



Batteries

Sector Study

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- A battery is a device that stores chemical energy and converts it into electrical energy. The chemical reactions in a battery involve the flow of electrons from one electrode to another.
- Every battery (or cell) has a cathode, or positive plate, and an anode, or negative plate. These electrodes must be separated by and are often immersed in an electrolyte that permits the passage of ions between the electrodes. The electrode materials and the electrolyte are chosen and arranged so that sufficient electromotive force (measured in volts) and electric current (measured in amperes) can be developed between the terminals of a battery to operate lights, machines, or other devices.
- Batteries are divided into two general groups: (i) Primary batteries and (ii) Secondary/Storage batteries. Primary batteries are designed to be used until the voltage is too low to operate a given device and are then discarded. Secondary batteries have numerous special design features, as well as particular materials for the electrodes, that permit them to be reconstituted (recharged). After partial or complete discharge, they can be recharged by applying direct current (DC) voltage.



Batteries | Local Industry

Overview

- Pakistan’s local battery manufacturing industry consists of an organized and unorganized segment. The organized segment occupies ~90% of the market share and consists of ~6-8 large players, while several smaller players operate in the unorganised segment.
- The local production of batteries has increased steadily in the recent years. During FY22, the number of batteries produced increased by ~31% to ~166,470 as compared to ~126,595 batteries produced in FY21.
- The estimated revenue grew by ~24% on a YoY basis in FY22 reaching to PKR~104bln. It previously clocked in at PKR~83bln in FY21. In the 3MFY23, the revenue was recorded at PKR~37bln (3MFY22: PKR~26bln) increasing by ~40% from the same period last year.
- Estimated aggregate units sold in FY22 were ~1.14mln rising by ~54% as the units sold in FY21 were recorded at ~0.74mln.
- Meanwhile, imports increased significantly and export of storage batteries decreased during FY22. Imports increased to USD~108mln in FY22 from USD~52mln during FY21, while exports decreased to USD~24mln in FY22 from USD~29mln in FY21.

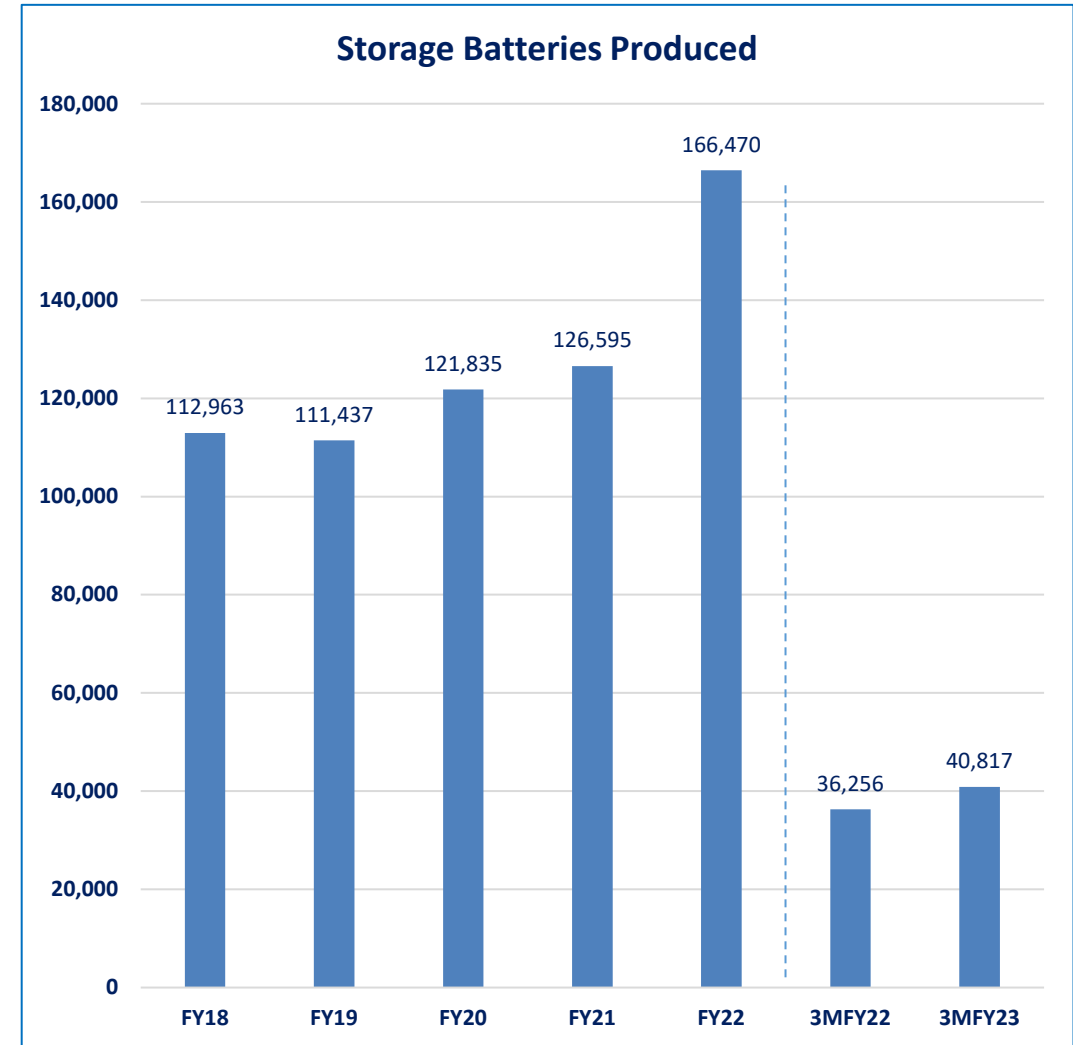
Sector Overview	FY21	FY22	3MFY22	3MFY23
Estimated Revenue (PKR bln)*	83	104	26	37
YoY % Change in Revenue	49%	24%	61%	40%
Export Value (USD mln)	29	24	7	13
Import Value (USD mln)	52	108	25	28
Local Production (No. of Batteries Produced)	126,595	166,470	36,256	40,817
Market Structure	Oligopoly			
No. of Major Players	~7			

