



# Polyester

## Sector Study

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## Introduction

- Polyester is a generalized term for any fabric or textile, which is made using polyester yarns or fibers. It is a shortened name for a synthetic, man-made polymer, which, as a specific material, is most commonly referred to as a type called polyethylene terephthalate (PET). It is made by mixing ethylene glycol and terephthalic acid.
- Polyester is made through either naturally occurring chemicals (cutin of plant cuticles) or synthetic chemicals (polybutyrate). Natural polyesters and a few synthetic ones are biodegradable but most synthetic polyesters are not.
- Polyesters are extensively used in apparel and home furnishing, from shirts and pants to bedsheets, blankets, pillows, computer mouse mats and upholstered furniture. Moreover, Industrial polyester fibers and yarn are used in a wide variety of sectors for multi-purposes such as car tyre reinforcements, conveyer belts and safety belts. Polyesters are also used to make bottles, tarpaulin, films, wire insulation and insulating tapes. They can be used separately as well as spun together with natural fibers to produce cloths with blended properties.

**Fashion  
(coats,  
jackets,  
pants)**

**Sportswear**

**Footwear**

**Bedding,  
sheets,  
sleeping  
bags**

**Bottles,  
insulating  
tapes,  
safety  
belts.**

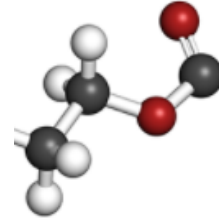
# POLYESTER

## Production Process



### 1. Creating a Monomer

The process begins with reacting ethylene glycol with dimethyl terephthalate at high heat, resulting in a monomer.



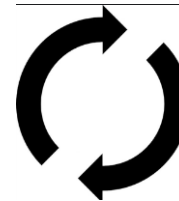
### 2. Creating a Polymer

The monomer is then reacted again with dimethyl terephthalate to create a polymer.



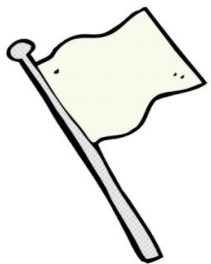
### 3. Extruding

The molten polyester polymer is extruded then into long strips which are cooled and dried and then are broken apart into small pieces.



### 4. Spinning

The resulting small pieces/chips are then melted again to create a honey-like substance, which is extruded through a spinneret to create fibers.



### 5. Finishing

The resulting fibers/filaments are either cut or reacted with other chemicals to achieve the desired type of end result.

## Global Overview

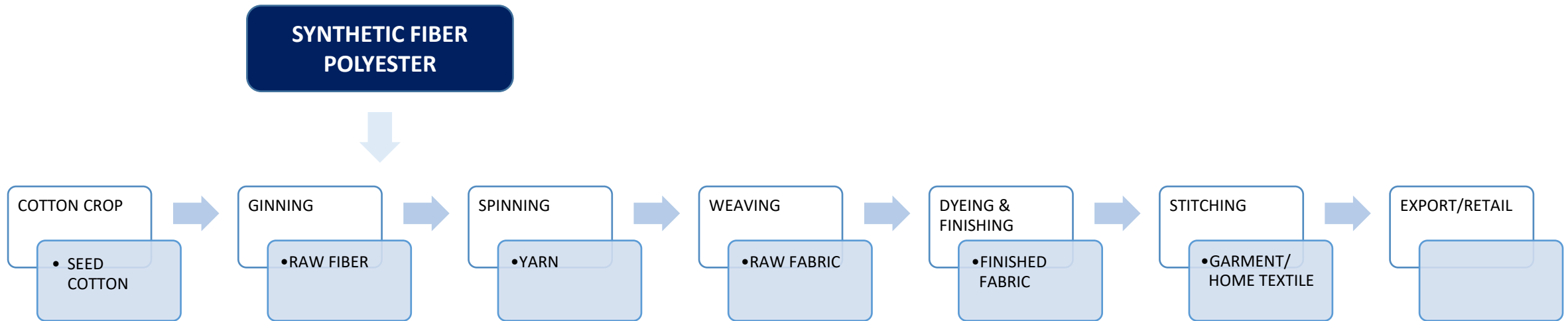
- The global polyester market was recorded at USD~22bln in CY21 and is expected to increase at a CAGR of 4.95% to USD~29bln by end of CY27. Polyester filament used in a variety of industries, including textiles, automotive, and healthcare is believed to drive the polyester market growth. The polyester market is further divided into segments based on the product types, grade types and application of the polyester.
- There are two major product types in the polyester industry; one derived from solid fibers and the others made from hollow fibers. Solid fibers are gaining popularity over hollow fibers and are expected to retain the major market share in the days to come due to their moist resistant and durable properties.
- With reference to grade/varieties, polyester fibers are available in two varieties – PET and PCDT. PET is the most common production. It is stronger than PCDT, while PCDT has more elasticity and resilience. Gradually, PET has become the world's first choice in the packaging sector and more than half of the world's synthetic fiber and bottles demand is fulfilled by PET plastics.
- Based on Application/Use, the Textile Sector dominates the market share of polyester demand and is expected to continue the same trend. The textile Industry has been consuming increasing amounts of polyesters in all chains of the Industry including weaving, dyeing, composite, etc.
- Geographically, the Asia-pacific is considered the leading market for polyester demand. China possesses the highest market share in the Asia-pacific region.
- The growth of the polyester fiber market is also propelled by surging demand for face masks due to COVID-19 outbreak, the expanding textile industry, booming consumer interest in the apparel sector, and rapid urbanization in emerging countries.



# POLYESTER

## Local Overview

- Pakistan produces natural as well as man-made fibers. Natural fibers include cotton, wool and silk among which cotton is the most common textile fiber. In the synthetic/man-made fibers category, polyester is the main fiber. Other man-made fibers include Viscose Rayon and Acrylic Staple Fibers, which are produced on a limited scale.
- Over ~70% of the Polyester Staple Fiber (PSF) is supplied to the textile value chain, i.e., the spinning sector, as illustrated below. The remaining PSF is majorly supplied to the PET packaging industry used in making plastic bottles. The mix of natural and synthetic fibers varies depending on the type of yarn produced. For instance, fabric type S/J is produced through a mix of ~52% polyester and ~48% cotton, while fleece is composed of ~66% cotton and ~34% polyester. On the other hand, the loopback fabric is a mixture of ~30% cotton, ~31% polyester and ~30% linen.



