Glass

Sector Study

November 2021

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What is Glass?

- Glass is a silica-based, non-crystalline amorphous solid material that has broad practical and technological properties as well as a longstanding function in decorative applications such as windows, tableware, and household appliances. Glass transmits, reflects, and refracts light, all qualities that can be enhanced through cutting and polishing for use in optical lenses, prisms, fine glassware, and optical fibres for high-speed data transmission that uses light.
- **Raw Materials:** The production of glass requires materials such as Silica Sand (Silicon Dioxide), Limestone (calcium carbonate), Soda Ash (sodium carbonate) and waste glass (obtained through recycling of used glass). Soda ash reduces the melting point of sand and thus reduces energy consumption. Meanwhile, limestone acts as a stabilizer which prevents the loss of chemical durability that occurs due to the use of soda ash. Soda-lime glass accounts for ~90% of all manufactured glass.
- **Production Process:** The manufacturing of glass is a relatively straightforward process. The raw materials are combined and heated in a furnace at ~1,500 Celsius (2,732 F). Once the raw materials reach a liquid state, they are either poured on a flat surface to make sheets of glass or poured into molds to make bottles and other containers. Some types of glass containers are also made through the process of 'blowing', where a lump of molten glass is wrapped around an open pipe. Air is blown through the pipe while it is rotated in order to give the glass its shape.
- Different types of glass can have slightly different processes. For example, colored glass is made by adding various chemicals, oven-proof glass is made by adding boron oxide and tempered glass is made by rapidly cooling the molten glass in order to increase its strength.
- Some of the key benefits of soda-lime glass include its affordability, chemical stability, relative strength, and extreme malleable properties. Additionally, it is possible to remelt and resoften soda-lime glass numerous times, making it an ideal material for recycling.

Source: Glass Alliance Europe, Brittanica

Glass | Local Industry

Overview

- Pakistan's glass manufacturing sector comprises of ~5-6 large players and a number of smaller players, competing across various product segments such as float glass, containers and tableware. The sector caters both direct consumers' demand as well as demand emanating from various industries such as construction, pharmaceuticals and food & beverages.
- The production of glass plates and sheets has been on a declining trend since FY19 and stood at ~12mln Sq M in FY21 as compared to ~17mln Sq M in FY20.
- A significant share of the local demand is also met through imports which stood at USD~108mln in FY21, as compared to USD~81mln in FY20. The largest import segments are glass fibres (~29%) and glass tableware (~18%).
- Meanwhile, exports of glass products has been steadily increasing and stood at USD~27mln in FY21 as compared to USD~20mln in FY20. The largest export segment is float glass (~44%).

Sector Overview	FY19	FY20	FY21
No of Players	~5-6 Large Players		
Production of Glass Plates and Sheets (000 Sq M)	19,876	17,146	12,424
Glass Imports (USD 000)	97,706	81,259	108,311
Glass Exports (USD 000)	17,391	20,230	27,203
Product Segments	Float Glass, Tableware & Containers		
Industry Association	Pakistan Glass Manufacturers Association		

Source: PBS, SBP, PACRA Database

Glass | Local Industry

Market Segments and Capacities

- There are three broad categories or segments of glass manufacturers currently operating within Pakistan:

1. **Float Glass:** This type of glass is largely used in construction for windows with different varieties that include clear, tinted and mirrored float glass. There are 3 main players in this segment (Tariq Glass, Ghani Glass and Ghani Value Glass) with an estimated production capacity of ~1600 Tons per day.

2. **Tableware:** This includes products such as dinner sets, cups and mugs etc. Tariq Glass is the largest players in this segment (~60% of total production capacity) while a number of other players are also operating within this segment such as Balochistan Glass and Gunj Glass. The estimated total production capacity of this segment stands at ~570 Tons per day.

3. **Containers:** This segment can be further divided into:
    i. Food & Beverage Containers: This includes products such as Pyrex containers and jars for food as well as glass bottles used for carbonated beverages. The main players in this segment are Ghani Glass, Murree Brewery and Tariq Glass with an estimated production capacity of ~435 Tons per day.
    ii. Pharmaceutical Containers: This segment includes medicine bottles and containers of different specifications as well as vials, ampoules and tubes (which are converted into ampoules). Ghani Global is the only local manufacturer of tubes, with the remaining demand being met through imports, and occupies a market share of ~54% in this subsegment. In the ampoules sub-segment, there is significant competition with Ghani Global accounting for ~16% of ampoules supply. Other large manufacturers of ampoules include pharmaceutical companies meeting their own requirements such as Sami, Bosch and Indus as well as commercial producers such as Friends Glass and Techno Glass. Ghani's total manufacturing capacity stands at ~24 Tons per day. Meanwhile, Ghani Glass holds significant market share in medicine bottles sub-segment with a production capacity of ~315 Tons per day.

