

Assessment of polymer packaging industry

Sub-segments covered - laminated tubes, tube laminates and flexible laminates segments in India

March 2023

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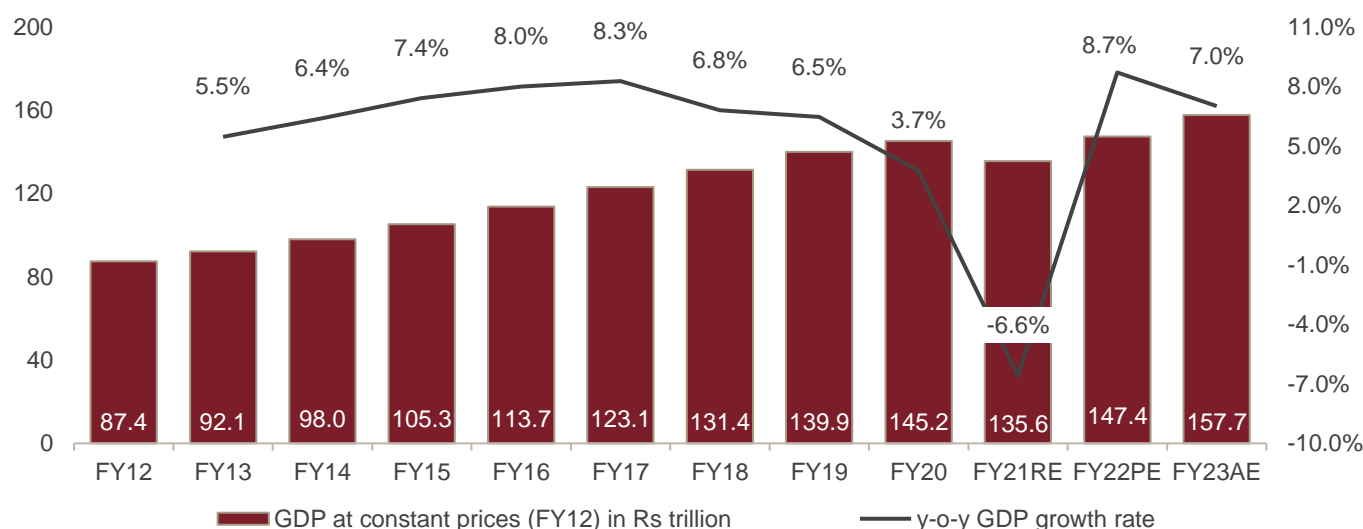
1 Macroeconomic overview of India

India's GDP logged 5.4% CAGR over fiscals 2012-2022

In 2015, the Ministry of Statistics and Programme Implementation (MoSPI) changed the base year for calculating India's GDP from fiscal 2005 to fiscal 2012. Based on this, the country's GDP logged an 10-year CAGR of 5.4%, reaching Rs 147 trillion in fiscal 2022 from Rs 87 trillion in fiscal 2012.

In fiscal 2022, the economy recovered from the pandemic-related stress, aided by the resumption of economic activities and less stringent restrictions related to Covid-19. The economy faced challenges in the last quarter of fiscal 2022 owing to geopolitical pressures, resulting in higher inflation levels. With the resumption of economic activities and healthy trade flow, GDP growth was at a healthy 8.7%, albeit on a low base.

Real GDP growth in India (new series)



Note: PE: Provisional estimates; RE: Revised estimates; AE: Advance estimates

Source: Provisional estimates of national income 2021-22, Central Statistics Office (CSO), MoSPI, CRISIL MI&A

India's GDP grew 8.7% on-year in fiscal 2022

As per the provisional estimates released by the National Statistical Office, India's real GDP grew 8.7% in fiscal 2022, lower than 8.9% it had estimated in February 2022. The growth is largely a reflection of a lower base (as the economy had shrunk 6.6% in fiscal 2021). It is noteworthy that given the large output loss in the past fiscal, GDP is 1.5% above the pre-pandemic (fiscal 2020) level. Over fiscals 2012-2022, GDP clocked 5.4% CAGR.

While provisional estimates show a mild reduction in the overall size of GDP for fiscal 2021, estimates for private final consumption expenditure (PFCE) and gross fixed capital formation (GFCF) – the two major demand drivers – were marginally notched up. The latter suggests the government's continued focus on capital expenditure (capex). PFCE is still just 1.4% above the fiscal 2020 level and was the slowest to recover. Moreover, it faces strong headwinds from rising inflation.

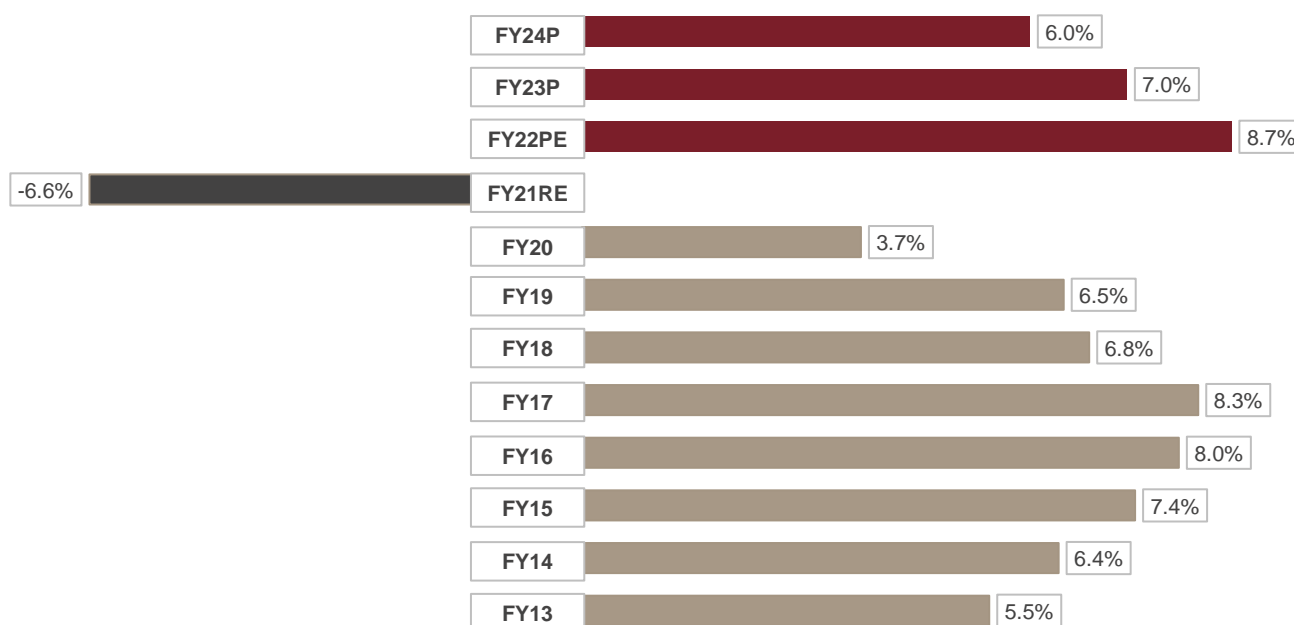
CRISIL estimates India’s GDP to grow 6.0% in fiscal 2024

While recovery continues to gather pace, the economy is facing multiple risks. Global growth is projected to slow as central banks in major economies withdraw easy monetary policies to tackle high inflation. This would imply lower demand for our exports. Together with high commodity prices, especially oil, this may deal a trade shock for the country. High commodity prices, along with depreciating rupee, indicate higher imported inflation.