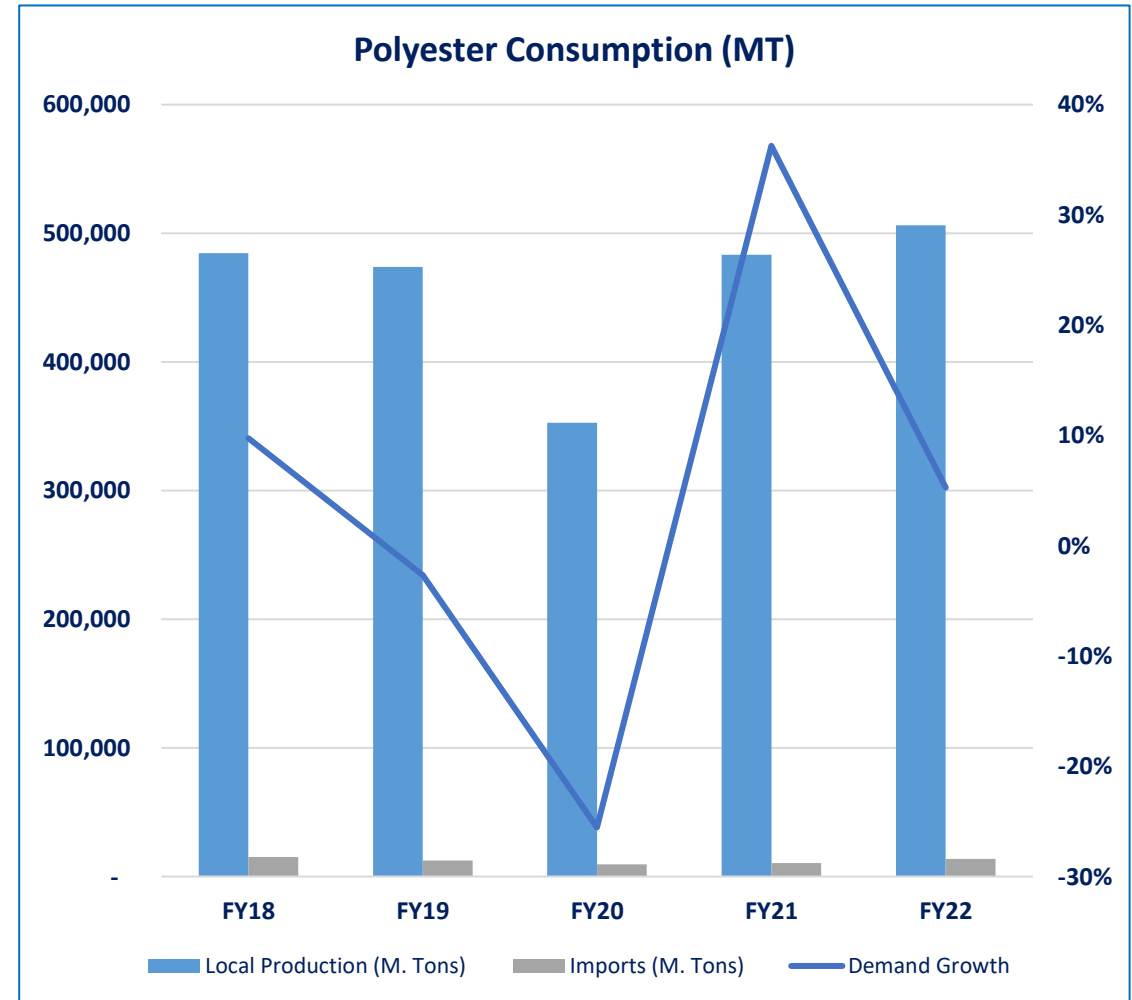
## Industry Snapshot

- Pakistan’s polyester industry was recorded at PKR~169bln in FY22 (PKR~109bln in FY21), a significant increase of ~55% YoY, owing to the recovery in demand from textile and PET bottling industries. Other factors that likely contributed to this change include varied sales prices (due to rising international prices and rupee devaluation), better marketing campaigns and enhanced production capacities across the major sector players.
- In volumetric terms, the production of polyester fibers increased by ~5% during FY22, almost aligned with the rise in value terms, depicting that price variations have indeed impacted the market size during the period under discussion.
- The structure of the sector can be defined to be an organized one. It is presently dominated by three (3) major players capturing almost the entire share in terms of local sales. All three are also listed on PSX.
- In terms of product market segments, textile sector occupies the largest share of the polyester demand as polyester has now become the most dominant man-made fabric.
- Recently, with a gradual reduction in cotton production, coupled with its increasing price trend, room for further polyester demand is growing.

Industry Snapshot	FY21	FY22
Revenue (PKR mln)	108,788	168,617
Share in GDP	~0.2%	~0.4%
Annual Production (MT)	483,401	506,185
Annual Import (MT)	19,082	13,823
Market Structure	Organized & Listed	
Sector Players (Listed)	3	3
Installed Capacity (MT p.a.)	534,950	534,950
Utilized Capacity	~90%	~95%
Association	<b>All Pakistan Textile Mills Association</b>	

## Consumption

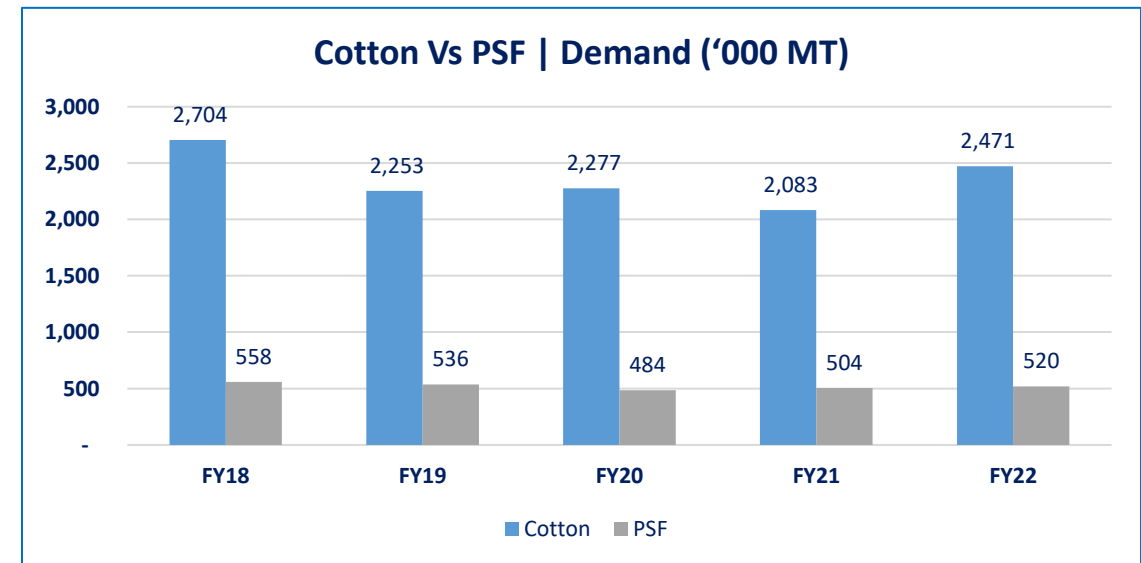
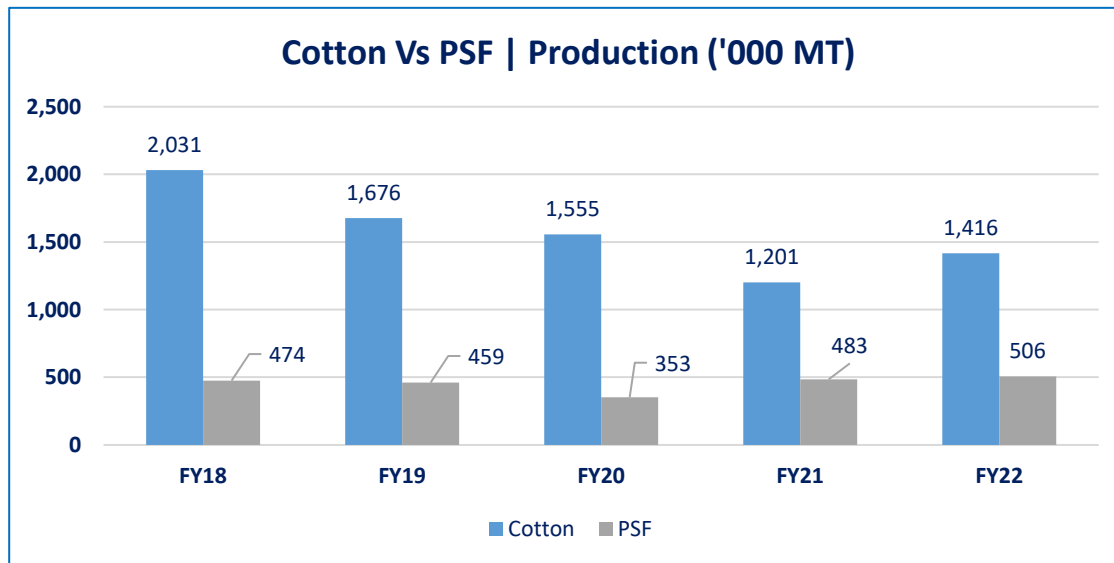
- Pakistan’s polyester demand exhibited a steep dip in FY20, registering a free fall of ~26% YoY, owing to a halt in business activities and reduced demand from the textiles sector. During FY21, demand for PSF recovered neatly, clocking in at ~493,000 MT, compared to ~352,000 MT the previous year. This was ~36% increase YoY.
- The country’s demand is majorly met through local sales (~97% during FY18-22), while some portion is catered through imports. Over the past four years i.e., FY18-21, imports declined at a CAGR of ~9%. Simultaneously, local production also recorded a declining trend, falling at a CAGR of ~10% during FY18-21.
- During FY22, both the local production, as well as imports, for PSF went up by ~5% and ~32% YoY, respectively.
- Polyester, being the main synthetic fiber, has a broad potential to grow. Decline in cotton production, polyester’s durability, insulating properties and recyclability are few of the factors which create potential growth opportunities for the sector.