Source: PACRA Database

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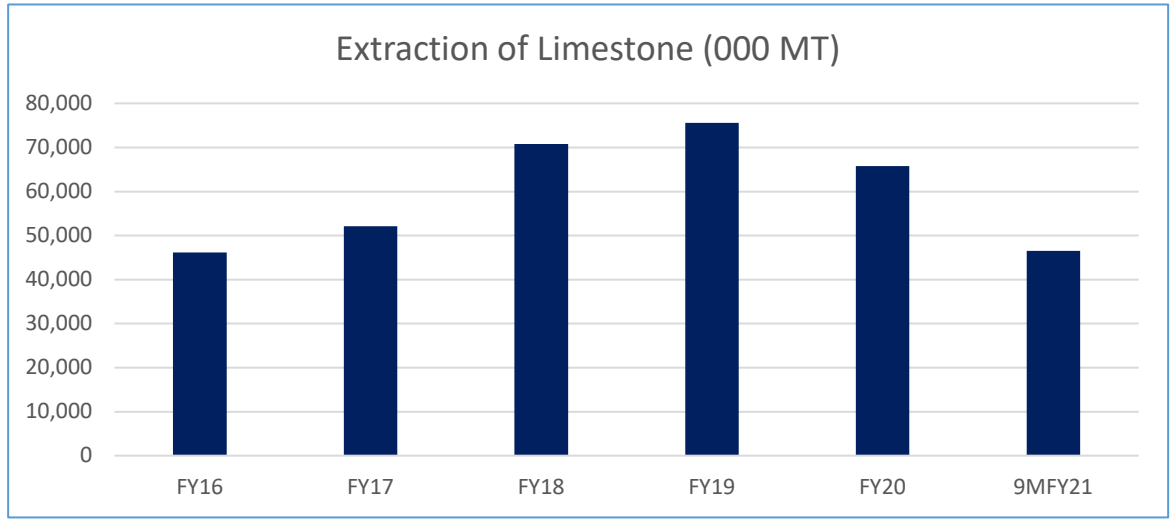
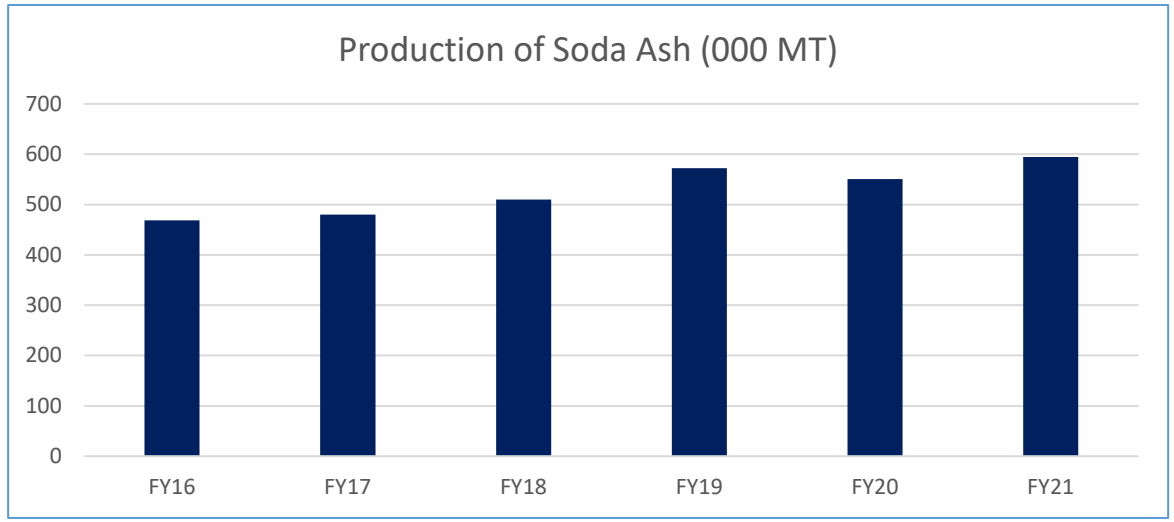
Raw Materials

- While the main raw material in the production of raw material is silica sand, most types of glass also require limestone and soda ash.
- Both these items are abundantly available in Pakistan due to the presence of a number of limestone mines as well as local production of soda ash.
- The extraction of limestone, which is a also a key raw material in the cement industry, showed an increasing trend up till FY19. There was a decline in FY20 likely due to the COVID-19 pandemic which caused disruptions to numerous operational and industrial activities. During FY20, the total limestone extracted amounted to ~65.8mln MT, a decline of ~13% from extraction of ~75.6mln MT in FY19. During 9MFY21, the extraction of limestone stood at ~46.4mln MT.
- Production of soda ash has steadily increased in recent years, with the exception of FY20 which was impacted by COVID-19. During FY21, the local production of soda ash stood at ~594,000 MT, an increase of ~8% as compared to the previous year.