*The revenue figures have been estimated based on PACRA Database.

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Production

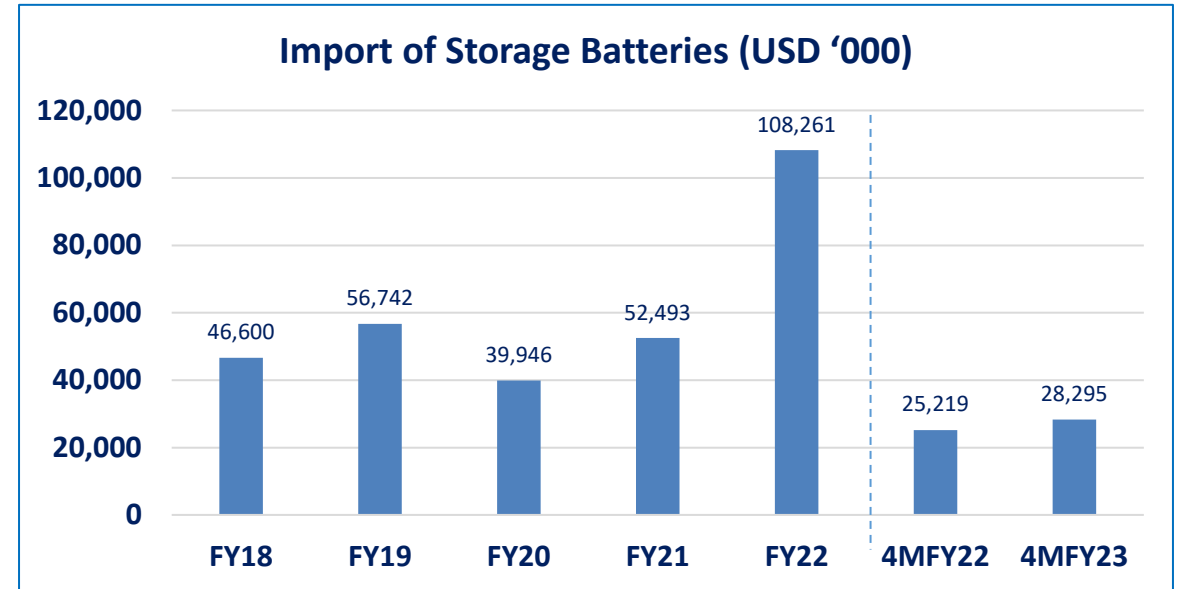
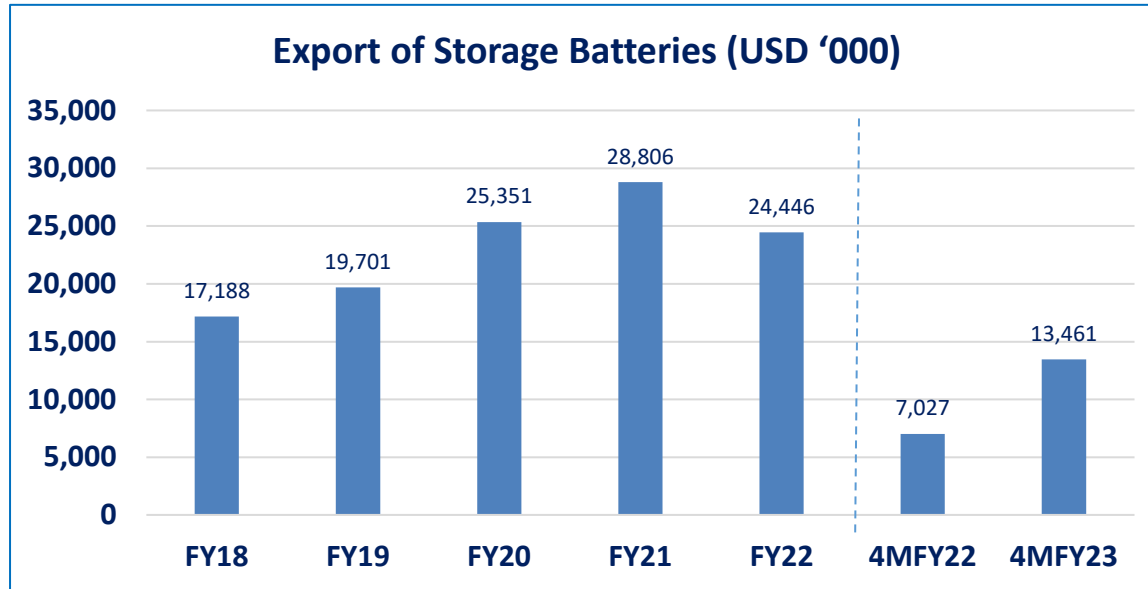
- The number of storage batteries produced in the country have increased steadily at a CAGR of ~9% over the last five years (FY18-FY22).
- During FY22, ~166,470 storage batteries were produced in the country, an increase of ~31% from ~126,595 batteries produced during FY21.
- Moreover, during 3MFY23, ~40,817 batteries were produced as compared to ~36,256 batteries produced during the same period last year (an increase of ~13%).
- Apart from automobiles segment and the associated replacement market, increasing demand for backup power solutions and a rise in solar power installations are likely to be major demand drivers for the battery market in the country.
- The demand for heavy and medium-sized batteries for UPS, solar and generators has started to gain momentum recently after a decline witnessed during FY19-FY20. As of June 2022, the country had ~2.8 mln UPSs, which is further expected to increase with the rising power shortfall.
- The government of Pakistan has set a target to increase the share of renewable (solar and wind) generation to ~30% in the national energy mix by CY30. The initiation of electric vehicle assembling projects in Pakistan is also expected to boost the demand for low-maintenance hybrid batteries in the coming years.