## Demand | Comparison with Cotton

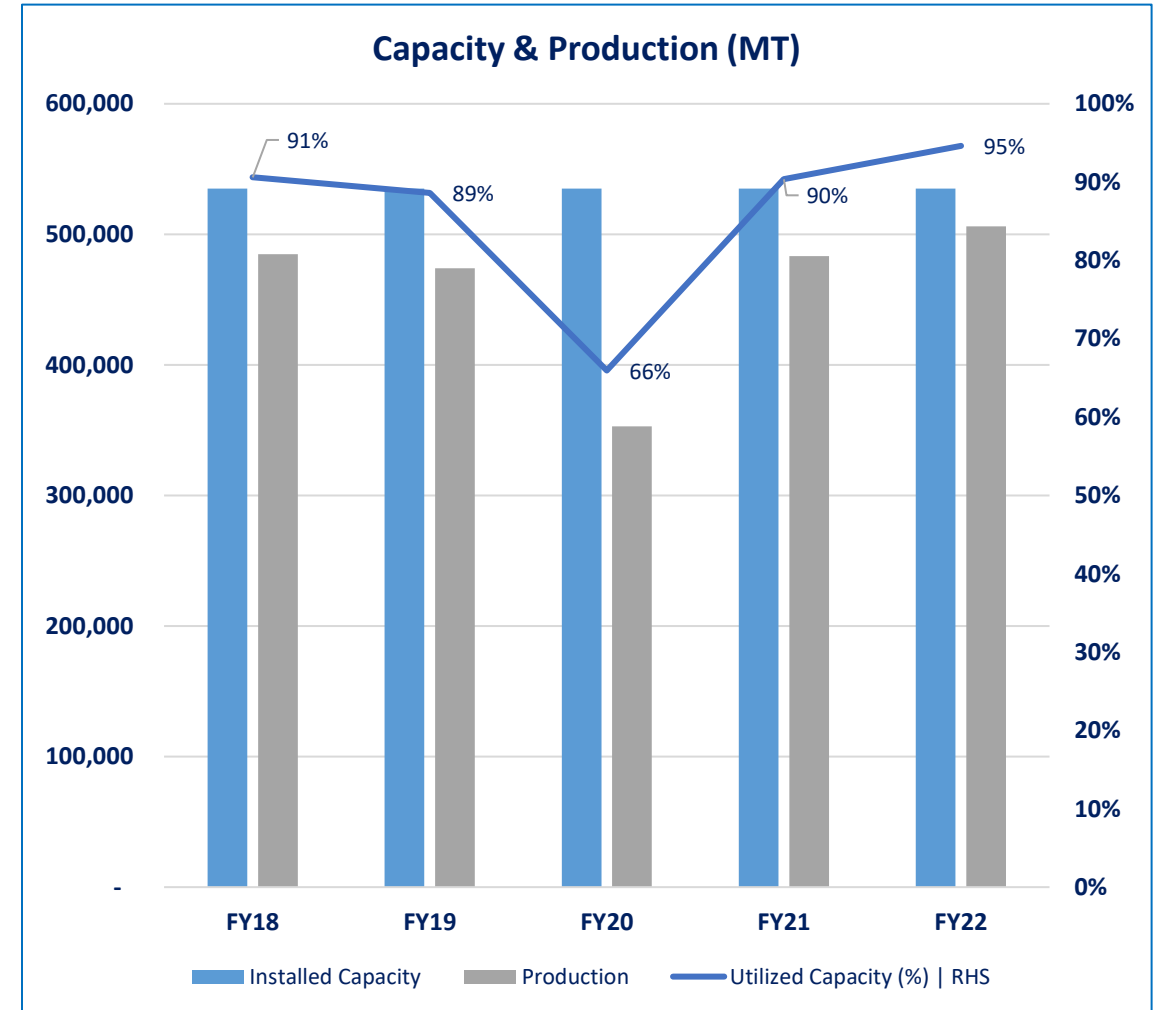
- The figures below depict production and demand levels across cotton and polyester sectors. During FY22, production of cotton increased to ~1.4mln MT, up ~17% YoY. Polyester production also increased to ~0.5mln MT, a ~5% increase YoY. Cotton's production improved largely owing to improvement in yield by ~25.4% (FY21: ~-6.3%). However, in the aftermath of the devastating floods which hit the country in August 2022, production targets have been forecast to reduce to ~4.8mln bales (~0.7mln MT), which amounts to a loss of ~7.0mln bales (or ~60% in volumetric terms).
- Demand for both cotton and PSF increased during FY22, by ~19% and ~3%, respectively. Local mills' cotton consumption was recorded at ~2.4mln MT (FY21: ~2mln MT), while exports grew from ~1mln MT in FY21 to ~3mln MT the following year. In the case of PSF, total estimated demand clocked in at ~520,000 MT during FY22, compared to ~493,000 the previous year. Imports increased by ~32% and recorded at ~13,000 MT in the same time period, while local production went up by ~5% YoY, to record at ~500,000 MT in FY22.



