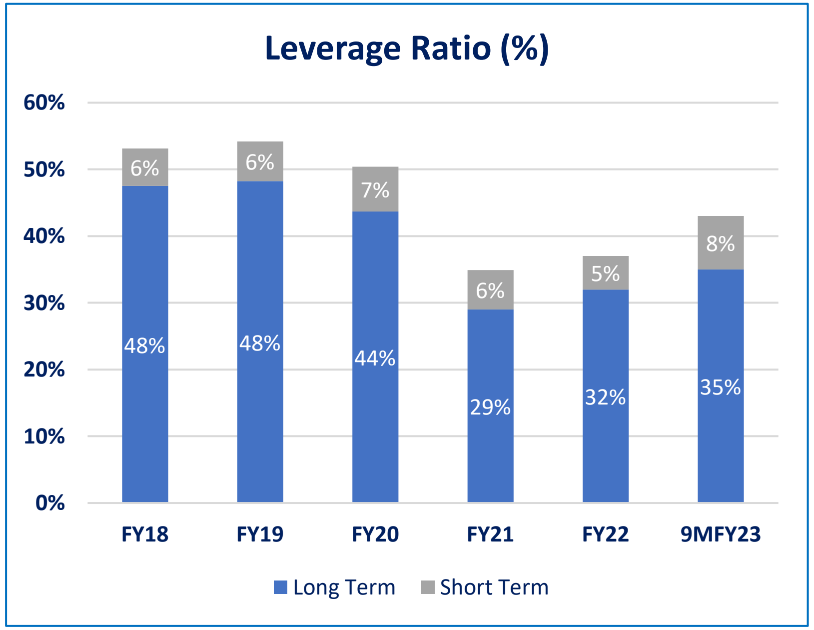
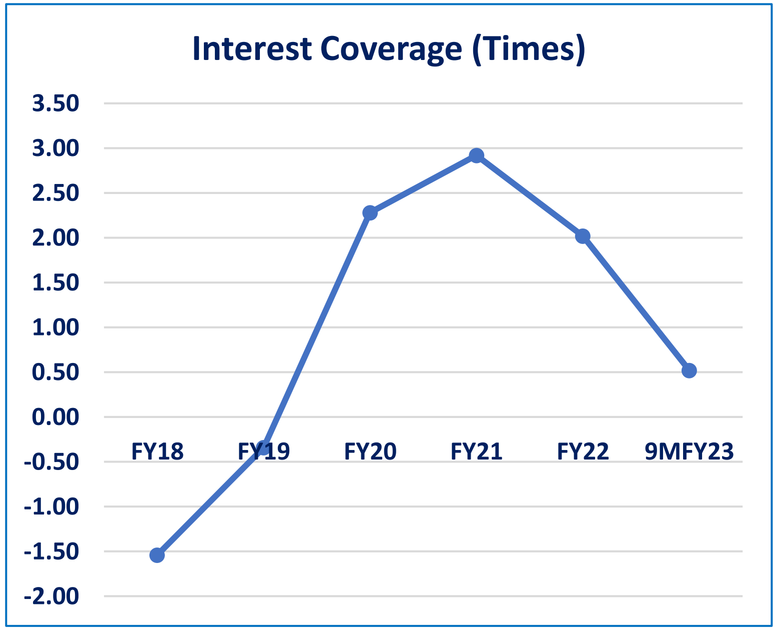
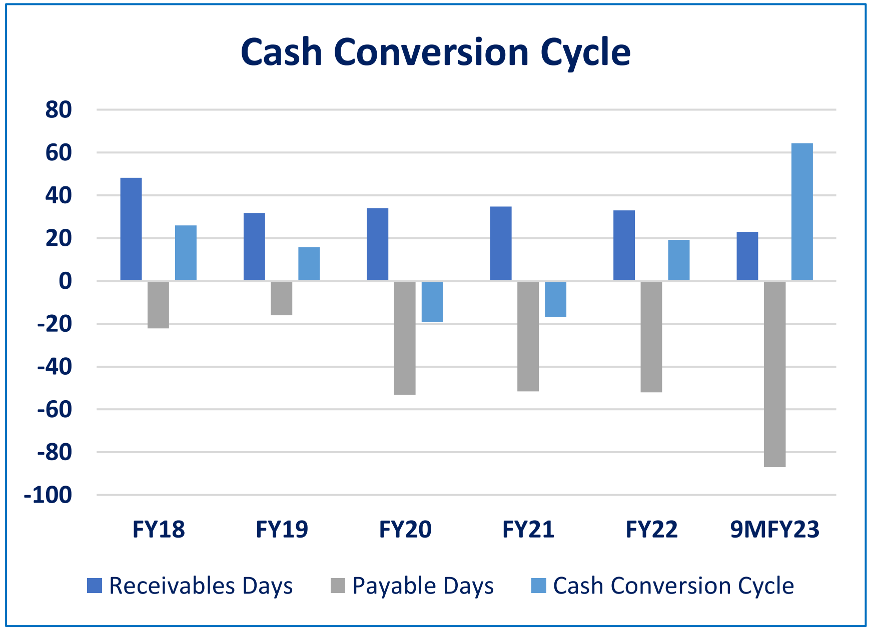
Financial Risk | Terminal