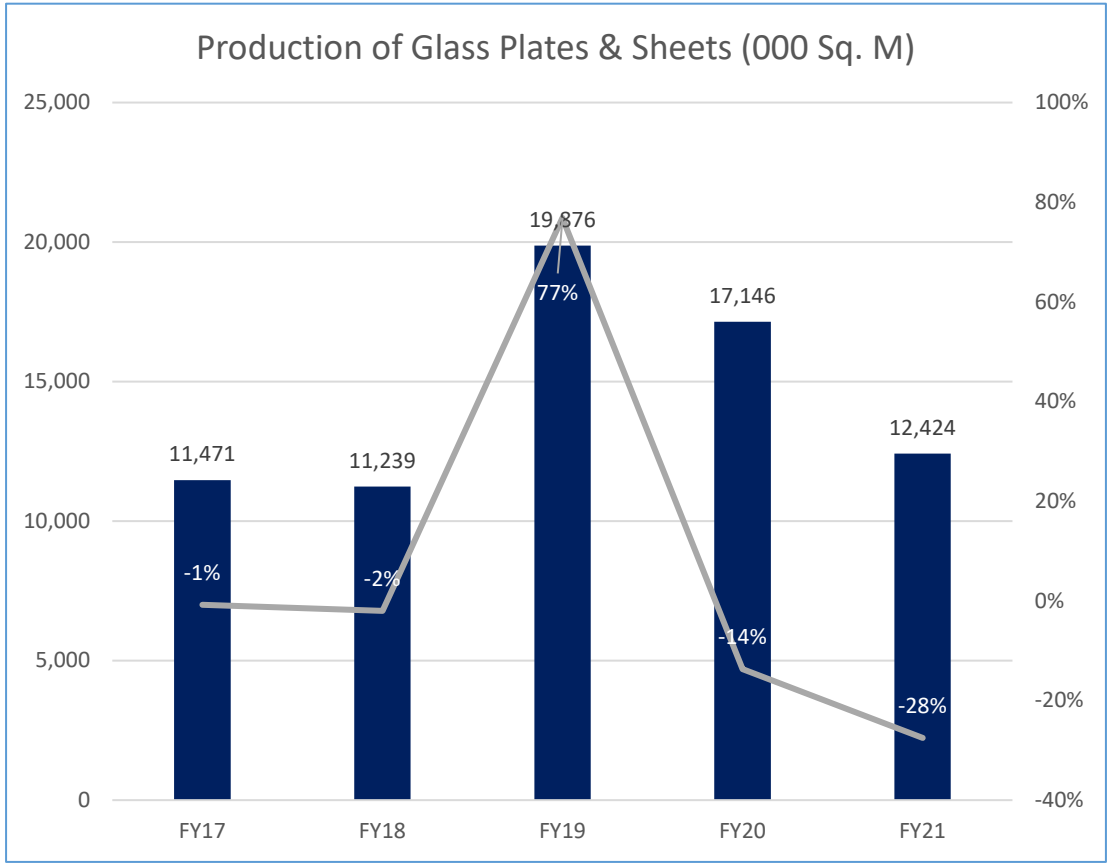


Source: PBS, Pakistan Economic Survey

Glass | Local Industry

Glass Plates & Sheets Production

- Local production of glass plates and sheets has exhibited a declining trend in last two years. During FY19, production had increased significantly, ~77%, and stood at ~20mln Sq M. This increase was likely due to the capacity expansion by one of the largest players in the glass sector.
- In the following two years the production declined with a drop of ~14% in FY20 and ~28% in FY21. The decline in FY20 was likely due to the COVID-19 pandemic which restricted operations across numerous industries.
- However, the decline during FY21 is more concerning as it occurred despite increase in construction activities during the period which as major driver of demand. The likely reason for decline in production during FY21 is that some players underwent maintenance and repair activities during the year as well as continued impact of COVID-19 restrictions at the start of the period.