Note: For the purpose of comparison, cotton production & demand is converted from bales to tons, using a conversion factor of 1 bale = ~170 kgs.

## Production Capacities

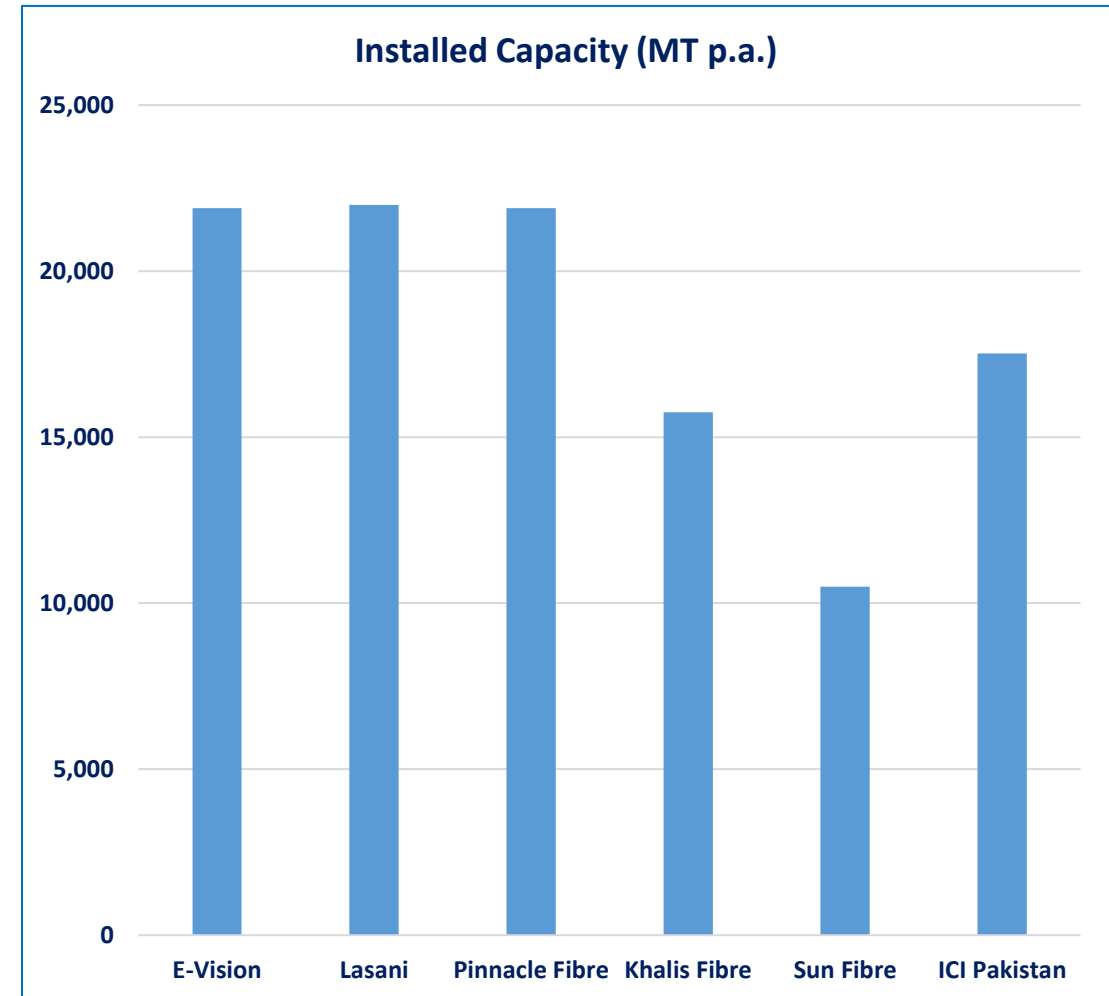
- ICI Pakistan Limited was a pioneer in the manufacture of Polyester Staple Fiber (PSF). At present, there are three significant players producing and fulfilling almost the entire local demand.
- PSF brings huge advantages to the domestic textile industry in making a viable substitute for cotton, allowing for a maximum utilization of textile resources.
- The polyester sector’s total installed capacity did not register a change during FY22 and was recorded at ~535,000 MT.
- Actual production picked up by ~5% in FY22 after a dip of ~23% in FY20, which had come about due to reduced demand on account of Covid19-induced economic slowdown.
- The sector’s utilization levels improved to ~95% in FY22, compared to ~90% during the previous year.



Note: Industry averages are based on 3 sector players making up near ~100% of the market share in terms of sales.

## Recycled PSF (rPSF) | Overview

- Recycled Polyester Staple Fiber (rPSF) is a prominent segment in recycling PET and has been projected to be the fiber of the future in the entire textile industry. rPSF is used for both woven and non-woven industries. The annual turnover of rPSF segment in the country was PKR~1,842mln\* during 9MCY22.
- Being derivative of crude oil, rPSF prices fluctuate accordingly. rPSF remain at ~75% of the price of virgin polyester fiber.
- In Pakistan, the market is relatively new and small. However, it has an immense potential to grow due to the recyclability of PET waste and used bottles, which reduces the risk of cost volatility associated with firsthand PSF formation.
- The industry's total installed capacity stands at ~90,000 MT p.a., with ~6 players presently dominating the market.
- The demand for rPSF chips is high in China and due to ban on PET bottles as they have started to import rPSF chips from other countries.



\*rPSF segment turnover is extrapolated on 1 sector player's data, making up ~25% of the market share in terms of sales.

### Major Raw Materials for PSF

**Purified Terephthalic Acid (PTA)**: PTA is an organic compound majorly used in the development of polyester resins, polyester fiber & yarn, and PET material bottles.