The second quarter fiscal 2023 data reflected how global growth slowed down which had begun to spill over to the Indian economy. Long-term growth movements suggest that despite diverging now, India’s growth cycles have been remarkably synchronised with that of advanced economies since the 2000s. Major developed economies are expected to fall into a shallow recession by next year. S&P Global expects the US GDP to swerve from a growth of 1.8% in 2022 to negative 0.1% in 2023, and the European Union from 3.3% to 0%. This will weaken the export prospects for India, thereby weighing on domestic industrial activity.

And while domestic demand has stayed relatively resilient so far, it would be tested next year by weakening industrial activity. It will feel the pressure from increasing transmission of interest rate hikes to consumers as well, and as the catch-up in contact-based services fades. Also, rural income prospects remain dependent on the vagaries of the weather. Therefore, increasing frequency of extreme weather events remains a key monitorable. While lowering demand for Mahatma Gandhi National Rural Employment Guarantee Act jobs is an encouraging sign for the rural economy from a job perspective, depressed wages are a matter of concern for rural demand. Because of these factors, CRISIL projects GDP growth to slow to 6% in fiscal 2024 from 7% in fiscal 2023, with risks to the downside.

Real GDP growth (% on-year)



Note: RE: Revised estimates, PE: Provisional estimates, P: Projected

Source: Advance Estimates of National Income, 2020-21, CSO, MoSPI, CRISIL MI&A

1.1 Fundamental growth drivers of GDP

India saw robust growth in per capita income over fiscals 2012-2023

India's per capita income, a broad indicator of living standards, rose from Rs 63,462 in fiscal 2012 to Rs 96,522 in fiscal 2023, logging 3.9% CAGR between fiscal 2012 and 2023. Growth was led by better job opportunities, propped up by overall GDP growth. Moreover, population growth remained stable at ~1% CAGR. However, in fiscal 2021, the indicator declined 9.7% on-year owing to the impact of Covid-19. Despite a 7.5% on-year growth seen in fiscal 2022, in absolute terms, it is yet to recover to pre-pandemic levels.

Per capita net national income at constant prices

	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21R E	FY22P E	FY23 AE	CAGR 12-23
Per-capita net national income (Rs)	63,462	65,538	68,572	72,805	77,659	83,003	87,586	92,133	94,270	85,110	91,481	96,522	3.9%
On-year growth (%)		3.3	4.6	6.2	6.7	6.9	5.5	5.2	2.3	-9.7	7.5	5.5	

Note: RE: Revised estimates, AE: Advance estimates

Source: Second Advance Estimates of Annual National Income, 2020-21, CSO, MoSPI, CRISIL MI&A

India's per capita GDP grows faster than global average

Global GDP per capita clocked a CAGR of 2.2% between CY 2012 and 2022, as per the IMF data. Meanwhile, India's corresponding figure registered a CAGR of 5.5% at current prices.

Per capita GDP at current prices

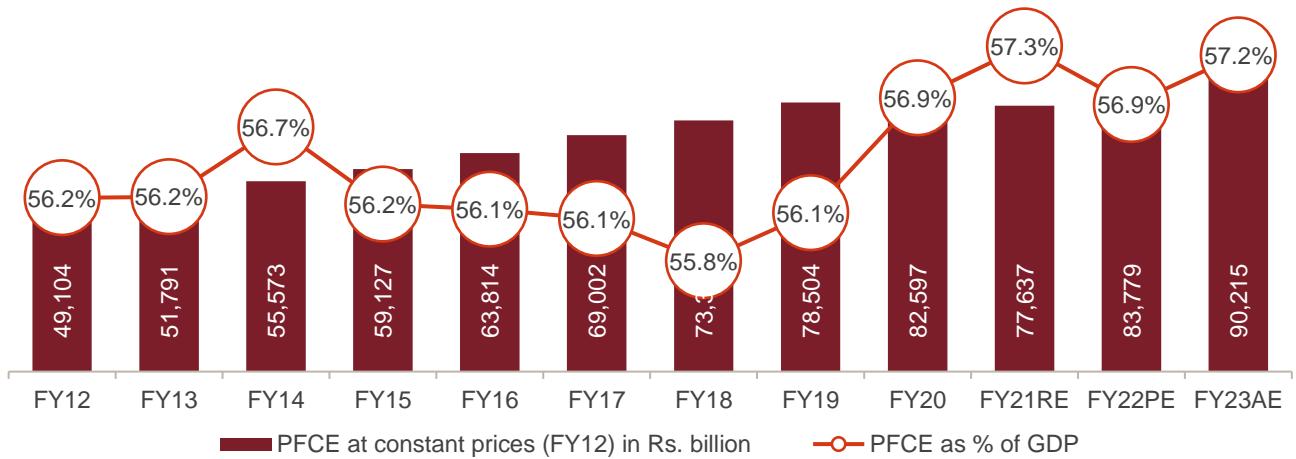
	2012	2019	2020	2021	2022	CAGR 2012- 2022
India per-capita GDP at current prices (\$)	1,440	2,070	1,930	2,280	2,470	5.5%
World per-capita GDP at current prices (\$)	10,740	11,560	11,160	12,620	13,400	2.2%

Source: IMF, World Bank data, CRISIL MI&A

PFCE to maintain dominant share in India's GDP

Private Final Consumption Expenditure (PFCE) at constant prices clocked 5.5% CAGR between fiscals 2012 and 2022, maintaining its dominant share in the GDP pie at ~57% or Rs 83,779 billion. Factors contributing to growth included good monsoons, wage revisions due to the implementation of the Pay Commission's recommendations, benign interest rates and low inflation. However, it declined in fiscal 2021 to Rs 77,637 billion on account of the pandemic, when consumption demand was impacted on account of strict lockdowns, employment loss, limited discretionary spending and disruption in demand-supply dynamics. In fiscal 2022, it increased 7.9% to Rs 83,779 billion, forming 56.9% of GDP as some of the restrictions were eased and economic activities resumed.