- Terminal segment has no inventory of its own. There is only one commercial coal terminal in the country which started its operations in FY17, after which its cash conversion cycle significantly improved over the years from positive ~26 days in FY18 to negative ~17 days in FY21 but then increased to ~19 days in FY22 and has further deteriorated to ~64 days in the 9MFY23 period.
- On the other hand, leverage ratio declined from ~53% (highly-leveraged) in FY18 to moderately-leveraged at ~36% in FY22 (9MFY23: ~43%).
- Interest coverage ratio declined from ~2.92x in FY21 to ~2.02x in FY22. In 9MFY23 the total borrowing mix comprised ~81% long-term (9MFY22: ~79%) and ~21% (9MFY22: ~21%) short-term borrowings.
- In 9MFY23, with deteriorating cash conversion cycle, leverage ratio and interest coverage, the financial risk of the terminal segment may be considered to be on the higher end.







***Note**: Data based on PACRA-rated client.*

Source: PACRA Internal Database

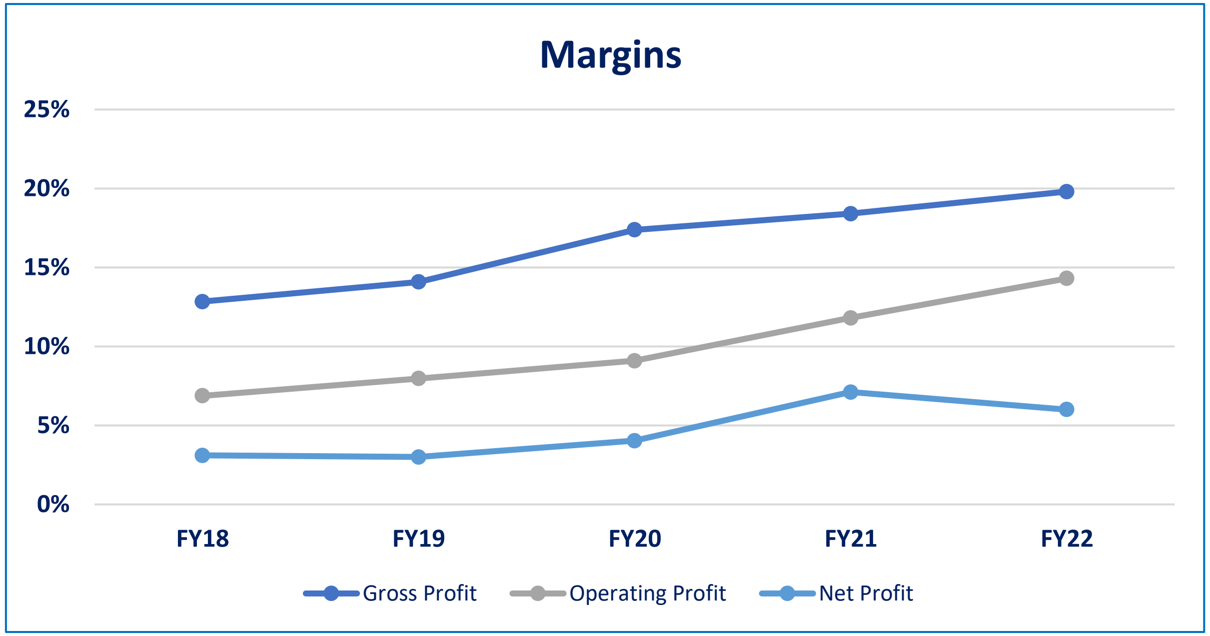
Business Risk | Trading

- The trading segment engages in the activity of storage and supplying coal to various sectors of the economy, mainly cement, steel and textile.