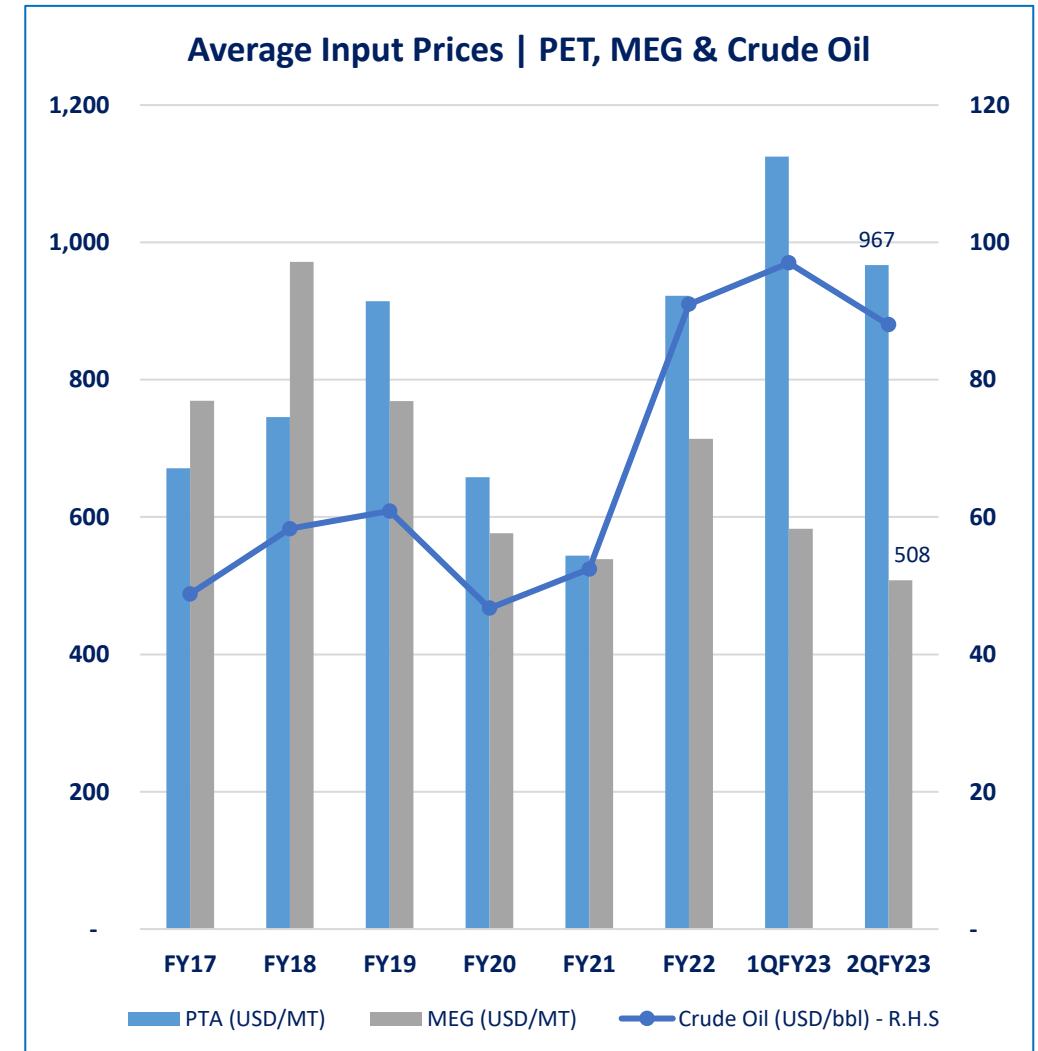
**Monoethylene Glycol (MEG)**: Belonging to the petrochemical family, MEG is an odorless, colorless, syrupy liquid used as a raw material for polyester and PET polymer. It is used in home textiles, food/drink containers, clothing, medical textile and others. It is majorly imported in Pakistan.

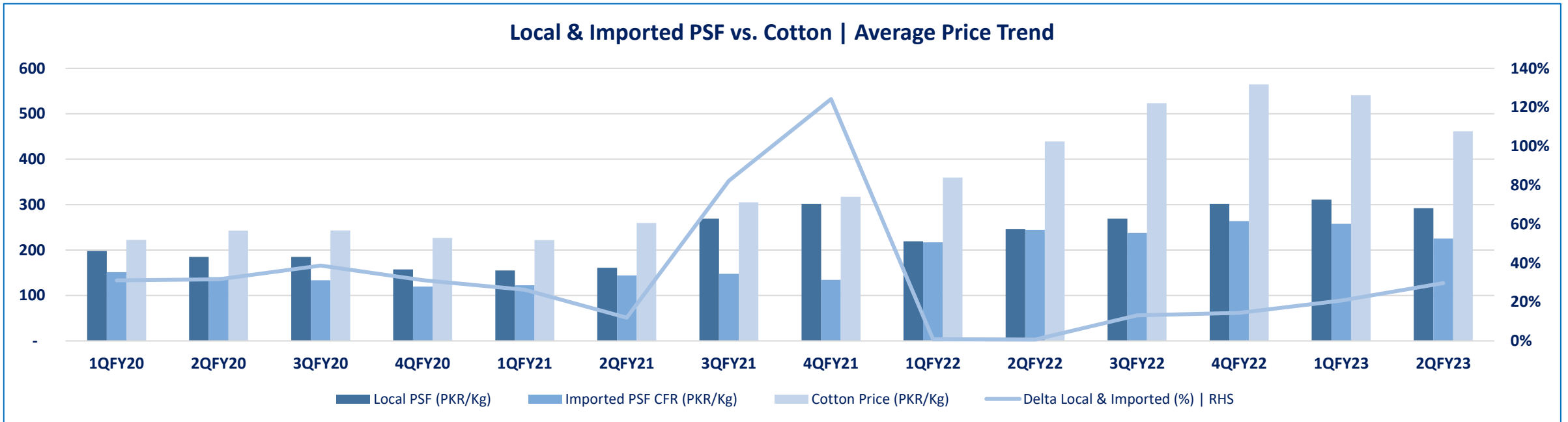
**rPSF**: Recycles PET/Polyester waste or recycled consumed PET bottle flakes is regenerated into Polyester Stable Fiber. This market is relatively new in Pakistan, however, is growing at a fast pace. Globally, the rPSF technique has already captured a significant market segment.

- Raw material cost is the key component of the sector's cost structure, therefore, it is essential in determining the output price and margins of the sector.
- PTA is majorly procured locally through its sole supplier, Lotte Chemicals Pakistan Limited, while some portion of it is imported too. Oil is a major resource for the production of PTA, therefore, PSF price is also subject to variations in oil prices.
- MEG is entirely imported. The highest share of imports comes from China followed by Middle East.
- rPSF is a recycled product. It is sold at a discount of almost ~25% of the PSF price. rPSF is a relatively new technique which has been adopted by international brands and gradually penetrating the Pakistan market.

## Business Risk | Input Prices

- Raw materials comprise ~83% of total costs mix for the polyester sector.
- Prices of PTA are usually subject to variations in oil prices, while those of MEG, which is entirely imported, remain exposed to exchange rate volatility as well. The graph on the right depicts global average price trends of PTA and MEG tracing similar patterns, in tandem with global average oil price levels.
- While there has been significant volatility in oil prices during FY19-22, owing to global demand and supply pressures (prices have increased at a CAGR of ~9% during FY18-22), prices of PTA have increased at a CAGR of ~4% (FY18-22).
- During FY22, average price levels for PTA and MEG were recorded at USD~920/MT and USD~700/MT, respectively (increase of ~70% and ~33%). During the preceding year, these had clocked in at USD~540/MT.
- In the most recent time period i.e., 2QFY23, oil prices exhibited a downward movement, decreasing by ~9%, owing to reduced global demand and expectation of a looming recession. Hence, prices of PET and MEG also decreased by ~14% and ~13%, respectively.
- Going forward, with global demand recovery in sight, loosening monetary policy by the U.S. Fed, and reduced supply by Russia in wake of Russia-Ukraine war (price caps/ trade embargos on Russian oil), oil prices are expected to increase in the short to medium term, eventually impacting PET and MEG prices accordingly.