Note: The figure for batteries produced is limited to those reported to the Pakistan Bureau of Statistics.

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Exports & Imports

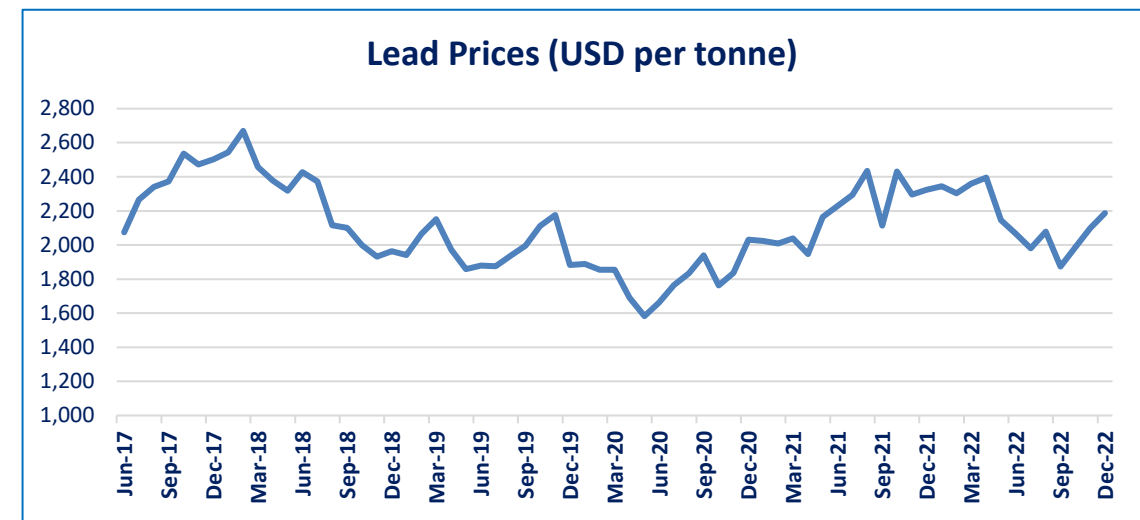
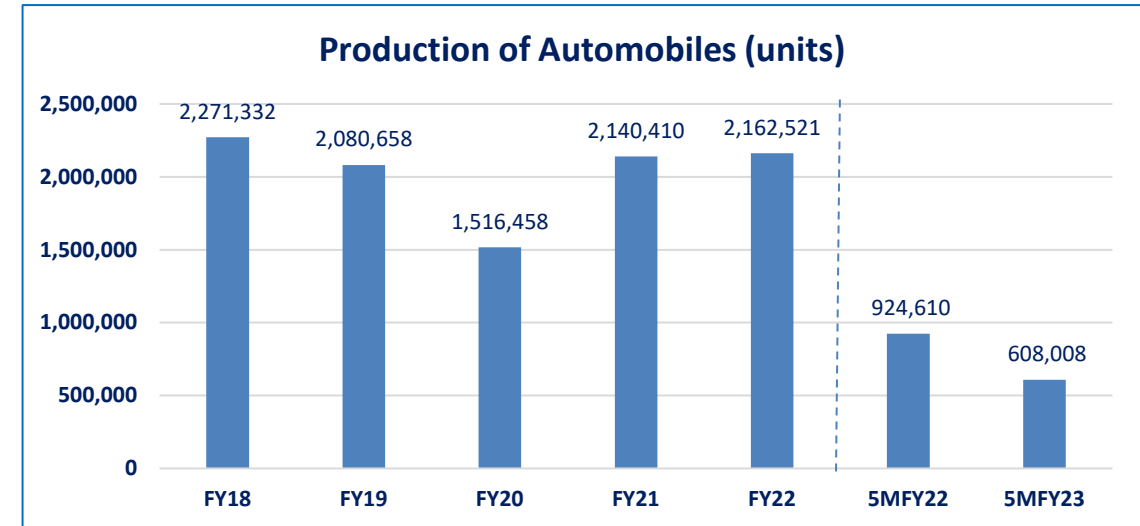