PFCE (at constant prices)



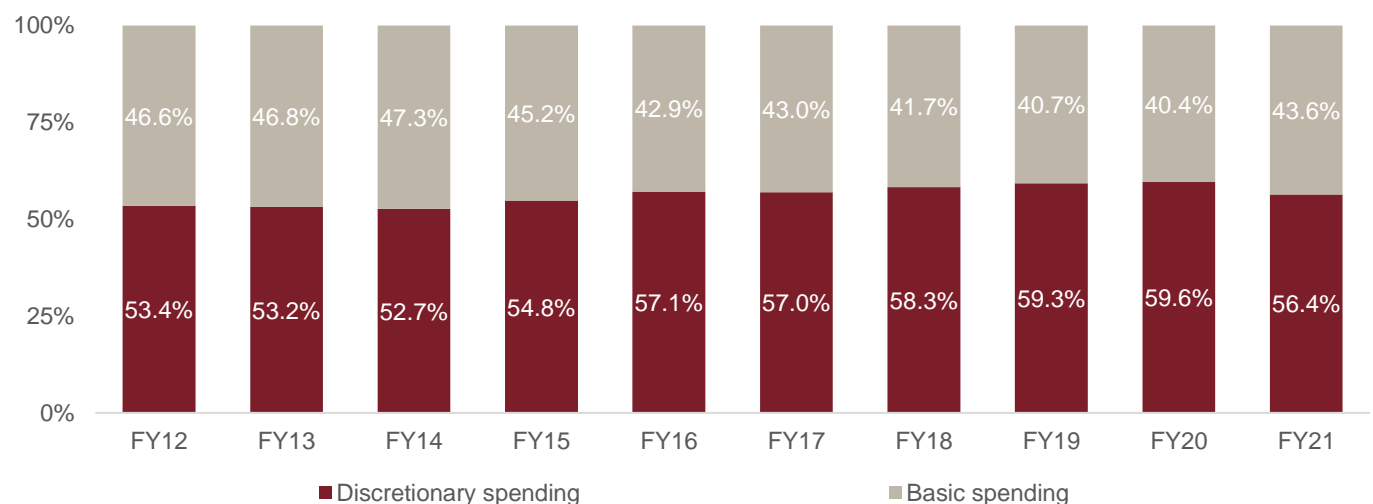
Note: RE: Revised estimates, AE: Advance estimates

Source: MoSPI, CRISIL MI&A

Consumption expenditure to be driven by discretionary items

The share of basic items increased in fiscal 2021 to 43.6% as pandemic decreased the expenditure on discretionary items. Basic items accounted for 40.4% of the total consumption expenditure of Indians in fiscal 2020, with discretionary items accounting for the remainder 59.6%. It is worth noting that the share of discretionary items in consumption increased to 59.6% in fiscal 2020 from 53.4% in fiscal 2012. The increased spending on discretionary items suggests rising disposable income of households.

Broad split of PFCE consumption into basic and discretionary spending



Note: Basic items include food, clothing and housing. Discretionary items include education, healthcare, electricity, water supply, footwear, personal care products, processed foods, alcoholic and non-alcoholic beverages, tobacco, narcotics, fuel and gas, furnishing and household equipment, vehicle and personal transportation, spending on recreation and culture, communication, restaurants and hotels, financial insurance and other financial services, and other items not elsewhere classified (n.e.c.)

Source: MoSPI, CRISIL MI&A

India's discretionary spending is lower than that of advanced economies such as the US and the UK, and is expected to grow with a rise in per capita income. In CY 2012, discretionary items formed ~75% share of spending for both the US and the UK, compared with ~53% for India in FY 2013. The share increased to ~76% for the US, 77% for the UK in CY 2017 and 58.3% for India in FY 2018, and stood at 70%, 71% in CY 2020 for US and UK

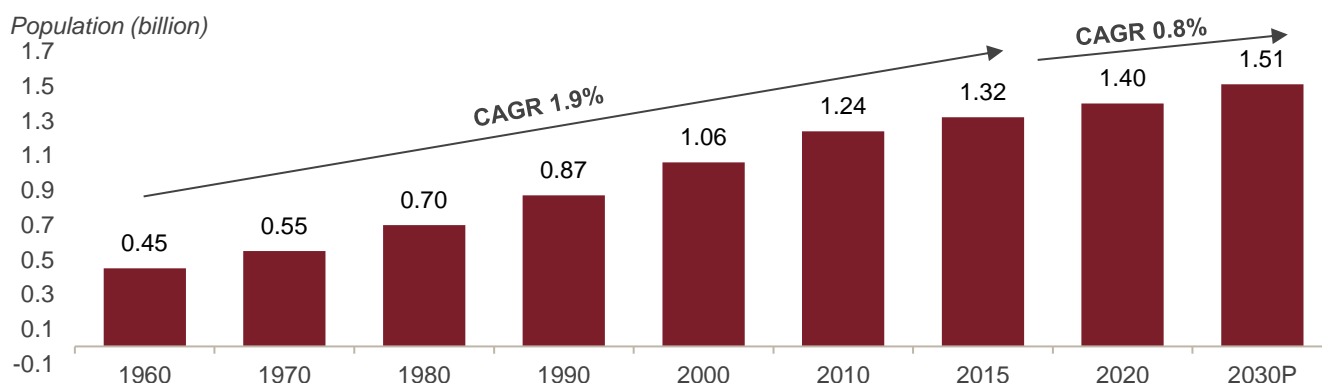
respectively and 56.4% for India in FY 2021. With the Indian economy advancing and household disposable income rising, the share of discretionary spending is expected to increase and drive growth in overall consumption expenditure.

India’s population is projected to log 0.8% CAGR between 2020 and 2030

India’s population grew to ~1.2 billion according to Census 2011, at a CAGR of 1.9% during 2001-2011. As of 2010 census, the country had about 246 million households.

According to the United Nation’s (UN) World Urbanization Prospects, 2022 revision, India and China, two of the most populous countries, accounted for nearly 36% of the world’s population in 2021. The report projects India’s population to increase at a CAGR of 0.8% from 2020 to 2030 to reach 1.5 billion by 2030, making it the world’s most populous country, surpassing China (for which the projected population is 1.4 billion).

