Machinery

Sector Study

December 2022

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Introduction

- A machine uses power to control movement to perform a task or action, reducing the amount of human work required to complete it. Machines can also be mechanical systems, which include computers and sensors to control and monitor output.
- Machinery manufacturing encompasses a wide number of segments broadly classified into agricultural machinery, construction and mining machinery and industrial machinery. Other categories include commercial and service industry machinery, metalworking machinery, heating & refrigeration equipment. It also includes engine, turbine and power transmission equipment manufacturing and other general-purpose machinery.
- **Agricultural Machinery:** It includes tractors, cultivators, ploughs, harvesters, threshers and many other types of machinery employed by the agriculture industry in order to assist in various processes such as cultivating, planting and harvesting.
- **Construction Machinery:** Includes machinery such as bulldozers, excavators, cranes, graders and drilling machines.
- **Industrial Machinery:** There is a wide variety of machines used by various industries for example spindles and looms used in textile manufacturing, heating and mixing machinery used in food and beverage industry, packaging machinery and various types and components of assembly lines.
- This sector study will focus on industrial machinery and particularly the pumps and valves segment with respect to business and financial risk.

Machinery | Global Industry

Overview

- **Market Size**: The global machinery market is expected to grow from USD~3,220bln in CY21 to USD~3,523bln in CY22 at a compound annual growth rate (CAGR) of ~9.4%. The growth is driven by resumption in economic activity and companies recovering from the impact of the pandemic which had disrupted various industries.

- **Demand**: Rapid advances in technology are expected to drive innovation in industrial machinery manufacturing, thus driving growth for the industry, going forward. Furthermore, technologies such as 3D printing, artificial intelligence and big data analytics are being used in manufacturing thus resulting in higher productivity, lower operating costs and higher margins.

- **Region**: The top global machinery manufacturers are Asia-Pacific, China, Western Europe, Eastern Europe, North America, USA, South America, Middle East and Africa. Among these regions, the Asia-Pacific machinery manufacturing market accounts for the largest share in the global machinery manufacturing market.

- **Major Players**: The major players involved in the manufacturing of industrial machinery are Caterpillar Inc and Deere & Co, based in the United States, CNH Industrial, ABB Group and Linde AG, based out of UK, Switzerland and Germany, respectively and Daikin Industries and Komatsu Limited which are based in Tokyo, Japan. The companies account for a significant share in the global market due to high levels of R&D and technological advancements.

Source :Business Research Company

Machinery | Local Industry

Overview

- Majority of the demand for machinery emanating from large industries such as construction, textile, energy etc are met through imports. In addition, there is a lack of investment in technology and R&D in Pakistan due to which the country's machinery sector lags behind the international market in terms of production and quality.
- Imports of machinery have grown in the past years and stood at PKR~1,925bln in FY22 (PKR~1,617bln in FY21) with a ~19% YoY growth. However, on a QoQ basis, the imports have declined as the 1QFY23 import value was recorded at PKR~495bln, compared to PKR~617bln in 1QFY22, a decline of ~19.8%. This decrease can be attributable to the recent restrictions imposed on imports of machinery.
- Local machinery production, including agricultural and industrial machinery, declined by ~2.24% to ~77,140 units in FY22 from ~78,912 produced in FY21. In the current fiscal year (1QFY23), machinery production figures recorded at ~21,379 units, an increase of ~18%, from same period last year (3QFY22: 17,987 units). Demand of machinery is majorly met through imported machinery as it is more advanced technology and has better quality.
- Moreover, the government has given various incentives, such as sales tax and custom duty exemptions on imported machinery for the Special Technology Zones and Export Processing Zones to encourage investments and new ventures.

Sector Overview	FY21	FY22	4MFY23
Import Value (PKR bln)	1,617	1,925	495
Import Value (USD mln)	10,145	10,290	2,226
Local Production (No. of Units)*	78,912	77,140	21,379
Industry Association	Engineering Components & Machinery Manufacturing Association of Pakistan (ECMMA)		

**The numbers for local production are for the latest available data-1QFY23*

Source: PBS

Production

- Although majority of machinery demand is met through imports, there is some local production of agricultural and industrial machinery.
- Agricultural machinery comprises chaff cutters, sugarcane machinery and wheat thrashers, while industrial machinery includes power looms, electric motors, switch gears and electric transformers.
- The agricultural machinery has seen a decline of ~21.2% YoY as the number of units produced in FY22 was recorded at ~11,450 units as against ~13,878 units in FY21. The production also decreased QoQ basis in 1QFY23 by ~13.8%.
- Industrial machinery production stood at ~65,690 units in FY22, an increase of ~1.8% YoY from FY21 during which production recorded was around ~65,034 units. The production also saw a rise of ~24.7% on a QoQ basis in 1QFY23.
- Overall, the number of units produced has been declining since FY20. Initially, this was because COVID-19 pandemic caused disruption to various industries. However, this reduction is expected to continue due to multiple macro and micro economic factors including availability of raw materials, limited project financing options, untrained workforce, and lack of R&D facilities.