- The amount of exports in FY22 dropped to USD~24mIn from USD~29mIn, a decline of ~15%, whereas the imports of storage batteries significantly rose by ~105% to USD~108mIn from USD~52mIn in FY21. Some of the demand of the batteries sector is also being met through imports. The ratio of imports to exports was recorded approximately at 80:20 in FY22 (FY21: 65:35).
- In 4MFY23, exports of batteries increased significantly, reaching almost twice the amount from USD~7mIn to USD~13mIn. The amount of imports also increased by ~12.2% in 4MFY23 to USD~28mIn as compared to the same period last year.

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Business Risk

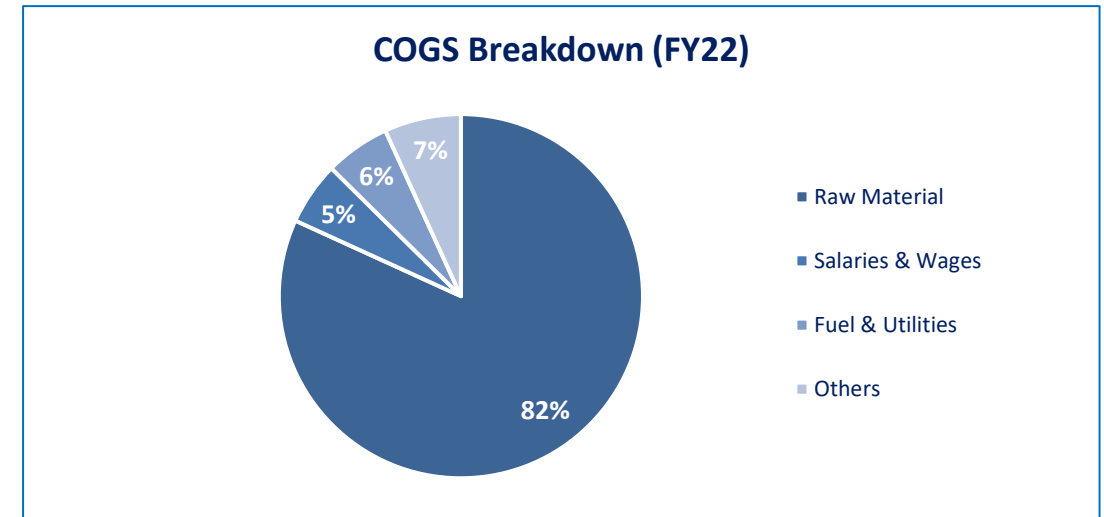
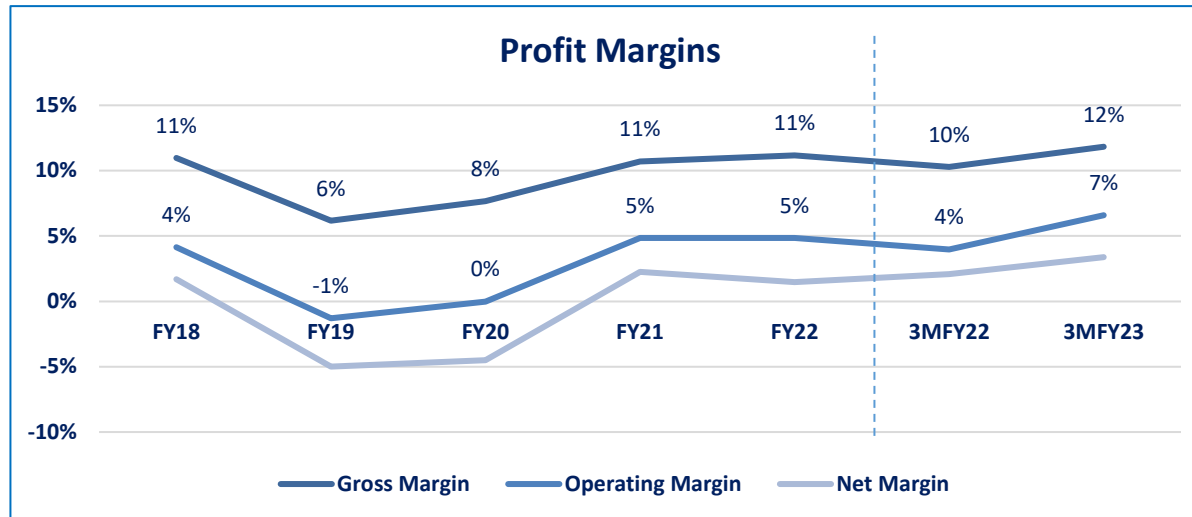
- The major demand driver for the battery manufacturing sector is automobile industry. Any decline in the automobile demand also has adverse effects on demand for batteries.
- As the adjacent graph shows, the production of automobiles increased to ~2.16mln in FY22 as compared to ~2.14mln in FY21 by meagre ~1%. The production of automobiles further declined by ~34.2% to ~608,008 units in 5MFY23, as compared to the same period last year (5MFY22: ~924,610), due to adverse economic conditions, ban on imports, increasing interest rates and rising raw material prices.
- Other sources of demand for batteries are domestic appliances and industrial equipment. In addition, electricity shortages also increase demand for batteries due to greater usage of generators and UPS devices.
- Demand for batteries grows during periods of economic growth due to increase in industrial activity as well as increase in individual's disposable incomes. On the other hand, there is an adverse impact on demand for batteries during periods when economic growth slows down.
- Lead is one of the main raw materials in the production of batteries. On a year on year basis, lead prices rose by ~16.7%. During 2QFY23, prices of lead have exhibited an increasing trend, rising by ~5.8% QoQ (1QFY22: USD~1,977 per tonne) which will likely push up the cost of production of batteries, since raw materials account for ~82% of the total cost.