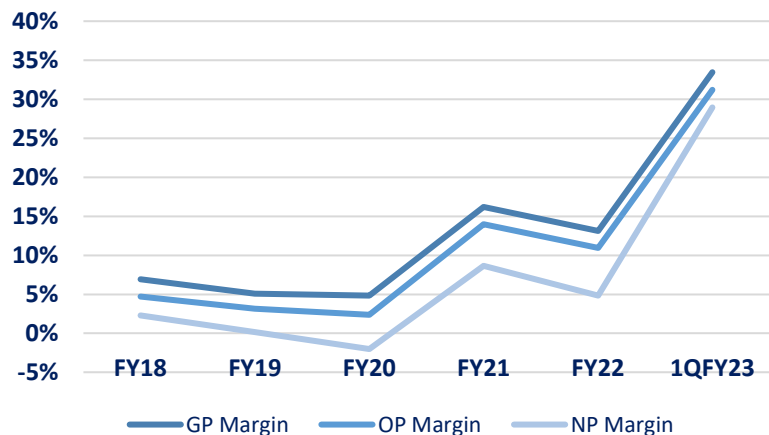


- One of the key challenges presently facing the local industry is the import substitution of PSF at relatively lower rates, hampering the growth and performance of the sector.
- As witnessed from the above chart, the imported CFR price of PSF remain, on average, higher than the local prices due to rupee depreciation. The rupee lost ~11% value (YoY) against the greenback during FY22. It recorded, on average, at PKR~170 (FY22) compared to PKR~160 during the previous year. Cotton prices, on the other hand, are exhibiting a declining trend in the most recent time periods (1HFY23), on account of slowing global demand and lower supply levels. Prior to this, owing to rupee depreciation, local average prices for cotton were also on the higher end, clocking in at PKR~472/Kg in FY22 (FY21: PKR~276/Kg).
- Furthermore, due to imposition of anti-dumping duties on dumped imports from China, the delta between local and import prices has widened to ~33% in 2QFY23. These duties are in place to safeguard local market’s competitiveness (local duty structure is covered under a later segment of this report).

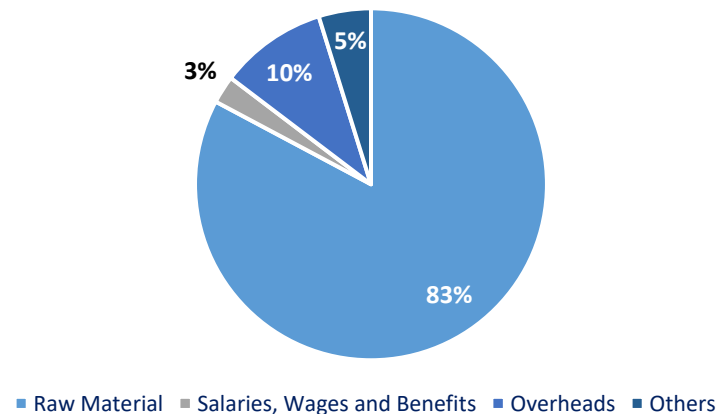
## Business Risk | Profit Margins

- Pakistan’s polyester sector’s average size was recorded at PKR~139bln in FY22 (*excluding rPSF*), a ~35% YoY increase. Previously, in FY21, it had expanded by ~41% YoY. The sector’s turnover is majorly reflected by local sales with a very low share of exports. Historically, the industry’s turnover has reflected an impressive growth from FY18-22, registering a CAGR of ~13%. Increased sales, in turn, indicated increased prices during FY22.
- The sector’s direct costs are majorly dominated by raw material costs, i.e., PTA and MEG, which form ~83% of total costs mix. Hence, margins are significantly impacted by international prices and exchange rate fluctuations (MEG is entirely imported while PTA is both imported and procured locally). The industry operates on thin margins, due to availability of cheaper imported PSF (majorly from China) which hampers the performance and growth of the Industry significantly.
- Sectors’ average gross margins recorded at ~13% in FY22 (FY21: ~16%), despite increased sales. This was likely due to increased cost of goods (PKR~120bln in FY22, compared with PKR~85bln in FY21). Moreover, net margins also declined and recorded at ~5% (FY21: ~29%). However, finance costs declined by ~31% YoY, most likely due to lower long-term borrowings.