Local Production (No. of Units)						
Category	**FY18**	**FY19**	**FY20**	**FY21**	**FY22**	**3MFY23**
Agricultural	15,800	13,609	16,911	13,878	11,450	2,360
Industrial	58,852	86,285	93,250	65,034	65,690	19,019
Total	**74,652**	**99,894**	**110,161**	**78,912**	**77,140**	**21,379**

Source: PBS

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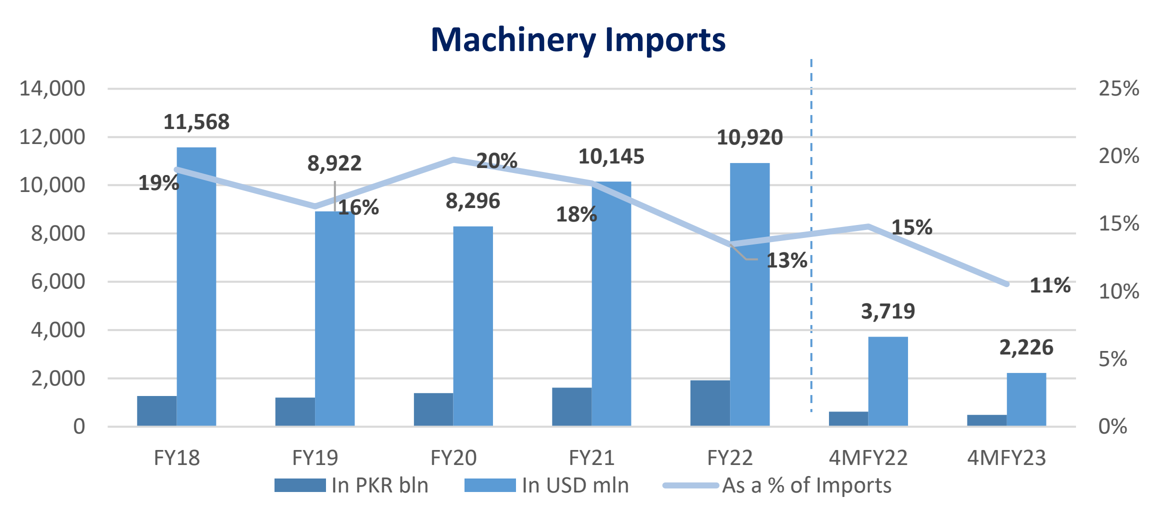
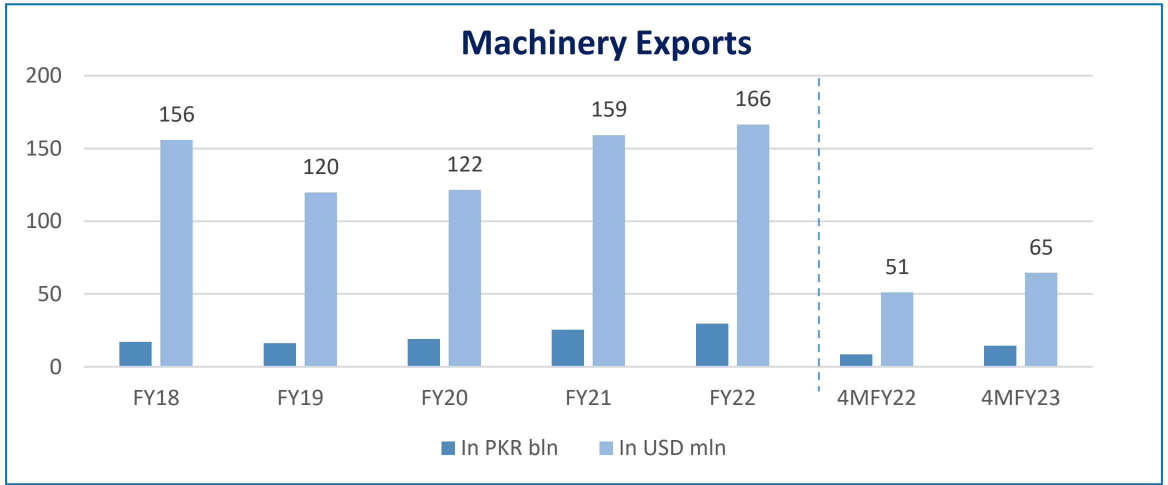
Imports & Exports

- Due to the absence of a significant local machinery manufacturing industry, most of Pakistan's industrial sectors rely on imported machinery.
- During FY22, import of machinery grew by ~19% YoY and stood at PKR~1,925bln (USD~11bln). The increase was due to the general increase in economic activity and growth of ~10.5% of the Large Scale Manufacturing (LSM) in the country. Moreover, SBP introduced Temporary Economic Refinance Facility (TERF) which offered discounted rates of borrowing for new plants, expansion and BMR activities in the aftermath of COVID-19.
- During 4MFY23, machinery imports amounted to PKR~495bln, decreasing by ~19.8% from the same period last year. This is due to the recent ban on imports of machinery imposed by the government in the wake of containing rising current account deficit.
- During FY22, machinery imports accounted for ~13% of the country's total import bill decreasing by ~5% from FY21 where it was ~18% of the total import bill. The share of machinery imports in the country's export bill has remained relatively stable yet nominal historically.
- In comparison with the large size of imports, Pakistan's machinery exports remain minimal. During FY22, exports stood at PKR~30bln, an increase of ~20% from PKR~25bln in FY21. The exports in 4MFY23 have shown an increase of ~75% but are still an insignificant part of the total exports.