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Margins & Cost Structure

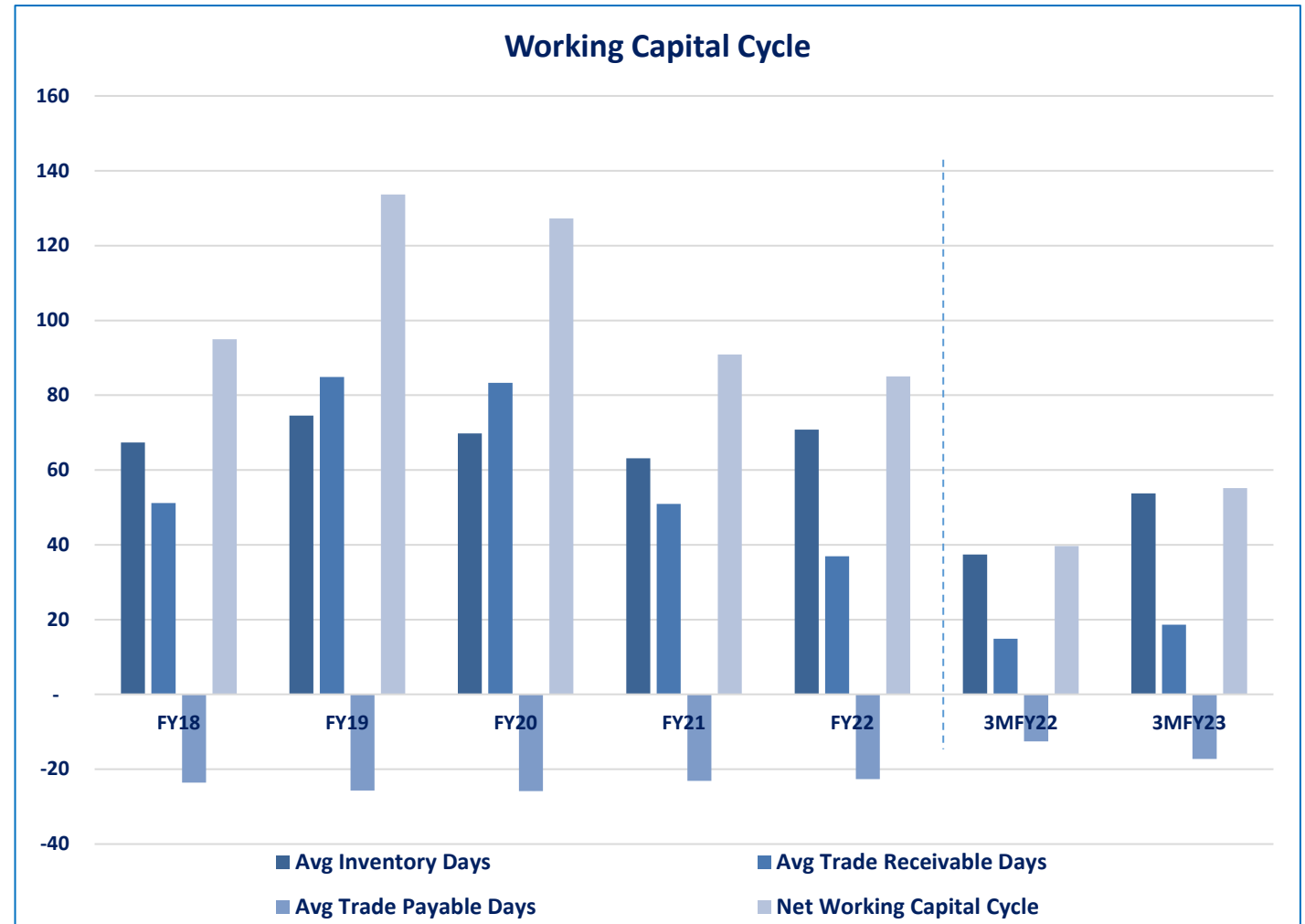
- Over the last five years (FY18-FY22), the sector's average gross margins have stood at ~9% while average net margins have stood at ~-1%. The sector's margins were under pressure in recent years due to decline in demand for batteries emanating from the lower demand for automobiles, but that demand started exhibiting improvement in FY21 and stayed relatively stable in FY22.
- During FY22, average gross margin remained stable at ~11% as compared to ~11% during FY21, while average net margin fell to ~1% from ~2%. The stability in the gross margins came on the back of increasing sales of batteries during the period, coupled with the inflationary effect of higher selling prices. Net margins recorded a slight decrease due to rising finance costs as the policy rate increased.
- In 1QFY23, the margins improved slightly and this came on the back of increasing sales revenue by ~40% with the rise in the demand for batteries emanating from the use of alternate energy sources such as solar and UPS due to the increasing power shortfall in the country of batteries.
- The largest component within the sector's direct costs is raw material which contributes ~82% to total direct costs. The main raw material for batteries consist of materials such as lead or lithium from which a majority of batteries are made.