- Due to the nature of trading operations, raw material makes up the biggest portion to its cost of sales, followed by transportation. Coal is exposed to exchange rate risk and international coal price which bear the risk loss on inventory if prices declined and vice versa.

- The segment's margins have been steadily increasing owing to the overall increase in coal consumption leading to higher volumes over the last five years. Trading segment operates with tight margins due to competition from large number of players. Due to the presence of competitors and lower barriers to entry, increase in cost of operation cannot be fully passed on to consumers at times.

- Gross profit margin slightly rose by ~1% (FY22: ~20%, FY21: ~18%). Whereas, net profit margin fell by ~1% (FY22: ~6%, FY21: ~7%) and the operating margin increased from ~12% in FY21 to ~14% in FY22.



Note: Data based on PACRA-rated client.

Source: PACRA Internal Database

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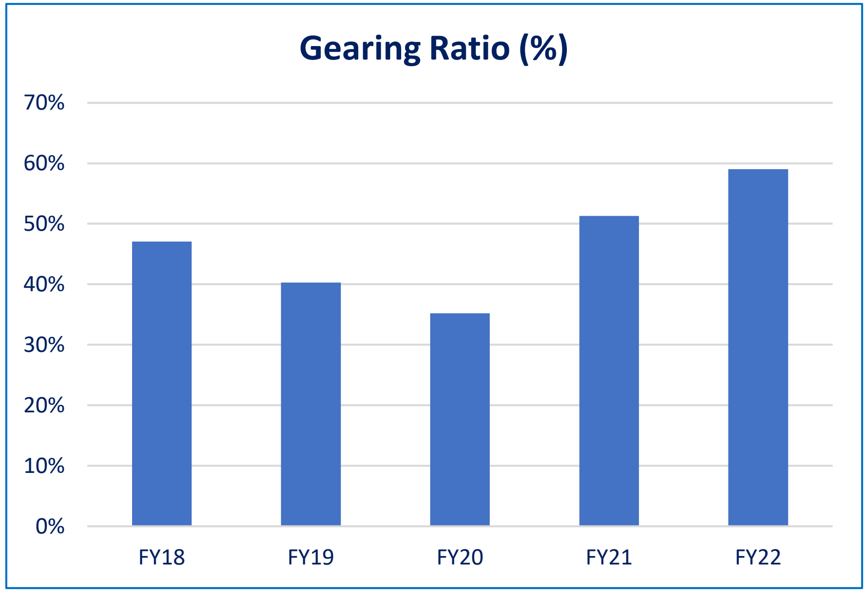
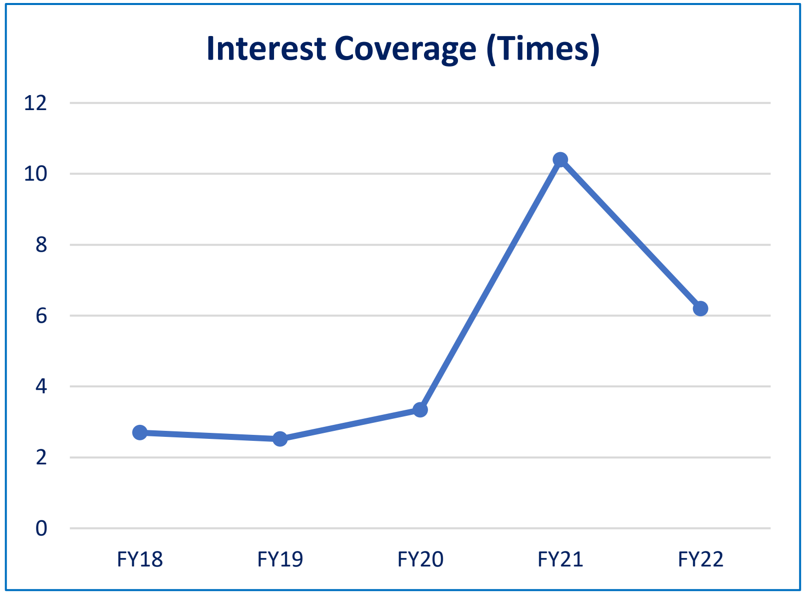
Financial Risk | Trading