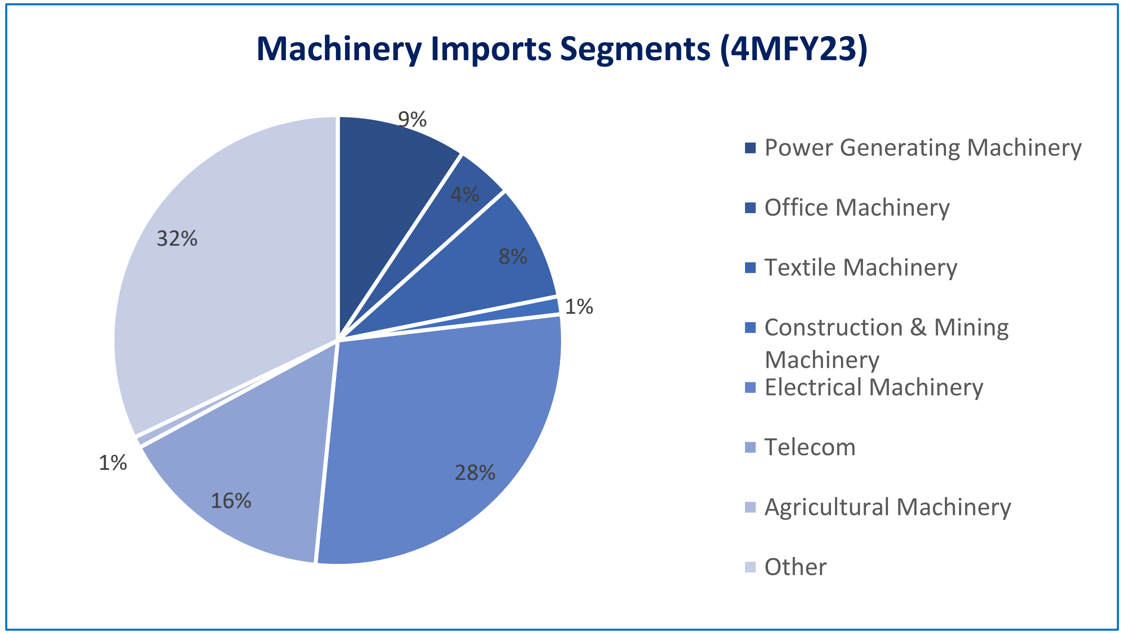


Source: PBS

Machinery | Local Industry

Import Segments

- The largest import segment is electrical machinery which accounts for ~28% of total machinery imports and stood at PKR~141bln in 4MFY23. In the same quarter last year, telecom machinery was the largest component of imports (~23%) which has now dropped by ~45% to PKR~77bln. Telecom imports declined due to a ban on the imports of mobile phones especially the CBUs which were a significant portion of telecom machinery imports.
- Another large segment is power generation machinery, which accounted for ~9% of total machinery imports in 4MFY23 and accounted for ~19% in the same period last year. This segment has had the highest drop of ~60% and stood at PKR~46bln.



Machinery Import Segments(PKR mln)	4MFY22	4MFY23
Power Generating Machinery	114,323	46,317
Office Machinery	30,138	19,981
Textile Machinery	49,464	41,901
Construction & Mining Machinery	8,395	6,369
Electrical Machinery	106,015	140,859
Telecom	140,866	76,981
Agricultural Machinery	6,672	3,946
Other	161,204	158,863
Machinery Group	617,077	495,217

Source: PBS

Pumps & Valves

Pumps

- A pump is a device which moves fluids by mechanical action, from one place to the other. It is a hydraulic device that lifts fluids from low to high levels, and moves fluids from low to high-pressure areas. The pump transfers fluid by converting the fluid's mechanical energy into pressure energy (hydraulic energy). It is, essentially, the earliest form of machine, dating back to ancient Egypt.
- Centrifugal pumps are the most commonly used pumps. These pumps are mostly used for pumping water, solvents, organics, oils, acids, bases and any 'thin' liquids in both industrial, agricultural and domestic applications.