Source: PBS

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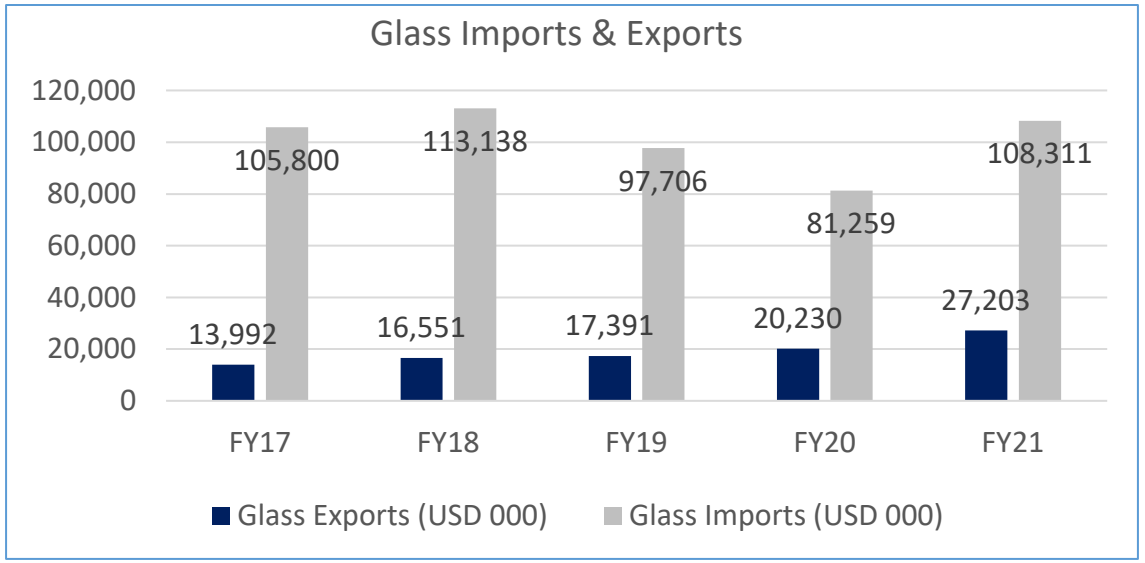
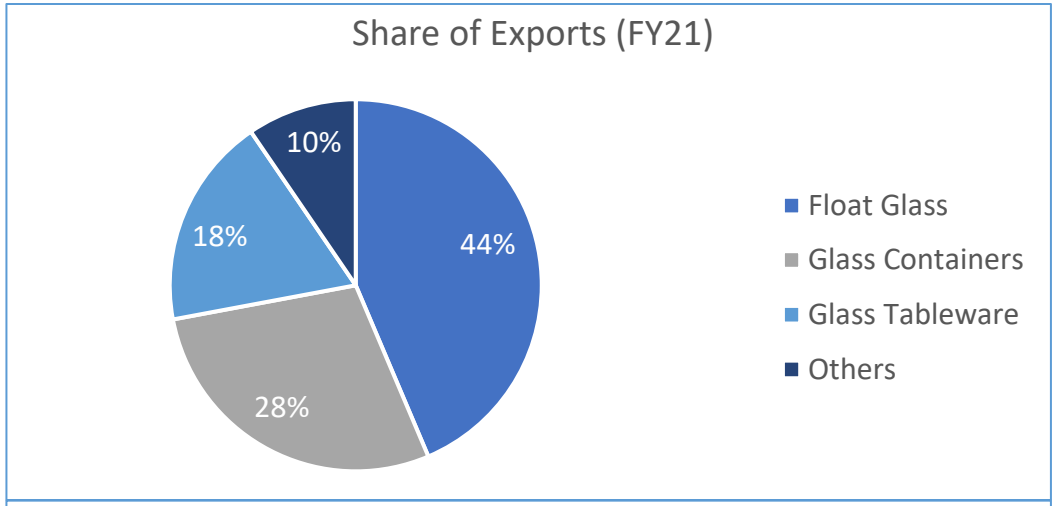
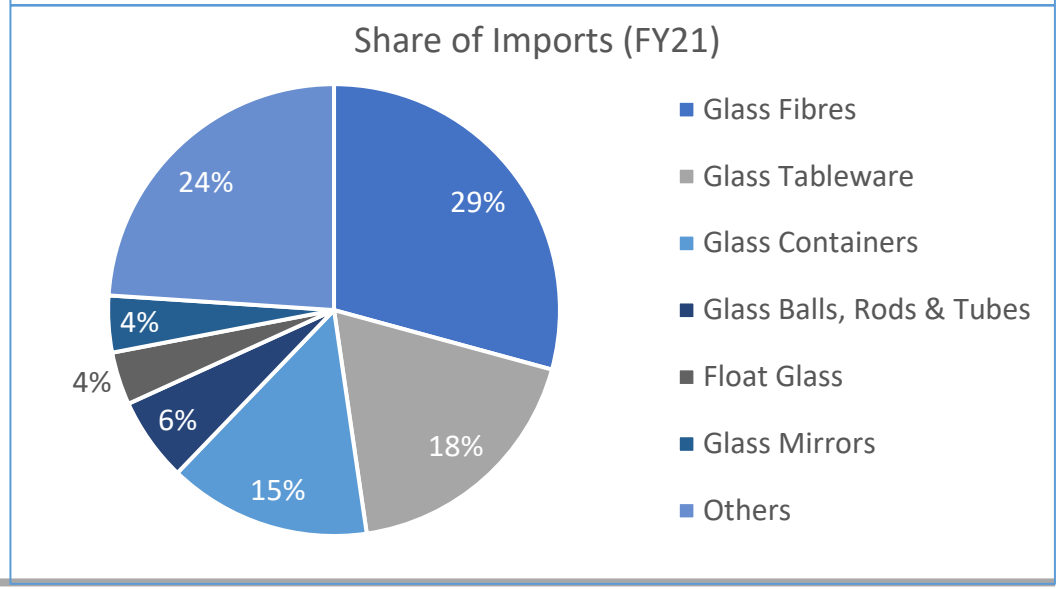
Glass Imports & Exports