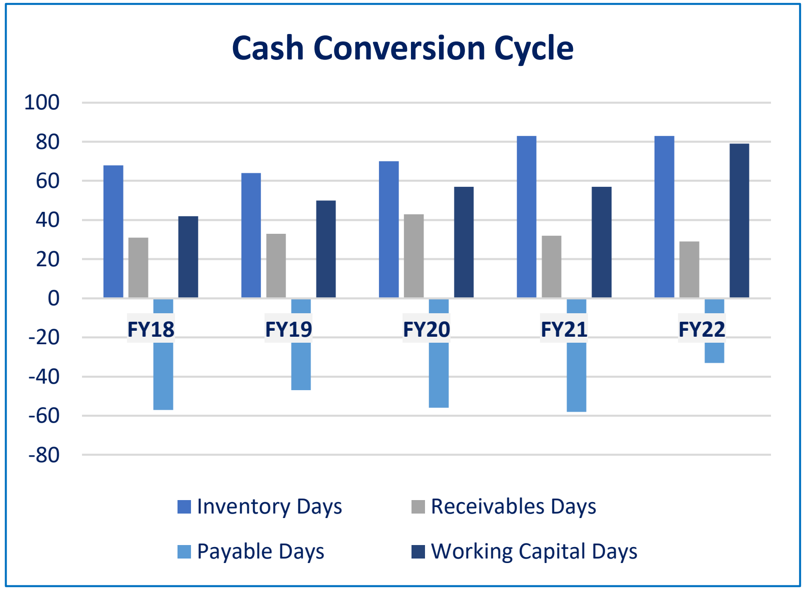
- The segment's cash conversion cycle has increased from ~57days in FY21 to ~79 days in FY22. The increase in cash conversion cycle is majorly due to a decline in payable days from ~58 days in FY21 to ~38 days in FY22.

- Leverage ratio has shown an increase from ~51% in FY21 to ~59% in FY22 mainly because of an increase in proportion of short-term debt in the total borrowing mix. However, over the three years tenure of FY18-20, the leverage ratio had declined from ~47% to ~35%. Meanwhile, interest coverage has deteriorated from ~10x in FY21 to ~6x 6MFY22.

- Overall, the trading segment of the coal sector is moderately leveraged.