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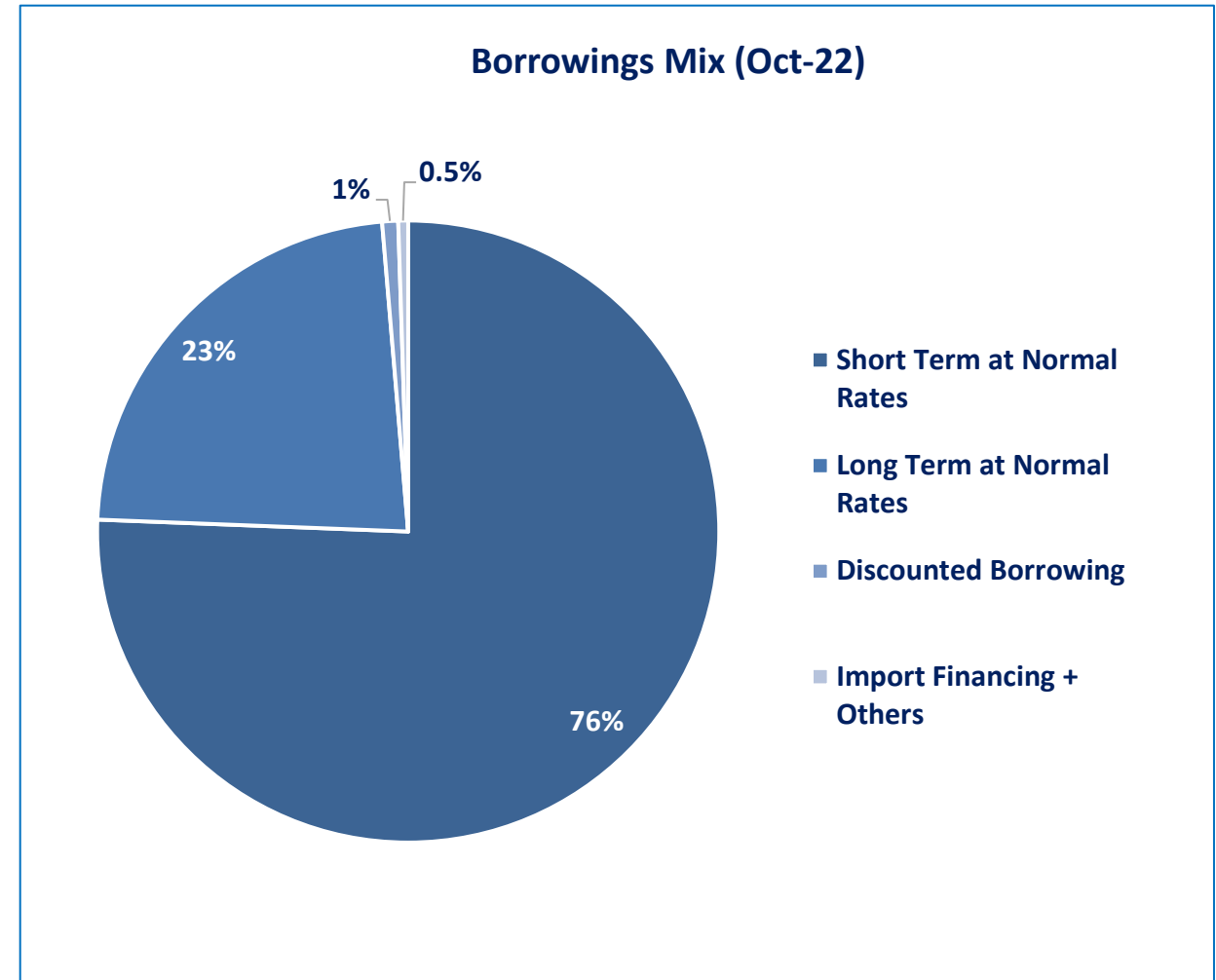
Financial Risk | Working Capital Management