- The import of glass products has largely moved in contrast to local production, increasing in years where local production has declined and falling when local production rises. Meanwhile, glass exports have exhibited a consistent growth trend in recent years.
- Float glass makes the largest contribution to exports (~44%) followed by glass containers (~28%) and glass tableware (~18%).
- Meanwhile, for imports the largest segment is glass fibres (~29%) followed by glass tableware (~18%), containers (~15%) and float glass (~6%).







Source: SBP

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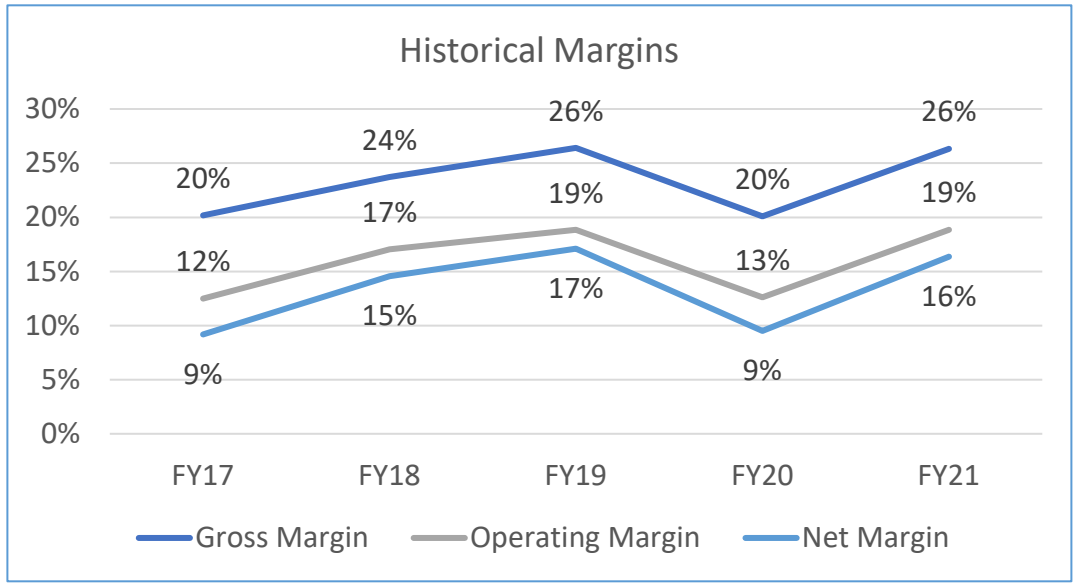
Business Risk