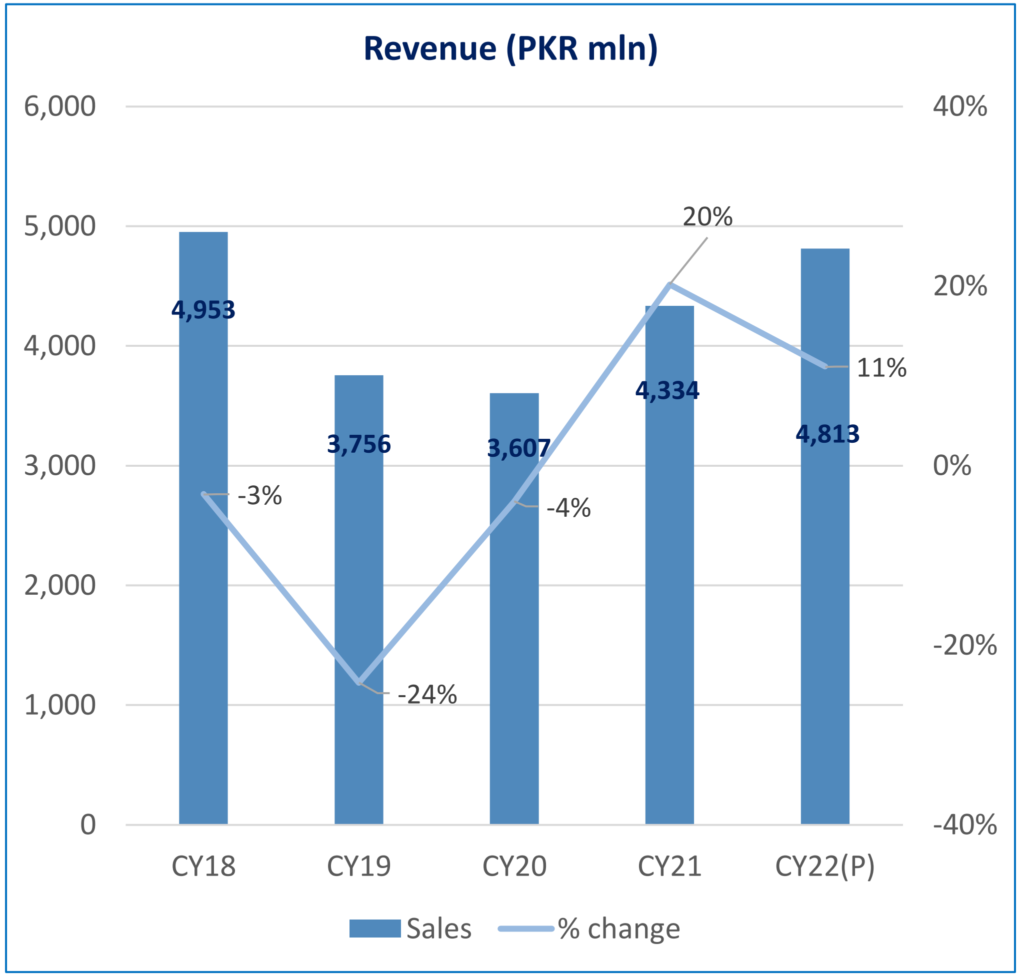
Valves

- Valves are mechanical devices that control the flow and pressure within a system or process. They are essential components of a piping system that transfer liquids, gases, vapours, slurries etc.
- Different types of valves are available, for example, gate, globe, plug, ball, butterfly, check, diaphragm, pinch, pressure relief, control valves etc. Each of these types has a number of models, each with different features and functional capabilities.

Source: Economic Survey, Planning Commission, Market Estimates

Pumps & Valves

- The estimated market size of pumps and valves segment was PKR~10.8bln during CY21, with an increase of ~20% in market size from PKR~9bln in CY20, due largely to economic recovery from the pandemic which caused boosted economic activities. Estimated market size of the segment for CY22 is PKR~12bln an increase of ~11%.
- KSB Pumps posted an increase of ~20% in revenue for CY21 after trend of negative growth rate averaging ~10.3% for three consecutive periods and then finally the growth rate rose to ~21% in CY21. It is expected that the company will experience another positive growth in revenue of ~11% in CY22 which is relatively lower than the previous year because of the economic slowdown which is resulting in a decline in LSM and other sectors that contribute towards the demand of pumps and valves.
- However, water that is a major market area saw moderate business activity due to slow development in the public sector. The pumps and valves manufacturing segment receives significant demand (~35%) from government departments such as Water and Sanitation Agency (WASA) and Karachi Water and Sewerage Board (KWSB) which can be increased by government spending on various projects.



CY22 numbers are prorated based on latest available quarterly accounts.

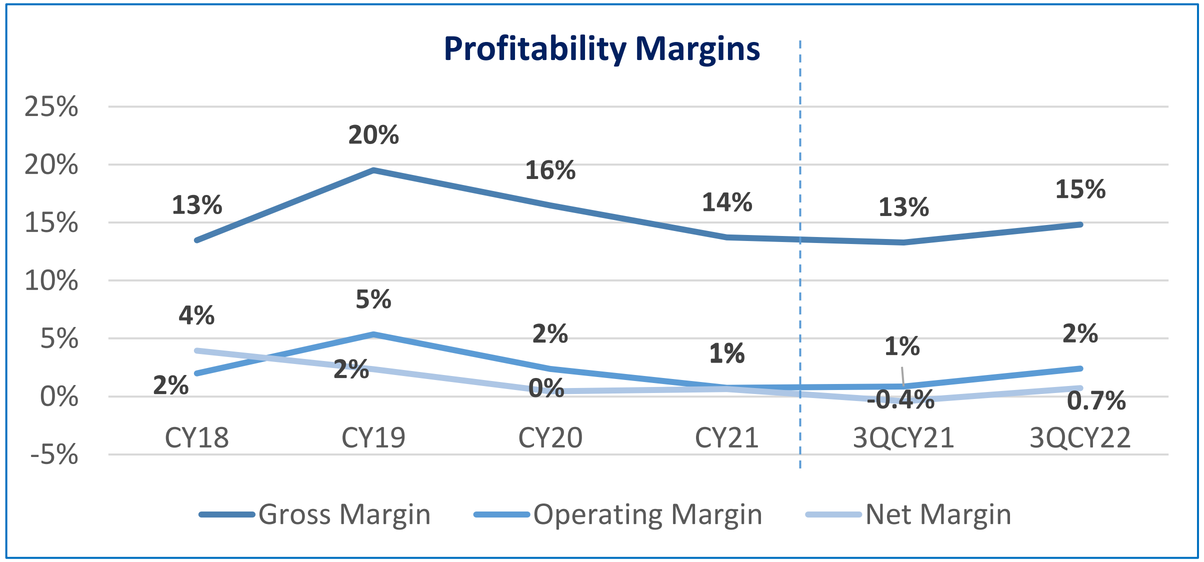
Source: Economic Survey, Planning Commission, Market Estimates