India’s population growth



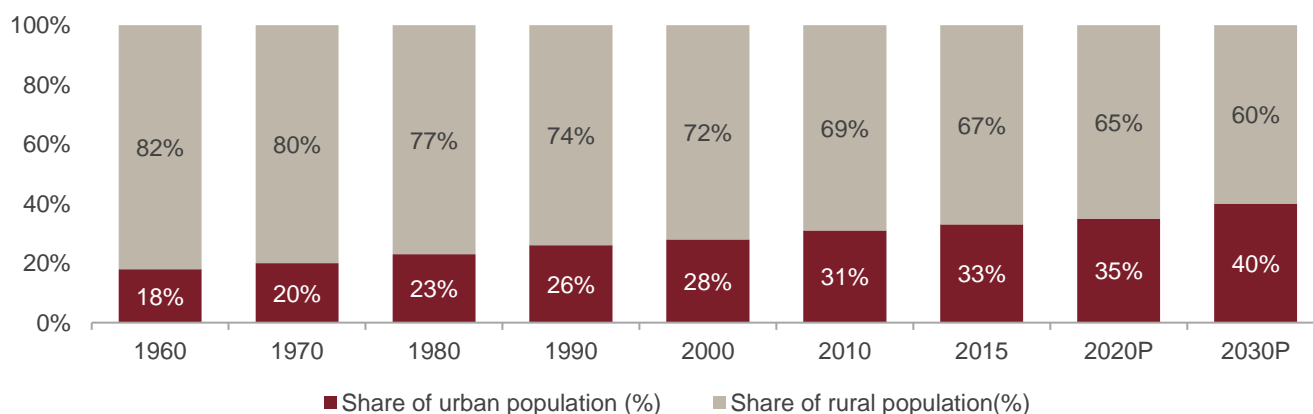
Note: P: Projected

Source: UN Department of Economic and Social Affairs, World Population Prospects 2022, CRISIL MI&A

Urbanisation in India likely to reach 40% by 2030

India’s urban population has been rising over the years and is expected to continue with rise in economic growth. From ~31% of the total population in 2010, it is projected to rise to nearly 40% by 2030, according to a UN report on urbanisation.

India’s urban vs rural population



P: projected

Source: World Urbanization Prospects: The 2018 Revision, UN, CRISIL MI&A Research

People from rural areas move to cities for better job opportunities, education, and quality of life. The entire family or only a few individuals (generally an earning member or students) may migrate, while the other members continue to live in their rural home.

WPI softening but food inflation sustains with no respite

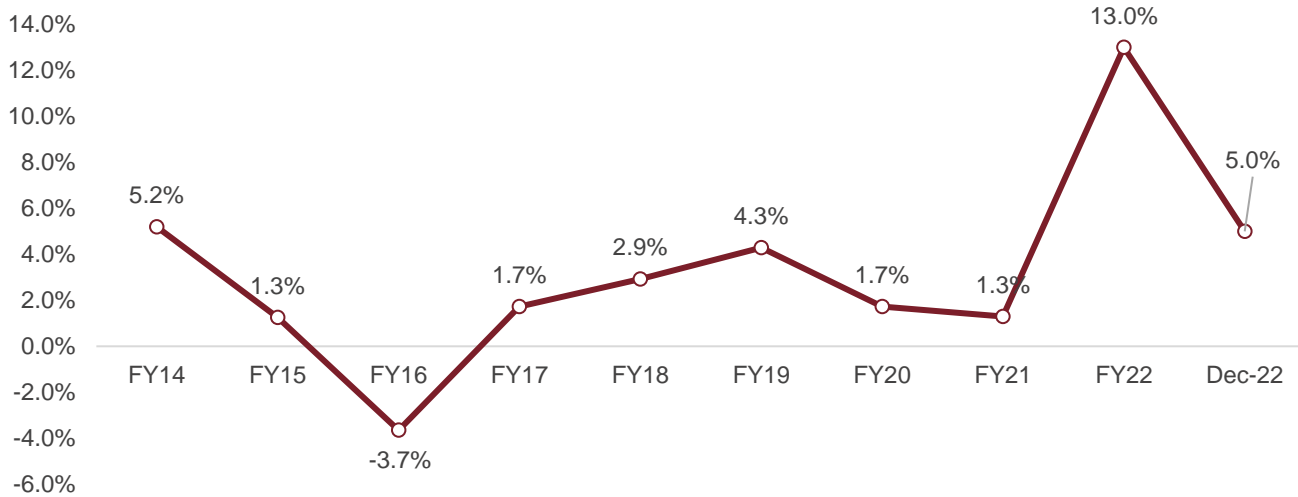
Wholesale Price Index (WPI) inflation has continued to soften in January 2023, decelerating slightly to 4.73% on-year from 4.95% in December 2022, and 6.10% in November 2022. The slowdown in WPI inflation over the past two months was in part because of a waning base effect.

Within the WPI universe, food WPI prices, though, increased 2.9% on-year vis-à-vis 0.7% in December on account of rise in prices of cereals (15.5% on-year), with barley and jowar having the most impact on the print. Prices of milk also increased 9.0% on-year vs. 7.0% in December. Further rise in food inflation was arrested by a sharp 26.5% on-year fall in vegetable prices; although the deflation momentum decreased (prices fell by a sharper 36% in December).

While food WPI inflation accelerated, the softening in headline WPI was because of slowing pace of inflation in crude petroleum (23.8% vs. 39.7%) and mineral oils (17.9% vs. 22.7%). Slowing of the inflation trajectory in manufactured products, led by 2.1% deflation in manufacture of textiles, also contributed to the softening in WPI inflation.

Meanwhile, CRISIL's analysis of disaggregated WPI into input and output WPI shows that the ratio of input-to-output WPI was steady at 1.03 for the third consecutive month – a ratio greater than 1 indicates that input prices are higher than output prices. The relatively unchanged ratio was on account of rise in input as well as output WPI. The increase in input WPI was because of rise in on-month prices of metals, including stainless steel, manufacture of non-ferrous metals, and metallic iron. Higher input prices imply that pressure persists on producers to pass on input costs to consumers. The increase in output WPI was largely due to rise in on-month cereal prices.

India's annual WPI trend



Source: Ministry of Commerce and Industry, CSO, and CRISIL

CPI inflation to rise to 6.8% in FY23 compared to 5.5% in FY22

- CPI inflation rose to 6.52% from 5.72% in December 2022, and 6% print of January 2022
- Food and beverage inflation jumped the most: to 6.2% from 4.6% previous month
- Fuel inflation moderated slightly to 10.8% from a downwardly revised 10.9% of December

Consumer Price Index (CPI) inflation jumped sharply in January 2023 to 6.52% on-year (from 5.72% in December 2022). The acceleration was driven largely by a rise in food (cereals, protein-based items) and core (personal care and effects) inflation. Both momentum (from on-month price increases) and some low-base effect contributed to pulling up the headline inflation, overwhelming the effect of deflation in vegetables. In fact, excluding vegetables, CPI inflation would have jumped to 7.7% in January 2023 (compared to 7.2% in December 2022).