- The sector’s working capital cycle is predominantly a function of its inventory and trade receivables.
- The average working capital cycle during the last five years has stood at ~105 days. The working capital cycle increased during FY19 and FY20 due to lower sales in that time frame in correlation with the decline in demand of automobiles during the pandemic. The reduction in sales in FY19 was ~8.4% and FY20 was ~26.9%.
- In FY21, average working capital cycle reduced to ~91 days from ~127 days, and further reduced to ~85 days in FY22, on the back of higher sales as demand saw a rising trend.
- The average inventory days increased to ~55 in 3MFY23 from ~37 in 3MFY22 which led to an increase in the net working capital days to ~55 in 3MFY23 (3MFY22: ~40).



Note: Working capital cycle is reflective of 2 listed/rated players belonging to batteries segment.

- The batteries manufacturing industry recorded total borrowings of PKR~8,892mIn as at End-Oct'22, a decrease of ~3.4% as compared to PKR~9,204mIn as at End-Oct'21.
- The largest component in the borrowings mix are the Short-Term Borrowings (STBs), which constitute ~76% of the total borrowings and stood at PKR~6,723mIn in October'22. STBs are used to finance the working capital requirements of the sector.
- Meanwhile, Long-Term Borrowings (LTBs) stood at PKR~2,049mIn and accounted for ~23% of total borrowings, while discounted borrowing, which largely consists of Long-Term Financing Facility (LTFF) and Temporary Economic Finance Facility (TERF), stood at PKR~74mIn, accounting for ~1% of total borrowings.
- The industry is moderately leveraged with an average leveraging ratio of ~30%.