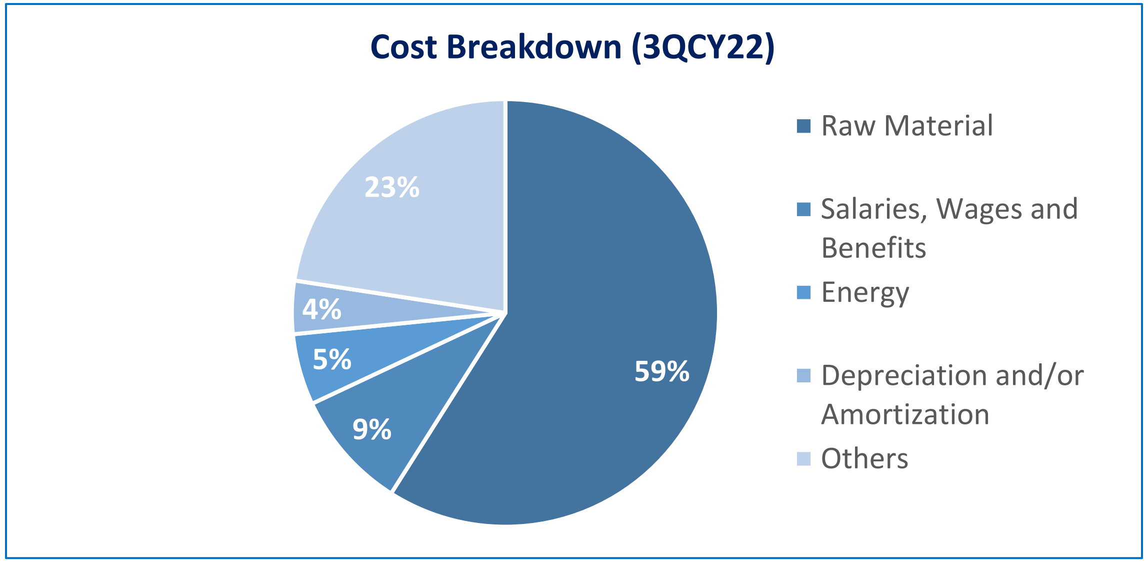
Business Risk

- **Lack of advanced technology:** While the international machinery industry makes continuous advances in terms of technology, along with rapid growth in areas such as Artificial Intelligence and Big Data Analytics, the local industry is significantly lagging behind. Most of the machines produced by local manufacturers are not consistent with the latest and most advanced technology adopted by the relatively more advanced economies.
- **Reliance on imports:** Since local industry does not cater the latest technological advances and a number of types of machinery are not produced in the country, various industries are reliant on imported machinery. The import of machinery constitutes a large portion of the country's import bill while the reliance on imports also makes importers more vulnerable to exchange rate risk.
- **Delay in receivables:** A significant portion of demand, particularly for the pumps and valves segment, is based on orders from government departments such as WASA and KWSB. While this provides a steady income stream for the manufacturers, it can also create issues with regards to working capital as often receipt of payments from government organizations can be delayed.
- **Sensitive to economic conditions:** Demand for new machinery is linked to general economic conditions. During periods of growth and in low interest rate environment new investments are likely to increase. However, during periods of economic uncertainty or contraction, new investments are likely to slow down and government spending would also decrease. Thus reducing demand for the machinery manufacturing sector.

Margins & Cost Structure

- Over the last four years, the sector's average gross margins have stood at ~16% while average net margins stood at ~2%. The sector has moderate level of gross margins. Gross margin fell from ~16% in CY20 to ~14% in CY21, operating margin fell from ~2% to ~1% and net margin slightly rose from ~0% to ~1%. The revenue crossed PKR~4bln in CY21 in value terms. There was an upward revision of prices as some of the burden of increased costs was passed on to customers. The cost of production cut down the profits significantly as it was ~86% of the revenue. The net margins slightly rose from ~0.5% in CY20 to ~0.6% in CY21.
- During 9MCY22, margins recovered slightly as gross margin rose to ~15% from ~13% in the same period last year as the cost of production has reduced to ~85% of the revenue as compared to ~87% in the same period last year. The net margin rose from ~-0.4% in 3QCY21 to ~0.7% in 3QCY22.
- The largest component within the sector's direct costs comprises raw materials, contributing ~59%. These raw materials largely consist of various types of metals such as iron, steel and copper depending upon the product specifications and requirements.