The January 2023 CPI print highlights that pressures on headline inflation from food and core items continue, warranting caution. We had highlighted last month that the December and November CPI numbers, which had printed below expectations, could be considered as idiosyncratic. If the CPI print for remaining months of Q4 remains at the elevated January 2023 levels, average annual CPI inflation could print at 6.7% in fiscal 2023 (above the RBI's revised forecast of 6.5%)

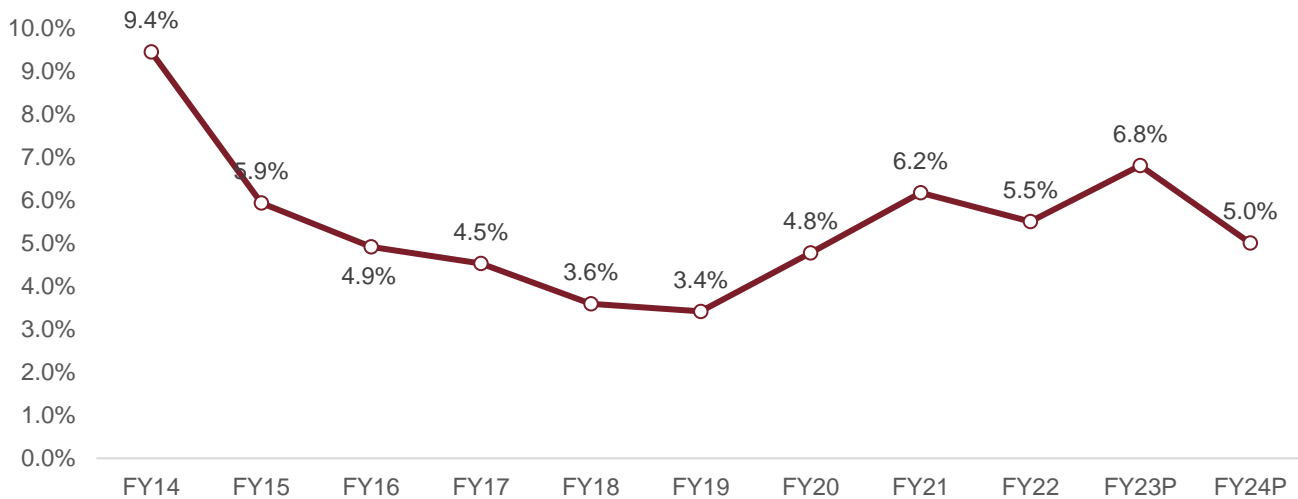
That said, going ahead, food inflation outlook is expected to improve: from both a robust rabi harvest (providing relief for wheat and pulses prices) and improved procurement. Fuel inflation inching down (albeit, only gradually) is providing some comfort: though the trajectory of international crude oil prices remains a monitorable amid persistent geopolitical tensions and re-opening effect from China

Core inflation remains the biggest concern – as also highlighted by the RBI governor in the latest monetary policy statement-with continued passthrough of input costs and domestic demand proving to be resilient

Taking all factors into account, we maintain our fiscal 2023 CPI inflation forecast of 6.8%. Next fiscal, inflation is expected to trend down to 5%, led by a combination of factors: base effect, lower food inflation as cereals' supplies shore up, lower international commodity prices, and impact of monetary policy actions (rate hikes and liquidity withdrawal) on core inflation

CRISIL expects the CPI inflation forecast for fiscal 2023 up to 6.3% from 5.5% earlier as a) food inflation will be driven by the rising costs of production, surging international crop prices b) Fuel inflation to remain high as crude price is expected to remain elevated due to geopolitical tension, weakening of Indian rupee will add to the imported cost of crude and commodities

Trend in average annual CPI inflation



Note: E: Estimated; P: Projected by CRISIL MI&A

Source: Ministry of Commerce and Industry, CSO, and CRISIL MI&A.

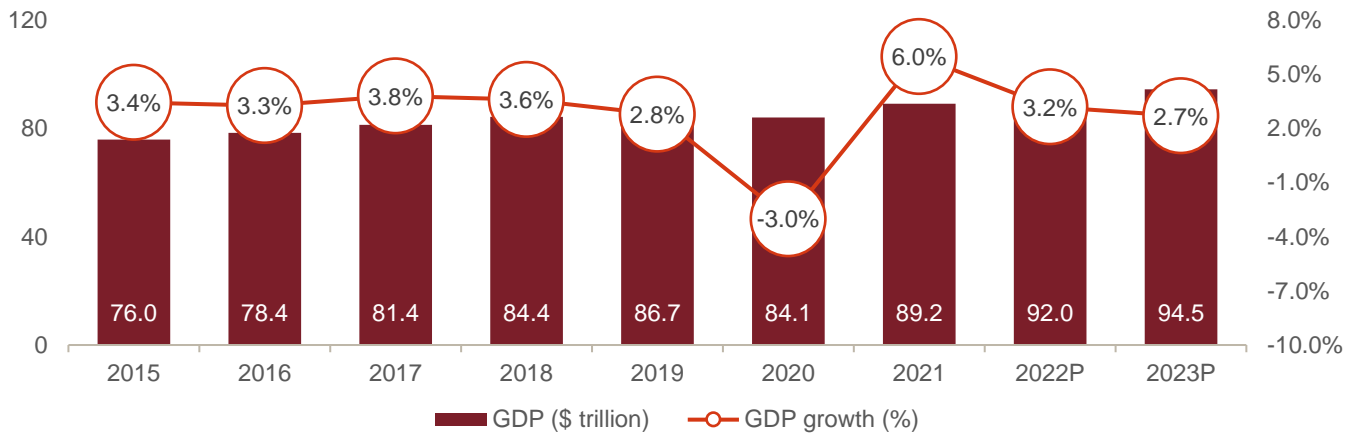
1.2 Global GDP outlook

Global gross domestic product (GDP) growth estimated at 3.4% in 2022 and 2.9% in 2023 amid the Russia-Ukraine conflict, elevated inflation and slowdown in some of the advanced economies

As per the International Monetary Fund’s (IMF) January 2023 update, global growth is expected to moderate from 6.0% in 2021 to 3.4% in 2022 and 2.9% in 2023. This is 0.2 percentage points higher for 2023 than projected in October 2022, the upside revision is mainly due to faster than expected recovery in major economies like US and Euro area. Economic slowdown is expected mainly due to the cost-of-living crisis caused by persistent and broadening inflation pressures, the Russia-Ukraine conflict and the slowdown in China. According to the IMF, The forecast of low growth in 2023 reflects the rise in central bank rates to fight inflation especially in advanced economies as well as the war in Ukraine. The decline in growth in 2023 from 2022 is driven by advanced economies; in emerging market and developing economies, growth is estimated to have bottomed out in 2022. Growth is expected to pick up in China with the full reopening in 2023. The expected pickup in 2024 in both groups of economies reflects gradual recovery from the effects of the war in Ukraine and subsiding inflation.