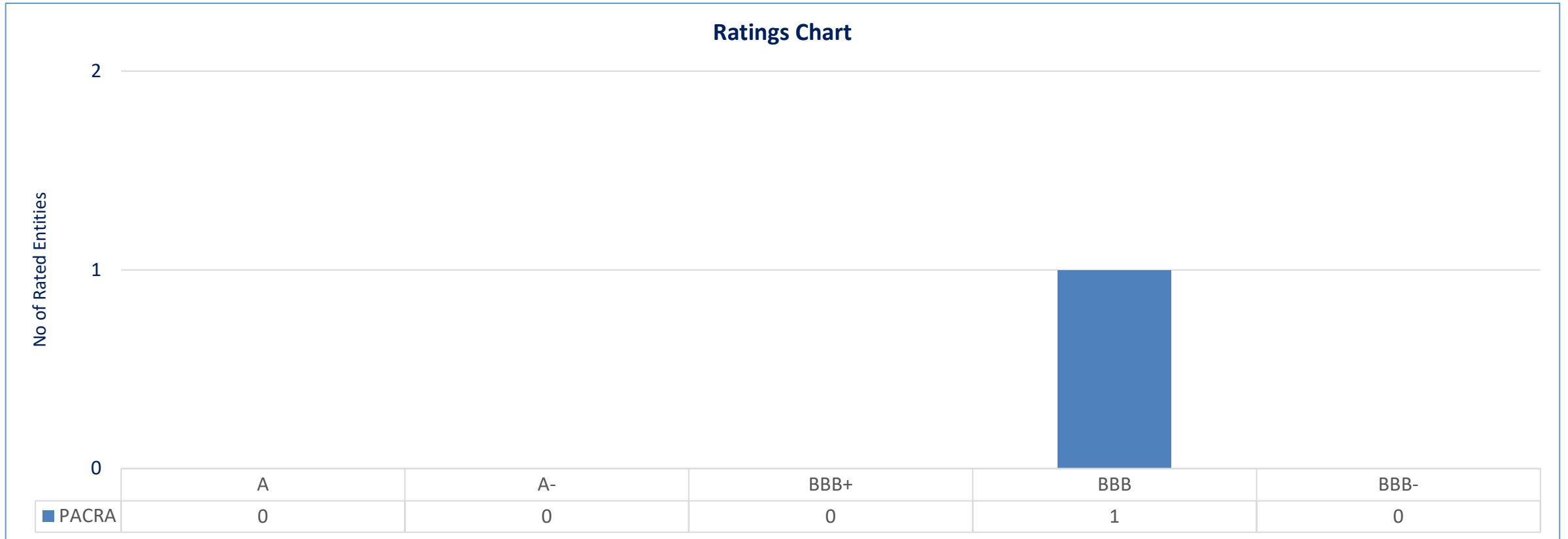
Regulatory Framework

- With respect to Income Tax, the batteries manufacturing 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 Environment Protection Department (EPD), Govt. of Punjab has introduced Draft Punjab Batteries (Environmental Management and Handling) Rules, 2020. If these draft rules are implemented, lead recyclers would be required to register with and report relevant data to the EPD.
- The applicable custom duty structure has been summarized below -

PCT Code	Description	Custom Duty		Additional Custom Duty		Total	
		FY21	FY22	FY21	FY22	FY21	FY22
26.07	Lead Ores and Concentrates	0%	0%	2%	2%	2%	2%
26.20	Slag, ash and residues of lead	0%	0%	2%	2%	2%	2%
78.01	Unwrought Lead (including refined lead)	0%	0%	2%	2%	2%	2%
78.02	Lead waste and scrap	0%	0%	2%	2%	2%	2%
78.04	Lead plates, sheets, strip, foil, powders and flakes	16%	16%	4%	4%	20%	20%
78.06	Other articles of lead	20%	20%	6%	6%	26%	26%
85.07	Batteries/ Electric Accumulators, made from lead-acid, for use in vehicles	35%	35%	7%	7%	42%	42%
85.49	Waste and scrap of cells, batteries and electric accumulators	3%	0%	2%	2%	5%	5%

Ratings Chart

PACRA rates 1 player in the batteries sector with a long-term rating of BBB.



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SWOT Analysis

- A few large players occupying a significant market share.
- High-quality products with ample surplus capacity available, thus providing room for growth.

Strengths

Weaknesses

- Presence of unorganized segment which provides substitutes at low prices.
- Limited suppliers of lead.
- Volatile raw material prices.

- Significant level of competition and threat of new entrants.
- Reducing sales volume of cars that majorly drive demand for the sector.

Threats

Opportunities

- Increasing demand for alternative energy sources solar connections which require batteries.
- Shortfall in power supply which creates demand for UPS that use batteries.

Outlook: STABLE

- FY22 kicked off on a positive note as economic activity picked up pace and industries started showing signs of improvement, post-COVID. However, the Russia-Ukraine conflict, which began in February 2022, has since affected several economies across the globe. Pakistan's economy also started to deteriorate as internal political unrest began around the same time. The final nail in the coffin were the massive floods that hit several areas of Pakistan due to heavy monsoon affecting ~33mln people, bringing enormous damage to infrastructure and agriculture. Going forward, the economy as a whole is expected to slow down in FY23 with GDP growth rate forecast at ~2%.
- The LSM is also witnessing a downward trend, with ~2.89% decline in 4MFY23, as compared to the same period last year. This economic slowdown is expected to affect the batteries sector as well, since a portion of batteries' demand is driven by the automotive sector which has recorded a decline in production of ~34% in 5MFY23, compared to the same period last year. This is likely due to the ban on imports and increases in the policy rate (the policy rate was raised by ~100 basis points to 16% on Nov'25, 2022).
- The number of storage batteries exported during FY22 reduced by ~15%, amounting to USD~25mln. However, the number of imports surged by ~106%. The fact that ratio of imports to local production is being met through imports may prove to be a challenge owing to rupee's YoY erosion of ~28% against the greenback in Nov'22.
- The sector's average gross margins were recorded at ~11% during FY22, the same as previous fiscal year, due to demand staying relatively stable. Average net margins exhibited a slight decline of ~1% due to increasing finance costs. Short-term borrowings accounted for ~76% of total borrowings. These are majorly used to finance the working capital requirements of the sector.
- During 1QFY23, the sector's margins have slightly improved, despite decreasing demand from the automobile sector. This can be attributed to demand arising from its use in alternate energy sources such as UPS and solar panels which are increasingly being consumed due to power shortfalls in the country. It is expected that unannounced load shedding in the country may continue over the next three years. This will create a demand-supply gap in future and space for the batteries sector to grow further.

Batteries | Bibliography

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