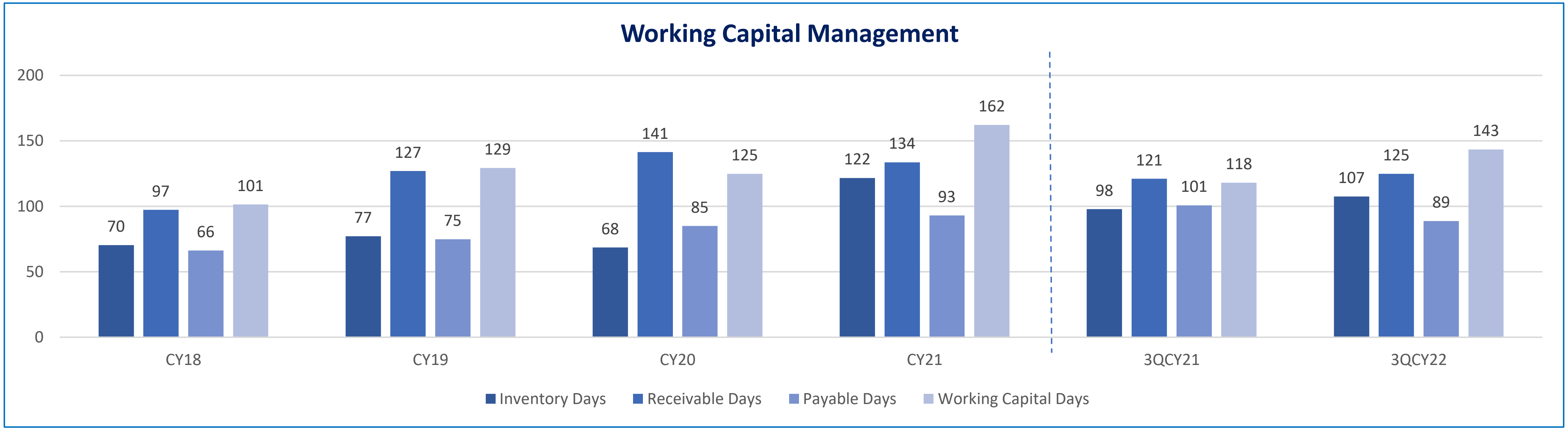


Note: Margins and cost break up are reflective of ~1 listed/rated player belonging to pumps and valves segment

Source: PSX, PACRA Database

Financial Risk – Working Capital

- Over the last four years (CY18-CY22), the sector's working capital cycle has averaged ~129 days. Although in recent periods there has been an increasing trend in average net working capital days due to slower receivable conversion rate.
- The sector's receivable days are relatively high as a significant portion of sales are to government departments and projects from which receipts can be delayed. Hence, the company has to depend on bank borrowings which lead to exposure to interest rates movements. Significant portion of the borrowings is the short-term borrowing which accounted for ~86% of the total borrowings in CY21 and ~97% in 3QCY22. There was an increase in incurrence of short-term borrowings of the company due to increase in raw material prices and working capital requirements.
- The working capital cycle for 9MCY22 has worsened by ~25 days YoY to ~143 days, mainly on account of increased inventory and receivable days.