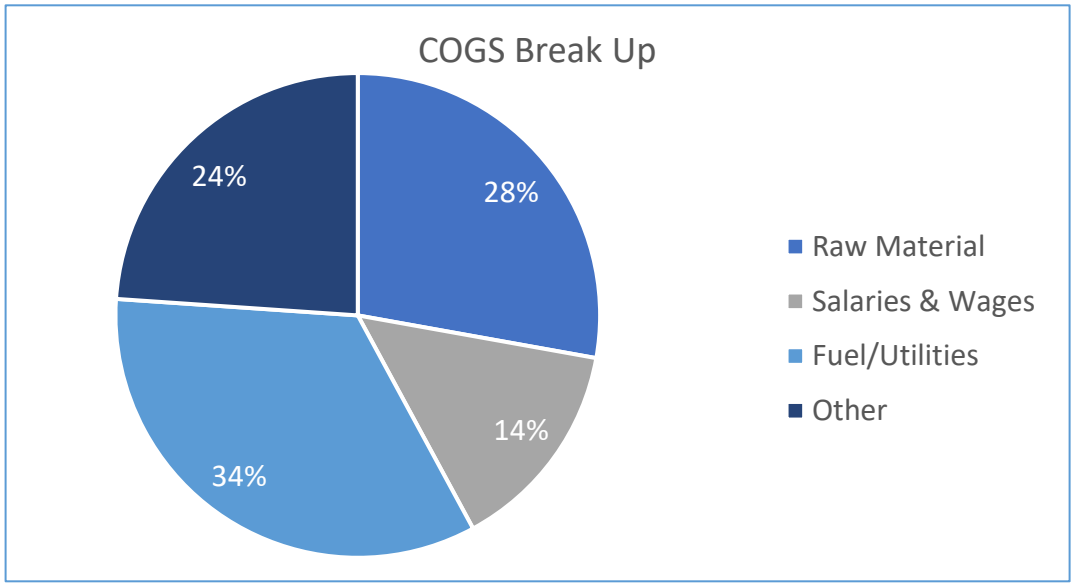
- **Demand Drivers:** The glass sector derives its demand from a number of industries including construction, food & beverages and the pharmaceutical industry. While the food & beverage as well as pharmaceutical industries have relatively inelastic demands they account for smaller segments within the glass sector.
- The largest segment is float glass which derives its demand from the construction industry. Demand from the construction industry can fluctuate depending on overall economic conditions. In addition, the purchasing power of end consumers is also reduced during periods of economic downturn which can reduce demand for the some segments such as glass tableware.
- **Significant Energy Consumption:** The production process for manufacturing of glass and glass products consumes a large amount of energy in order to power the furnaces at required temperatures. Fuel and energy account for ~34% of direct costs incurred during the manufacturing process. The rising international oil prices in recent period would create pressure on the sector's margins. In addition, the country often faces shortage of fuel, particularly during winter months which can halt or slow down production activities.
- **Competition:** The level of competition varies across different product segments with certain segments such as containers having a significant level of competition. In addition, a significant level of demand is also being catered to by the import segment which increases the competition level.

Glass | Local Industry

Margins & Cost Structure

- Over the last five years, the sector's average gross margins have stood at ~23% while average net margins have stood at ~13%. The sector's margins have exhibited gradual increase during the last five years, with the exception of FY20 which was hampered by the COVID-19 pandemic.
- During FY21, the margins improved from the previous year with gross margins standing at ~26% as compared to ~20% in FY20. The increase came on the back of higher demand, including from the construction industry which received significant incentives from the government which boosted construction activity in the country. Meanwhile, net margins improved to~16% in FY21 as compared to ~9% in FY20 largely due to lower policy rate which reduced the sector's finance costs.
- Energy costs are the most significant component of the sector's direct costs, accounting for ~34% of total manufacturing costs. The increase in prices does not bode well for the sector as it is likely to put pressure on margins, going forward.





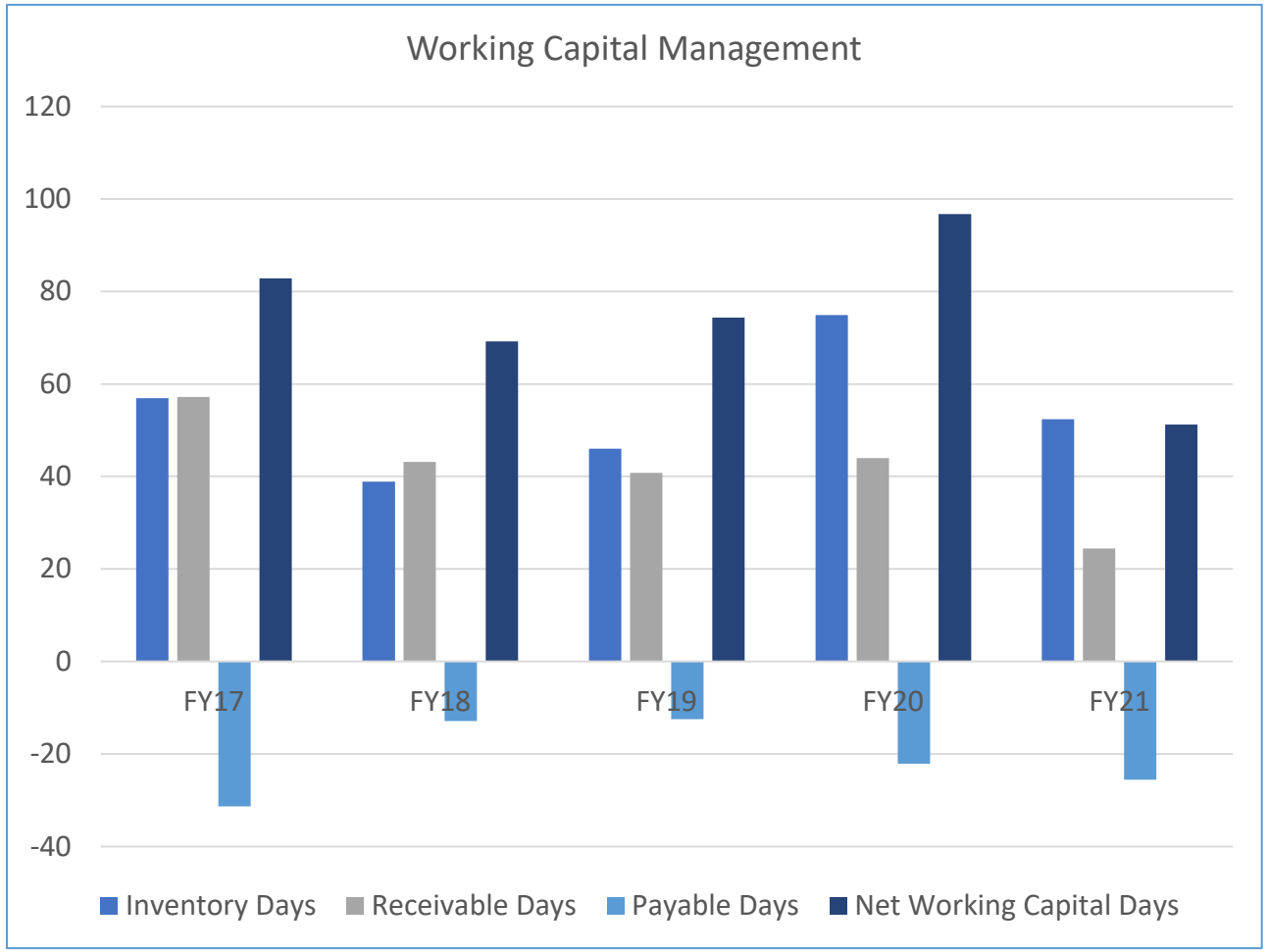
Note: Margins & Cost Structure are reflective of ~3 listed players