***Note**: Data based on PACRA-rated client.*

Source: PACRA Internal Database

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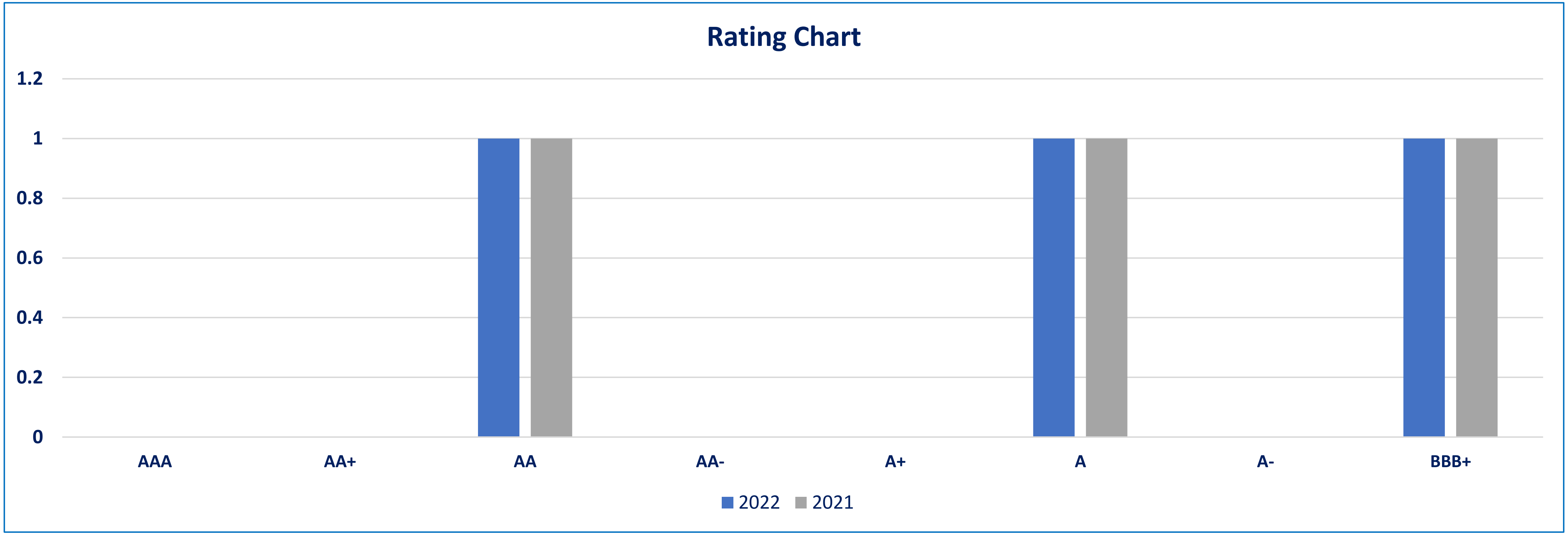
Rating Chart

- PACRA rates three players of Coal Mining & Trading sector. One player's rating was upgraded from A- to A.
- Rating bandwidth is from AA to BBB+



Duties & Taxes

- The duty structure is designed to keep the cost of coal low mainly to support power and cement sector, mainly its biggest consumers.

HSD Code	Description	Custom Duty		Sales Tax		Income Tax		Additional Custom Duty		Regular Duty	
		FY24	FY23	FY24	FY23	FY24	FY23	FY24	FY23	FY24	FY23
2701.1200	Bituminous Coal	3%	3%	18%	17%	12%	11%	2%	2%	0%	0%
2701.1900	Other Coal	3%	3%	18%	17%	12%	11%	2%	2%	0%	0%
2704.0010	Coke of Coal	3%	3%	18%	17%	12%	11%	2%	2%	0%	0%

Source: FBR, Finance Bill

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Porters 5 Forces Model

POTENTIAL NEW ENTRY

- **Mining** | Low | Regulated and licensing.
- **Terminal** | Low| Huge investment and licensing.
- **Trading** | High | Less capital intensive.

BUYER POWER

- **Mining** | Low | Contract based customer base.
- **Terminal** | Low | PIBT only commercial purpose inbound terminal.
- **Trading** | High | Multiple coal suppliers in the country.