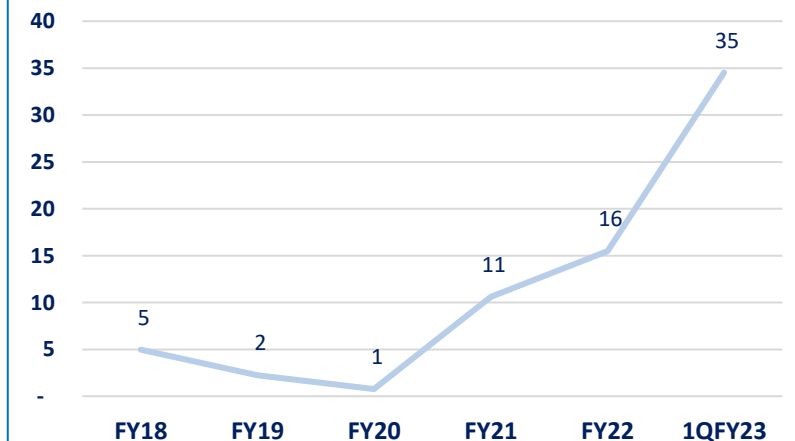
### Profit Margins



### Cost Breakdown (FY22)

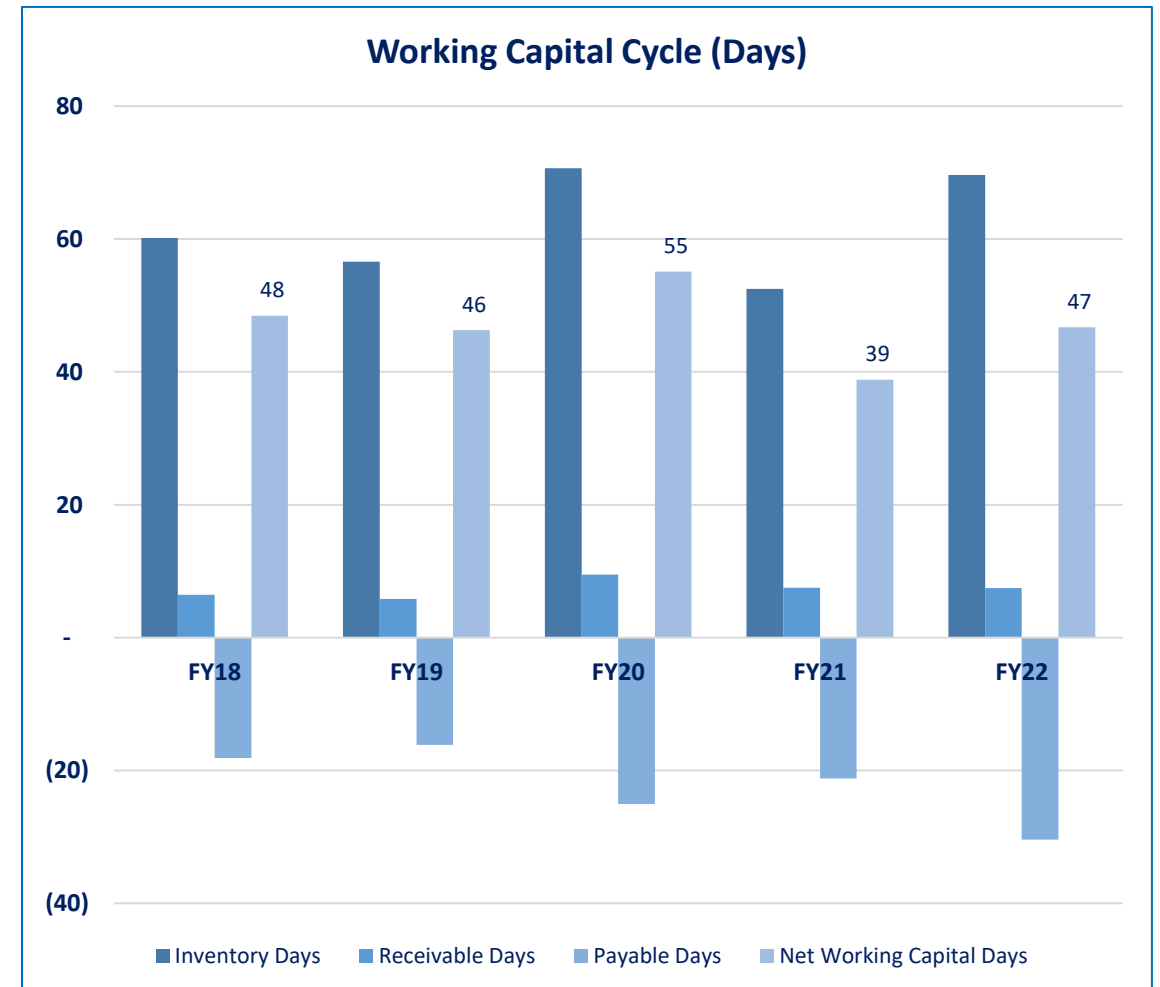


### Interest Coverage Ratio



## Financial Risk – Working Capital

- The sector’s average working capital cycle is predominated by its inventory days.
- The average inventory days of the sector reflected an increasing trend from ~39 days in FY21 to ~47 days in FY22. This came despite improved sales during FY22 and likely reflects piled up raw material inventories. The driving factor behind it might be increasing raw material prices in the future and growing local demand.
- Average inventory days increased to ~70 days in FY22 (FY21: ~53 days), while average payable days increased to ~30 days, compared with ~21 days in FY21.
- The sector is moderately leveraged, with leverage ratio increasing to ~21% in FY22, compared with ~17% in FY21.

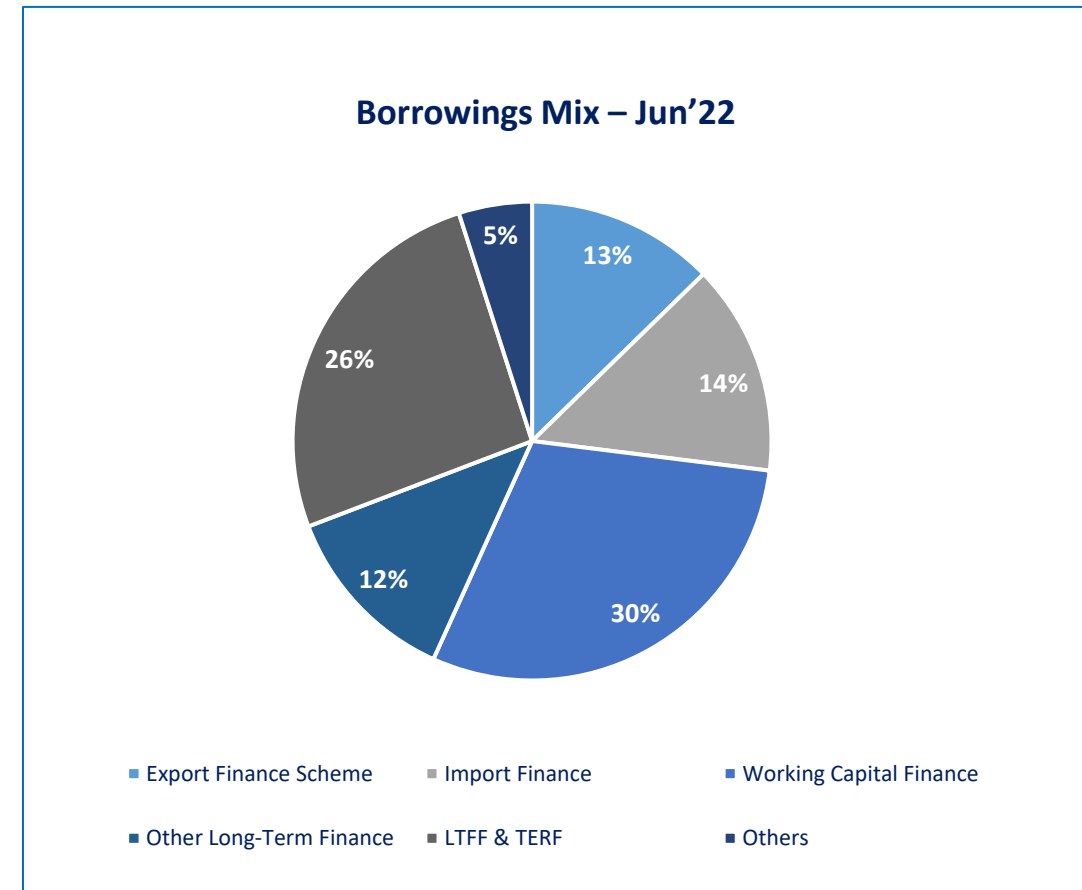


Note: Industry averages are based on 3 sector players making up ~100% of the market share in terms of sales.



## Financial Risk – Borrowings

- As per SBP data, the sector’s total borrowings were recorded at PKR~31.2bln as at End-Jun’22 (PKR~24.4bln as at End-Jun’21).
- Borrowings are typically a mix of short-term and long-term financing with Working Capital financing making up ~30% of the total debt book.
- Almost ~39% of the industry’s financing comprises LTFF/TERF and Export Finance Schemes, which are offered at subsidized rates.
- The industry’s capital structure is sound. During FY21, there was a significant decline in short-term borrowings due to improvement in working capital management. However, during FY22, these increased by ~28% YoY.
- As at End-Dec’22, total outstanding debt of the sector was recorded at ~37.7bln (End-Dec’21: PKR~28.3bln). Increased borrowings are indicative of working capital requirements. During FY22, operational expenses increased by ~27% YoY, whereas energy expenses (~10% of total direct costs) went up by ~43% to record at PKR~12bln.



## SWOT Analysis

- Organized & Listed Sector.
- Sound Equity and Sponsor Backing.
- Diversified Product portfolio.
- Strong sector association.