As per the IMF update, In most economies, amid the cost-of-living crisis, the priority has been on achieving sustained disinflation. With tighter monetary conditions and lower growth potentially affecting financial and debt stability. Accelerating COVID-19 vaccinations in China would safeguard the recovery and ease the bootnecks created in the supply chains,

Trend and outlook for global GDP (2015-2023P, \$ trillion)



Note: P: Projection

Source: IMF economic database, World Bank national accounts data, OECD national accounts data, CRISIL MI&A

1.3 Review of industrial production (polymer-based industries)

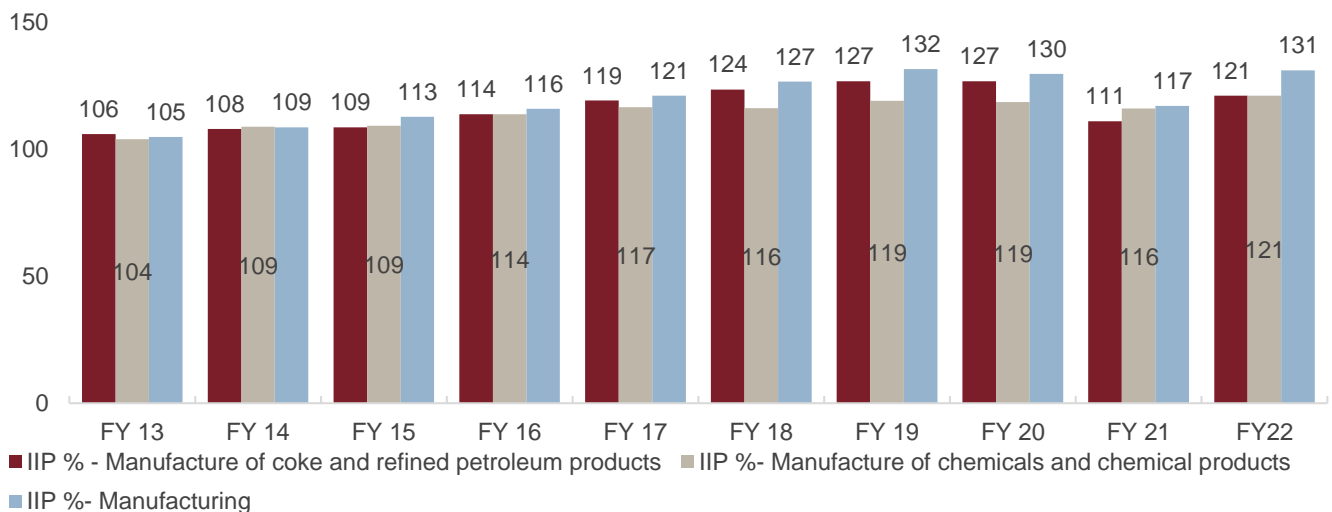
Economic activity in fiscal 2022, as represented by the Index of Industrial Production (IIP), bounced back by 12% as compared to the previous year.

Petroleum and petrochemicals industry have contributed strongly to growth in industrial production

IIP for the petrochemicals and chemicals segment saw a rise of 9.0% and 4.3% in fiscal 2022. IIP for the segment has been strong and growing robustly over the last few years as seen in the graph, as the index grew from 109 in fiscal 2015 to 121 in fiscal 2022. This is supported by the capacity expansion carried out by players during the period.

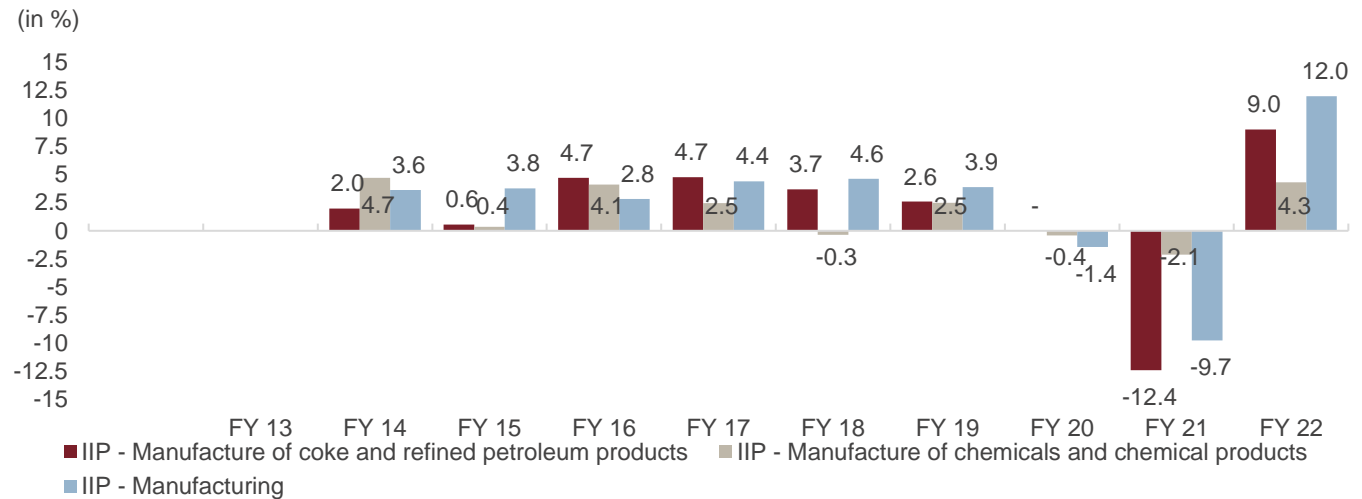
Index of Industrial Production (Base 2011-12)

(in %)



Source: MOSPI, CRISIL MI&A

Index of Industrial Production growth (% on-year)