Source: PSX, PACRA Database

Glass | Local Industry

Financial Risk | Working Capital Management

- The sector's working capital is largely a function of inventory and trade receivables. Inventory largely consists of raw material and finished goods with work-in-process making a small contribution.
- The sector's average working capital cycle ranges from ~75-80 days.
- The working capital cycle experienced an increase in FY20 due to the pandemic which halted production and caused inventory to pile up.
- During FY21, the net working capital days reduced to 51 days as the economic activity resumed in the aftermath of the pandemic. In addition, the lower production levels by certain players for maintenance purposes reduced the overall working capital cycle.



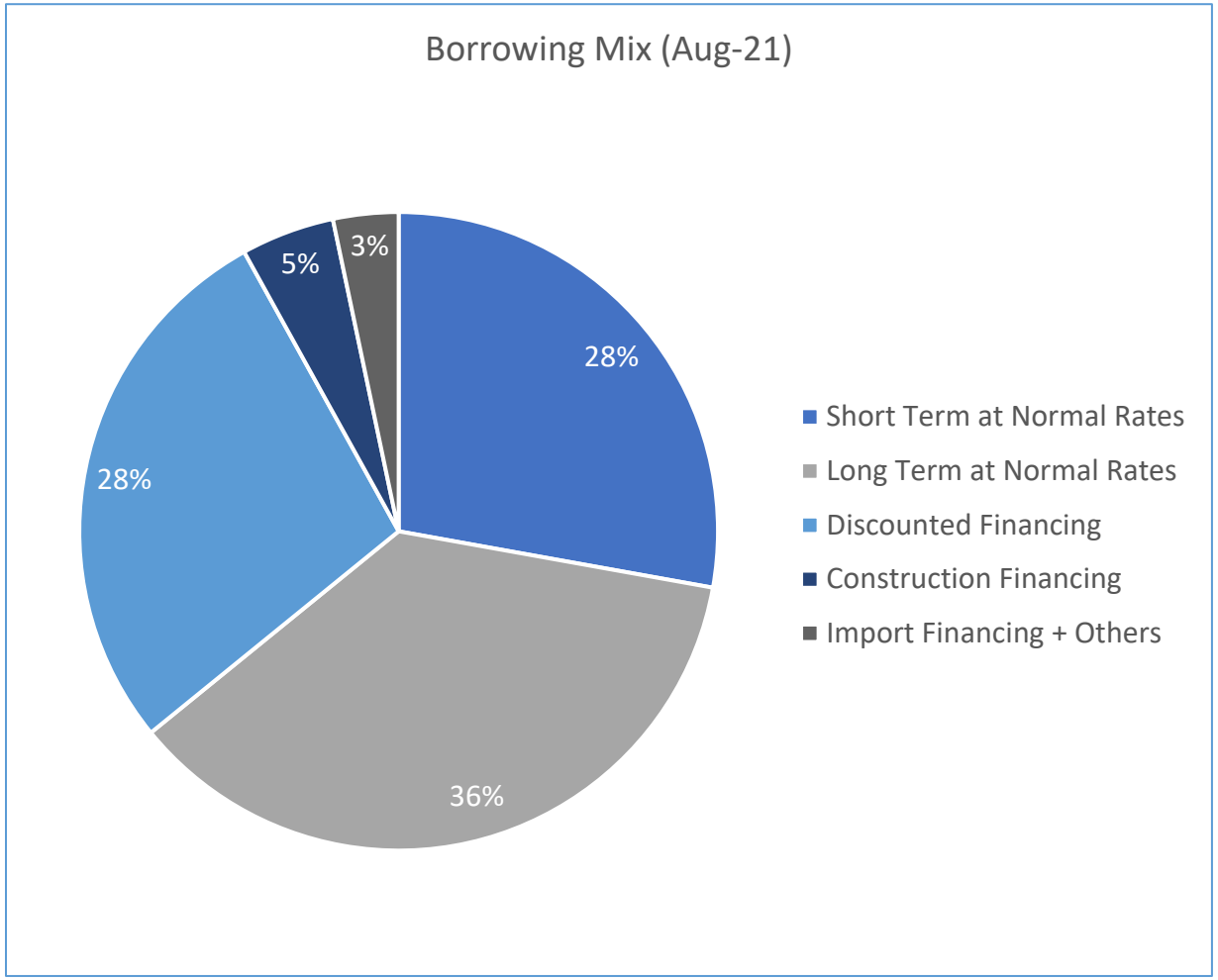
Note: Working capital figures are reflective of ~3 listed players