SUBSITITUTES

- **Mining** | Low | Homogenous source .
- **Terminal** |High| Risk of government policies to use local coal.
- **Trading** | Low | Homogenous source.

SUPPLIER POWER

- **Mining** | Low | Mining contracts reduced uncertainty of supply
- **Terminal** | Low | PIBT only commercial purpose inbound terminal.
- **Trading** | High | Reliance on local and imported coal.

COMPETITIVE RIVALRY

- **Mining** | Low | Small large scale of miners
- **Terminal** | Low | PIBT only commercial purpose inbound terminal.
- **Trading** | High | Multiple large and small scale trading companies.

PIBT : Pakistan International Bulk Terminal

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SWOT Analysis

- Low-cost skilled and unskilled labor
- Capital-intensive sector
- Good margins in periods of robust demand
- Demand potential
- PIBTL is the only bulk terminal

- Heavy reliance on imported coal
- Exposure to exchange rate volatility
- Low-quality local coal

- Increasing freight rates
- Rising environmental concerns
- Inflow of Afghan coal
- Tight supply due to conflict in Eastern Europe

- Coal after power is mostly used in cement sector; cement companies have announced expansionary projects.
- New thermal power plants
- Growing dependence on thermal energy
- Increase in prices of other energy commodities.

Coal Mining & Trading

Outlook | Stable

- According to provisional estimates, Pakistan witnessed a real GDP growth of ~6.1% in FY22 (FY21: ~5.77%), before slowing down to ~0.29% during FY23. LSM sector also witnessed a decline of ~8.11% in 9MFY23 (SPLY: ~10.4%). Coal is a major source that fuels the economy. The two biggest consumers of coal in Pakistan are the power and cement sectors. Pakistan holds approximately ~185bln tons of coal reserve. ~99% of coal reserves are found in Sindh.
- Although in 9MFY23 Pakistan's cement sector experienced a decline of ~24% YoY, the construction sector on average contributed ~2.38% to the GDP in FY23 and the local demand is showing resilience despite mounting cost pressures. Pakistan exports cement to Bangladesh, Afghanistan, India and African countries and recently to USA as well. This, in turn, reflects promising demand prospects for imported coal in the country, thus giving a boost to the terminal handling segment of coal sector.
- Power sector is one of the major demand hubs for local coal in the country. Overall, 16 power generation projects of ~8,300MW are being facilitated by PPIB under CPEC. These include 13 hydropower projects of ~5,455MW, one Thar-coal based projects of ~1,320MW, one imported coal-based projects of ~300MW and one RLNG-based project of ~1,263 MW.
- In 9MCY22 net profit of mining segment significantly reduced to PKR~5,841mln (CY21: PKR~11,008mln) owing to extremely high cost of financing for the mining segment. Net profit margin dropped to ~16% in 9MCY22 from ~28% in CY21. However, the leverage ratio posted improvement in the last two years as it declined from ~72% in CY19 to ~61% in CY21 (9MCY22: ~58%).
- Gross profit margin of the terminal segment decreased from ~31% in FY21 to ~27% in FY22 (9MFY23: ~16%; 9MFY22: ~26%). The segment transformed from a highly-leveraged (~53%) in FY18 to moderately-leveraged one (~36%) in FY22 (9MFY23: ~43%).
- Net profit margin of the trading segment fell by ~1% (FY22: ~6%, FY21: ~7%). Operating margin increased from ~12% in FY21 to ~14% in FY22. Leverage ratio also exhibited an increase from ~51% in FY21 to ~59% in FY22.
- Pakistan has an abundance of coal but due to its lower carbon content, major consumers prefer imported coal, which has higher heating value and results in less residue slag, so the sector is exposed to fluctuation international coal prices and exchange rate movements.
- Although the global coal prices have spiked up from USD~218.98/MT in FY22 to USD~237.54/MT in FY23, the price pass-through ability of cement manufacturers and other allied sectors keeps their margins intact. However, demand levels are expected to remain low as costs of construction shoot up.

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