Source: MOSPI, CRISIL MI&A

Capacity increase for major polymers

Polymer capacity ('000 tonnes)	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	Addition of capacity (FY12 to FY22)	CAGR FY12-22	CAGR FY16-22
Refining capacity in India (MMT)	213	215	215	215	230	234	248	249	250	250	252	39	1.7%	1.5%
Monomer - Ethylene	3,856	3,856	3,856	4,306	4,526	7,126	7,126	7,326	7,526	7,526	7,526	3,670	6.9%	8.8%
Polyethylene (PE)	2,955	2,955	2,955	3,355	3,575	4,635	5,585	5,605	5,655	5,655	5,655	2,700	6.7%	7.9%
Polypropylene (PP)	3,651	4,131	4,131	4,131	4,631	4,971	5,106	5,786	5,856	5,856	5,856	2,205	4.8%	4.0%
Poly-vinyl Chloride (PVC)	1,335	1,347	1,347	1,523	1,523	1,583	1,523	1,568	1,580	1,580	1,580	245	1.7%	0.6%

E: Estimates

Source: Industry, CRISIL MI&A

Manufacturing PMI

The seasonally adjusted S&P Global India Manufacturing Purchasing Managers' Index® (PMI®) posted 55.4 in January 2023. This highlighted a nineteenth successive monthly improvement in operating conditions. Despite falling from December's recent high of 57.8, the headline figure remained above its long-run average. January 2023 data has shown incremental improvement in the health of the manufacturing industry in India. The industry witnessed a string inflow of business at the beginning of 2023. The domestic market was the main source of new business growth as international sales rose only slightly in January 2023. To adjust for rising new orders, firms bought additional materials for use in production. Employment levels were left broadly unchanged as capacities were reportedly adequate for current requirements. Input prices of chemical, electronic component, energy, metal and packaging were reported to be higher. Manufacturers reportedly lifted their selling prices in January, owing to the passing of higher input, transportation and staff cost through to clients

Polymer capacity addition strong since fiscal 2016

India's polymer production is dominated by 5-6 large players such as Reliance industries, ONGC petro additions limited (OPAL), IOCL, BPCL, HPCL and GAIL . Larger players have added capacities for ethylene and polyethylene polymers in the recent few years due to growing demand from end-user segments such as packaging, polymer pipes (HDPE) and growth in biaxially-oriented polypropylene (BOPP) applications. Polyethylene capacity grew at 6.7% between fiscal 2012 and fiscal 2022 while that of Polypropylene grew at 4.8% during the same time. The government of India had laid out a goal in fiscal 2015-2016 to double the refining capacity of India by 2030. Thus, capacities have seen a rise in petrochemicals segments over the last few years which has aided import dependencies in this segment and catered to the end-user segment growth.

Trend in capacity addition of major polymers

Polymer capacity	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	CAGR FY12-22
Refining capacity in India (MMT)	213	215	215	215	230	234	248	249	250	250	252	1.7%
Monomer - Ethylene	3,856	3,856	3,856	4,306	4,526	7,126	7,126	7,326	7,526	7,526	7,526	6.9%
Polyethylene (PE)	2,955	2,955	2,955	3,355	3,575	4,635	5,585	5,605	5,655	5,655	5,655	6.7%
Polypropylene (PP)	3,651	4,131	4,131	4,131	4,631	4,971	5,106	5,786	5,856	5,856	5,856	4.8%
Poly-vinyl Chloride (PVC)	1,335	1,347	1,347	1,523	1,523	1,583	1,523	1,568	1,580	1,580	1,580	1.7%

E: Estimate

Source: Industry, CRISIL MI&A

India's refinery capacities to log 3-4% CAGR in five years

The refining sector is projected to see investments of Rs 1.3-1.8 trillion over the next 4-5 years. As of FY22, the refining capacity of India is 252 MMT per annum. Refineries are undertaking capital expenditure to expand capacities or set up greenfield refineries. Over fiscals 2022 to 2027, 70-75 million tonne (MT) of refining capacities are expected to be commissioned. Consequently, between fiscals 2022 and 2027, CRISIL expects domestic refinery capacity additions to log 4-5% CAGR. Of the overall capacity additions, Indian Oil Corporation Ltd, Bharat Petroleum Corporation Ltd, and Hindustan Petroleum Corporation Ltd are expected to account for over 60% share.

2 Overview of packaging industry in India

Overall packaging industry in India is projected to be Rs. 2,150 - 2,200 billion for fiscal 2023

The polymer packaging industry contributes substantially to the GDP growth in India and at the same time support the consumer-led industries such as FMCG and pharma, key sectors for growth in India, with reliable of packaging solutions.

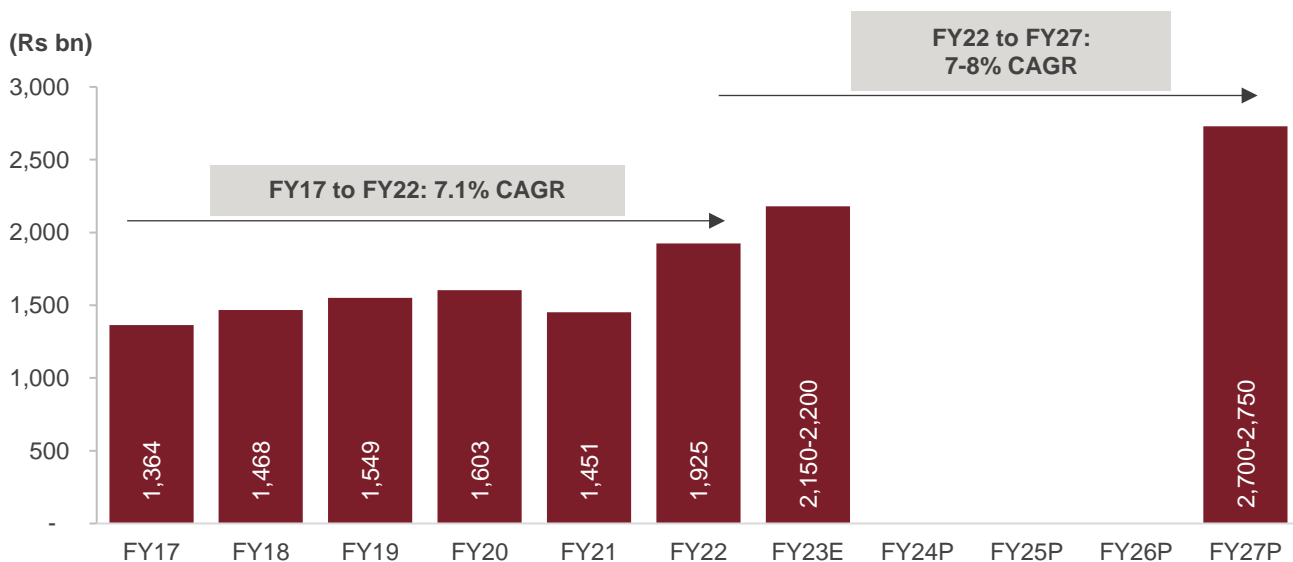
Packaging industry to grow moderately in medium term

CRISIL projects the Indian packaging industry's market size at Rs 2,150-2,200 billion in fiscal 2023, growing at CAGR ~7% from fiscal 2017-22. Polymer packaging, which form nearly 60-65% of the industry by revenue, grew ~6% during the period FY17-22. The paper packaging segment also witnessed a strong ~12% CAGR revenue growth. On the other hand, metal and glass packaging witnessed a ~3% and ~8% growth, respectively during fiscal 2017-2022. Demand for packaging segments comes from food packaging and pharma segments.