Source: PSX, PACRA Database

Glass | Local Industry

Financial Risk | Borrowing Mix

- The glass sector's borrowing stood at PKR~8,433mln as at End-Aug-21 as compared to borrowing of PKR~10,870mln as at End-Aug-20.
- The largest component within the sector's borrowing mix was long term borrowing at normal rates which stood at PKR~3,062mln in Aug-21 and accounted for ~36% of the total borrowing.
- In addition, short term borrowing at normal rates and discounted borrowing, which largely comprises of Long Term Finance Facility (LTFF) and Temporary Economic Refinance Facility (TERF), both accounted for ~28% of the total borrowing.
- The sector's average leveraging is relatively low and stands at ~30%, indicating a low level of financial risk.



Note: Leveraging figure is reflective of ~3 listed players

Source: SBP

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SWOT Analysis

- Diverse product segments that derive demand from multiple industries
- Ample local production capacity

- Some segments have low level of competition which reduces incentive to increase efficiency
- Regular maintenance of fixed assets (furnaces) reduces production levels

- Slowdown in other industries such as construction, pharmaceuticals or reduced consumer spending power can hamper demand.
- Continued uncertainty of the COVID-19 pandemic

- The incentives provided to the construction industry are likely to create demand for float glass.
- Opportunity for import substitution

Glass | Outlook & Future Prospects

Outlook: Stable

- The domestic economy has started to gradually recover from the impact of the COVID-19 pandemic which slowed down industrial activities and brought various businesses to a halt. Despite steady increase in the number of vaccinations, the pandemic continues to be a source of uncertainty.
- The economic recovery is exhibited by the GDP growth of ~3.9% during FY21 (based on provisional figures). Among the contributors of GDP growth is industrial activity which has picked up in various sectors with the Large Scale Manufacturing Industries output increasing ~15% YoY during FY21. Food & beverages and pharmaceuticals were among the key drivers and hold respective weights of ~12% and ~4% in the overall LSM Index.
- The construction industry is a major source of demand for the glass sector and increase in budgeted PSDP as well as the incentive package announced by the government for the construction industry are expected to continue to bode well for demand, thus also providing a boost to the glass sector.
- The rising energy costs are a major concern to the glass sector as its manufacturing process is energy intensive. The rising oil prices in the international markets as will as rising prices of electricity and gas locally are likely to reduce the sector's margins, going forward.
- The decision taken by the State Bank of Pakistan (SBP) to lower the policy rate by 625bps to 7% during the last quarter of FY20 lowered the sector's finance costs. The policy rate has recently been increased to 7.25%, however, any further increases in policy rate are expected to be gradual.
- The inflation levels continue to be on a rising trend with CPI inflation clocking in at ~9.2% during Oct-21 as compared to ~9% in Sep-21 and ~8.4% in the preceding two month. Continued inflation would reduce the purchasing power of end consumers and may hamper demand for segments such as glass tableware.

Source: SBP, PBS

Glass | Bibliography

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- Glass Alliance Europe (https://www.glassallianceeurope.eu/en/what-is-glass#:~:text=Glass%20is%20made%20from%20natural,temperature%20it%20behaves%20like%20solids.)

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