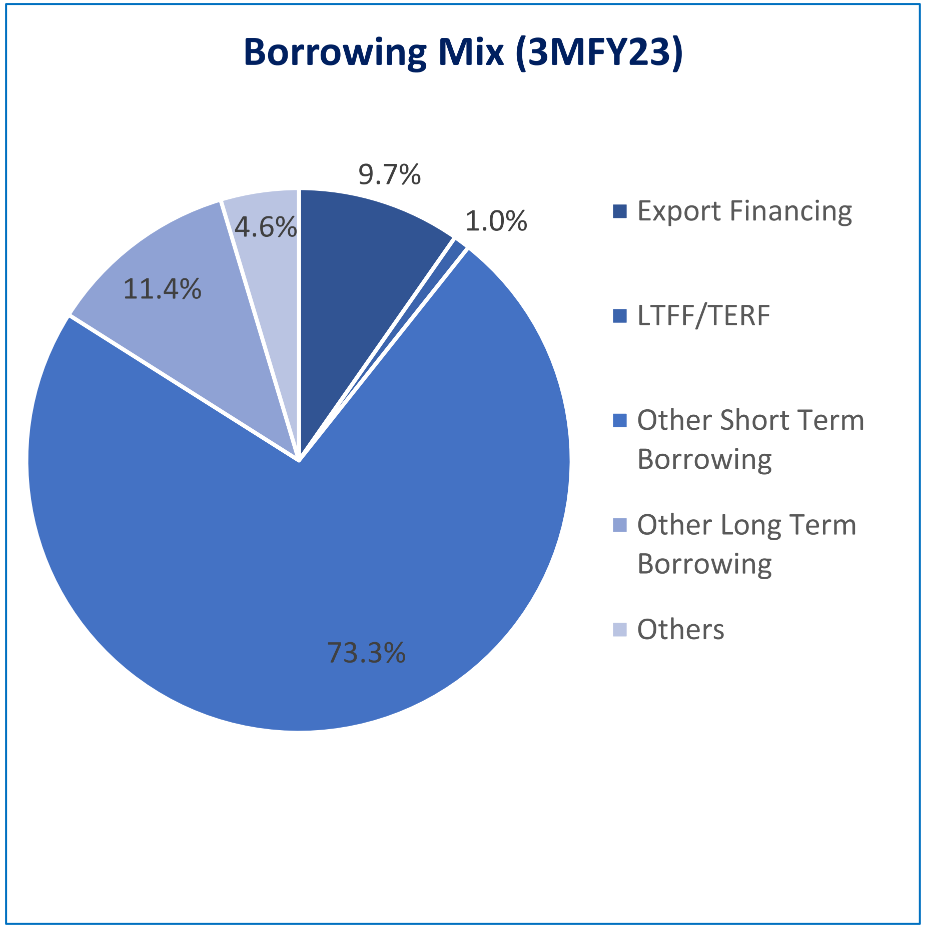


Note: Working capital cycle is reflective of ~1 listed/ rated player catering the pumps and valves segment

Source: PSX, PACRA Database

Financial Risk – Borrowing Mix

- Total borrowings of the machinery sector, as at 3MFY23, stood at PKR~18,936mln as compared to PKR~13,558mln at 3MFY22 an increase of ~40%.
- The largest share is taken by other short-term borrowing at normal rates which accounts for ~73% and stands at PKR~13,883mln in 3MFY23 which was previously PKR~10,313 in 3MFY22.
- In addition, long-term borrowing at normal rates in 3MFY23 contributes ~11% to total borrowing mix and stands at PKR~2,155mln(PKR~1593 in 3MFY22).
- Discounted borrowings for the sector amounted to ~11% of total borrowings in 3MFY23 and consist mainly of Export Finance Scheme (EFS), Long Term Financing Facility (LTFF) and Temporary Economic Refinance Facility (TERF). Pakistan majorly exports agricultural machinery and textile machinery , albeit their numbers are low.
- For 3MFY21, EFS borrowing was PKR~1839mln, while it recorded at PKR~967 in 3MFY22. Similarly, LTFF/ TERF borrowing for 3MFY21 was PKR~184mln, while being recorded at PKR~296 in 3MFY22.
- The rates of EFS and LTFF have now been linked to SBP Policy Rate by keeping them 5% below policy rate (IH&SMEFD Circular no.11 of July 2022). Hence, mark-up for EFS has increased from 7.5% to 10% and for LTFF from 7% to 10%.
- The average leveraging for the sector (pumps and valves) stands at ~41% (moderately leveraged). The leverage in CY21 increased to ~48% from ~37% in CY20.



Note: Leverage figure is reflective of ~1 listed/rated players belonging to pumps and valves segment