- Consumer preference of natural fiber over synthetic/ man-made fiber.
- Raw material pricing subject to exchange rate & international price volatility.
- Thin gross and net margins due to little room to increase price against imported PSF.

- Dumped imports from China, Thailand and Indonesia.
- Exposure to exchange rate volatility.
- Fluctuations in raw material prices.

- Growing recycled PSF market opening new avenues for the industry through cost minimization and competitive market prices.
- Reduced cotton production encouraging room for expansion in synthetic fiber market.
- Increase efficiency and improve quality through technological upgrade.
- Growing textile exports of the country.

## Duty Structure

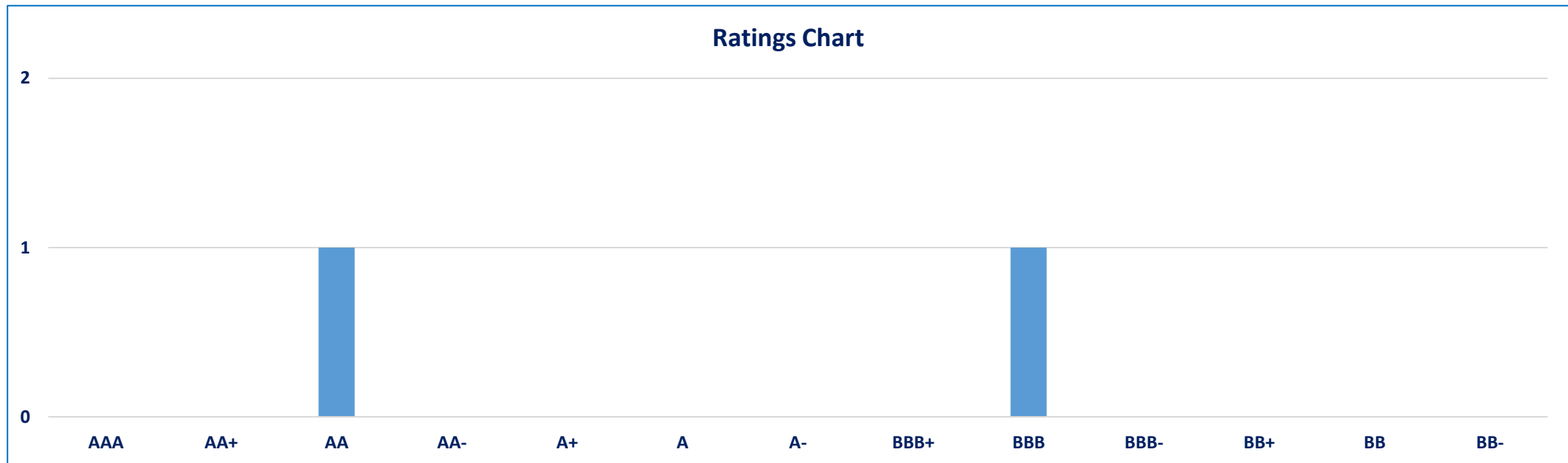
PCT Code	Description	Custom Duty		Additional Custom Duty	
	Raw Materials	FY21	FY22	FY21	FY22
2917.3610	PTA	5%	16%	0%	4%
2905.3100	MEG	0%	0%	0%	2%
	Finished Goods	FY21	FY22	FY21	FY22
5503.2010	PSF	7%	11%	0%	2%

PCT Code	Description	Anti-dumping Duty Rates	Exporting Country	Date	Period
5503.2010	PSF	10.44%	China	4-Feb-22	5 years
5503.2010	PSF	2.4% - 3.6%	Indonesia	4-Feb-22	5 years
5503.2010	PSF	2.5% - 10.7%	Thailand	4-Feb-22	5 years

- Pakistan's polyester industry faces stiff competition from imports market, particularly from China.
- The National Tariff Commission (NTC) had therefore imposed anti-dumping duties on PSF (PCT Code: 5503.2010) dumped imports from China ranging between 2.5% to 12.5% effective from Oct'05, 2022 for a period of five years.

## Ratings Chart

- PACRA rates 2 entities in the polyester sector, namely Ibrahim Fibres Limited and E-Vision Manufacturing Limited (rPSF).
- All three major players involved in the manufacturing of PSF are listed on the PSX (i.e., Ibrahim Fibres, ICI Pakistan and Rupali Polyester).



## Outlook: Stable

- Despite local and international headwinds comprising rupee devaluation of ~11% in FY22, ~74% increase in crude oil prices during the same period and overall global economic slowdown due to U.S. Fed's hawkish stance on monetary policy, the local polyester sector has fared relatively better compared to most sectors of Pakistan's economy. Its share in real GDP remains minimal, however, it increased from ~0.2% in FY21 to ~0.2% in FY22, mainly on the back of improved sales (~55% increase YoY).
- Cotton production in FY22 was recorded at ~1.4mln MT, improving by ~18% YoY. Increased production primarily came about due to an improvement in yield by ~25.4% (FY21: ~-6.3%), conducive weather conditions, smooth input supplies, and better crop management practices. It is pertinent to mention here that the FY23 production estimates have been revised downwards to ~4.8mln bales (~0.7mln MT) which amounts to a loss of ~7.0mln bales (or ~60%, in absolute terms).
- Greater reliance on imported raw material (particularly, MEG) increases currency risk exposure due to exchange rate volatility. Moreover, input prices are a function of global oil prices, which are forecast to increase in the coming year, owing to China's economy opening up, the U.S. Fed taking an easier stance on further monetary tightening and supply cuts from Russia in the aftermath of prices caps/ trade embargoes on Russian oil by advanced economies. During FY22, average price levels for PTA and MEG were recorded at USD~920/MT and USD~700/MT, respectively (increase of ~70% and ~33%). During the preceding year, these had clocked in at USD~540/MT.
- The polyester sectors' thin margins are especially prone to raw material price fluctuations. Average gross margins decreased to ~13% in FY22, compared with ~16% in FY21, despite improved sales. Raw material costs during this time increased by ~50% YoY, keeping in pace with increase in prices of PET and MEG.
- Moreover, policy rate hikes by the SBP during the past year (7% in Jul'21 to 13.75% in Jun'22, with the current rate at 17%), and expected further upward revisions will make it challenging for the sector to finance its working capital, since short-term borrowings comprise ~83% of total borrowings mix.
- NTC's initiation to investigate against dumped imports from Indonesia & Thailand, in addition to China's, is expected to provide protection to the domestic industry.
- Going forward, cotton production is expected to fall owing to the flash floods of Aug'22. Moreover, cotton prices are also on the decline owing to reduced global demand. This might clear up room for synthetic fiber's demand in the local market. Higher international raw material prices, though, will likely factor in, along with other economic challenges such as rupee devaluation and a stringent monetary policy.

- Pakistan Bureau of Statistics (PBS)
- Pakistan Stock Exchange (PSX)
- State Bank of Pakistan (SBP)
- Federal Board of Revenue (FBR)
- Towel Manufacturers Association of Pakistan (TMA)
- PACRA Database
- International Labor Organization (ILO)
- Pakistan Cotton Ginners Association (PCGA)
- Pakistan Central Cotton Committee (PCCC)
- Investing.com

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