Source: SBP, PACRA Database

Regulatory Framework

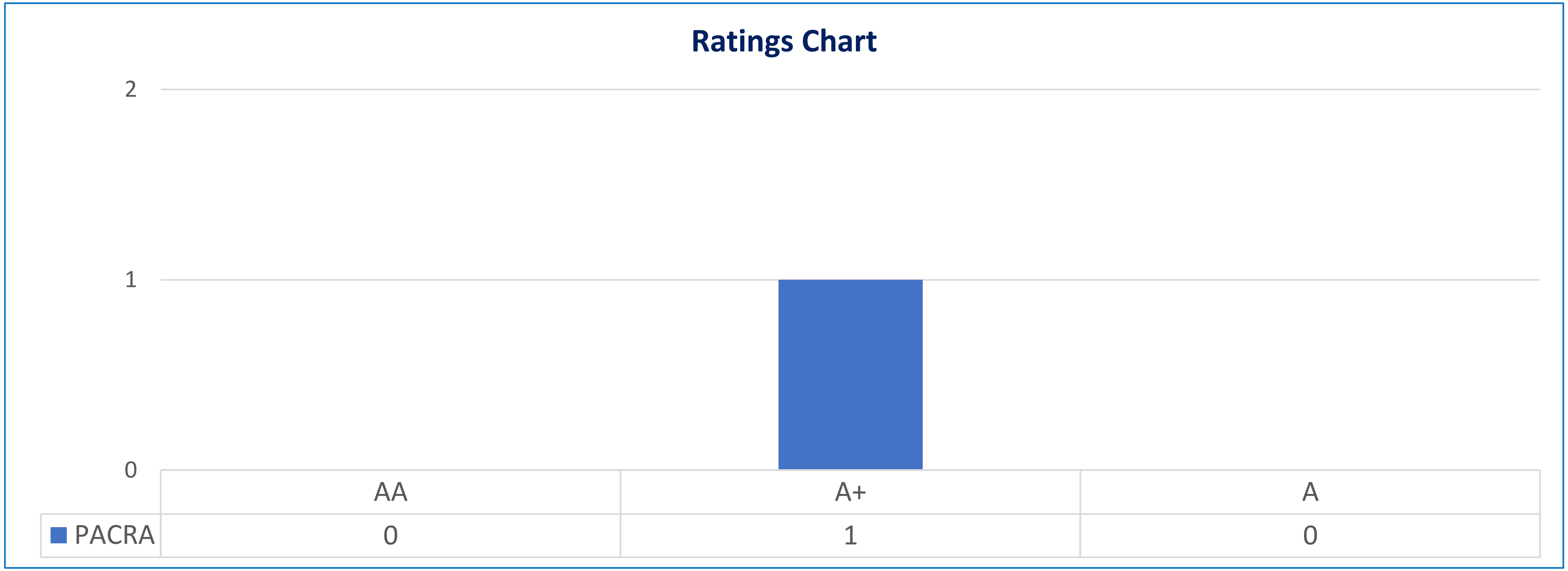
- With respect to Income Tax, the machinery manufacturing sector falls under the Normal Tax Regime (NTR). Further, Minimum Tax @ 1.5% of turnover is also applicable, if tax liability under NTR is lower than minimum tax. However, the additional tax paid under minimum tax is adjustable against future tax liabilities for the next five years.
- While sales tax of 17% is generally applicable on the sale of machinery there are several exemptions. For example, sales tax of 7% is applicable on agricultural machinery. Moreover, plant and machinery, both locally manufactured and imported, intended for use in Export Processing Zones and Special Technology Zones are exempt from sales tax payment, subject to certain conditions.
- In response to the COVID-19 pandemic, SBP introduced several measures intended to provide relief to the industries. These measures included loan extension and refinancing, loan for payment of employee salaries and wages and facilitation of new investment, expansion and BMR activities through the Temporary Economic Refinance Facility (TERF). There are other facilities that the can also be availed like Long term Financing Facility(LTFF) and Export Financing Scheme (EFS) .
- The custom duty structure for the import of machinery is greatly varied, with different rates applicable to different types of machinery. Agricultural machinery is exempt from custom duty. Moreover, machinery imported for use in Special Technology Zones is also exempt from payment of custom duties for up to 10 years.
- The industry is represented by the Engineering Components & Machinery Manufacturing Association of Pakistan (ECMMA) which has approximately 194 members.

Source: SBP, FBR

Machinery | Local Industry

Ratings Chart

- PACRA rates 1 machinery player in the machinery sector
- The client has a long term rating of A+ and short term rating of A1.



Source: PACRA Database

Machinery | Local Industry

SWOT Analysis

- Certain segments benefit from demand from government departments and projects
- Reduced sales tax and custom duty rates for various sectors in order to encourage investment

- Lack of advanced technology
- Reliance on imports
- Hardly any focus on research and development
- Government clients often have delays in payments
- Obsolescence of machinery

- Disruptions in supply chain after COVID-19 pandemic
- Significant competition from imports
- Increased mark up rates of the discounted borrowings in the form of LTFF/EFS

- Increase in budgeted PSDP is likely to increase demand
- SEZs/STZs provide incentives for new investments

Outlook: Stable

- Just as the economy was moving towards the recovery track in the first half of CY22, external pressures started coming in including higher inflation, slower GDP growth and fluctuations in exchange rate. The projected GDP growth rate for FY23 is ~2% according to the State Bank of Pakistan. This slowdown in economic growth, coupled with political instability, will likely impact the machinery sector as well.

- Most of the demand for machinery sector is met through imports, hence the sector is prone to exchange rate volatility. Imports of machinery account for ~13% of the total import bill. Even though the import of machinery has seen an increase of ~19% YoY in FY22, it declined by ~20% in 4MF23 due to ban on imports. In many cases, imports are allowed at 50% of last years' monthly average. Resultantly, the largest decline of ~45% was witnessed in imports of telecom machinery.

- Regarding the pumps and valves segment, revenues increased by ~20% in CY21 reaching above PKR 4bln. The business activity in CY21 also increased as the order intake from several sectors including general industry, petrochemical and building services rose. Moreover, there was an upward revision of prices and a slight reduction in the cost of production. With similar trends continuing, the first three quarters of CY22 have also seen a rise of ~18% in the turnover but it is expected that demand will decline in the coming periods due to the economic slowdown which will effect all the sectors that use pumps and valves.

- Short-term borrowings have been a significant portion of the machinery sector as a whole accounting for ~73% of the total borrowings and also formed a significant portion of KSB's borrowing mix due to increase in raw material prices and working capital needs which are relatively high for the company as receipts from the government sector are usually delayed.

- Moreover, the government has introduced incentives for various sectors such as construction and technology sectors as well as export-oriented sectors which are likely to boost investments, thereby increasing demand for machinery. Despite GoP's efforts to boost economic activity in various sectors and increase import substitution, the country's dependence on imported machinery is expected to remain high in the medium to long-term due to lack of technological development, financial resources and research and development.

Source: PBS, SBP

- State Bank of Pakistan (SBP)
- Pakistan Bureau of Statistics (PBS)
- PACRA Database
- Pakistan Economic Survey
- Federal Board of Revenue (FBR)
- Pakistan Stock Exchange (PSX)
- Planning Commission
- Business Research Company

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