Growth in consumer segments to drive packaging industry

Over fiscals 2022-2027 we expect the industry to log 7-8% CAGR on the back of healthy volume growth driven by polymer, paper and metals packaging segments. The pharmaceutical, industry chemical, food product, and personal care sectors are expected to be the key growth drivers. Fast-moving consumer goods (FMCG) companies' increasing focus on innovative packaging solutions that offer scope for enhanced aesthetic value and extended shelf life will also propel demand.

Packaging industry growth



E: Estimated; P: Projected

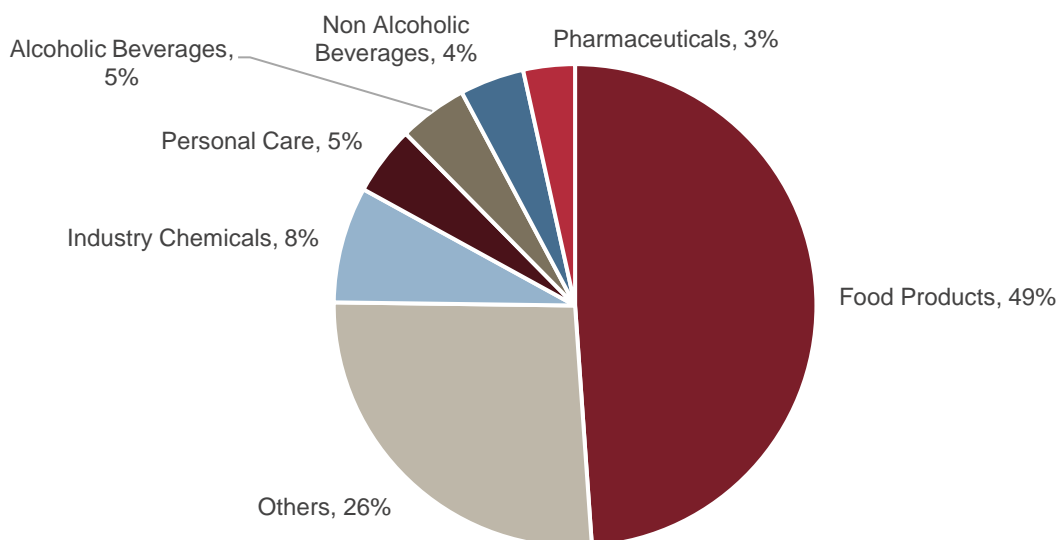
Source: CRISIL MI&A

Polymers form more than half of packaging material

Polymers have emerged as the most preferred packaging material with 60-65% share in overall packaging. The segment has clocked ~6% CAGR between fiscal 2017-2022, following paper packaging, which saw higher ~12% CAGR. Metal packaging witnessed ~8% CAGR during the period and glass ~3% CAGR.

In terms of end-user industries, the pharma and food product segments witnessed a strong ~12% and ~7% CAGR during the period of fiscal 2017-2022, driving demand for packaging. The personal care (~3% CAGR) and industry chemical segments ~4% CAGR also supported the overall industry demand. Traditionally, robust growth in demand for FMCG products has been the key driver for the packaging sector. FMCG companies' focus on rural markets has boosted demand for polymer packaging, especially for pouches and sachets.

Break-up of demand from end-user segments in total packaging industry (fiscal 2022)

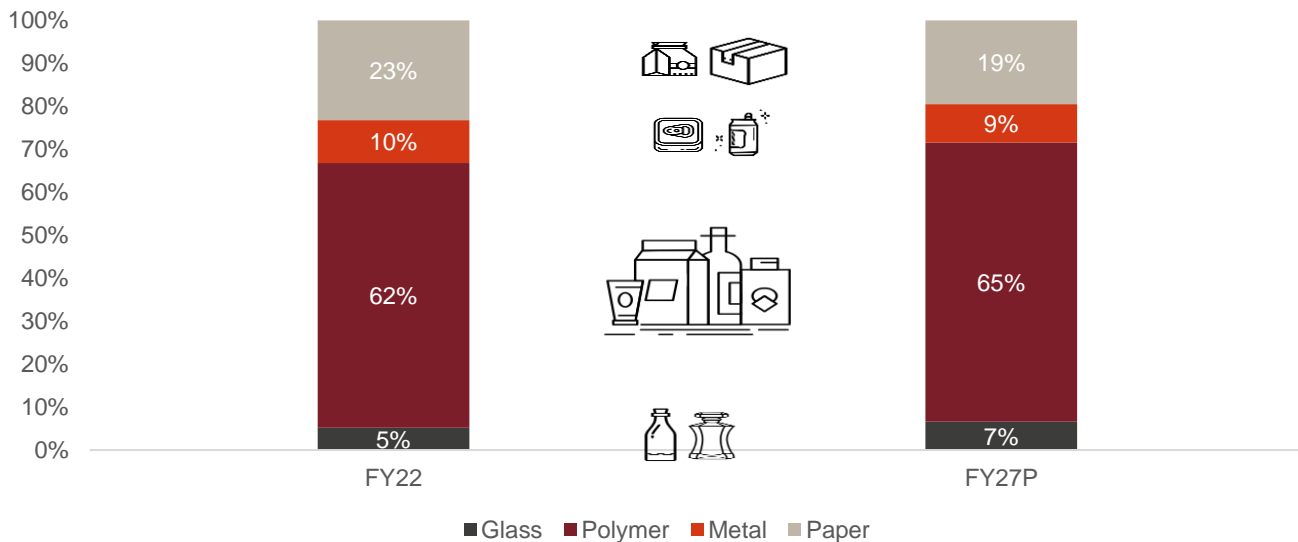


Source: CRISIL MI&A

Polymers to continue to dominate the packaging market

Polymers dominate the packaging market with a 62% share, followed by paper (23%). HDPE (used in jars, packs, and containers), BOPP packs, PET bottles, and PP bags are the key materials used in polymer packaging. Historically, polymers have been substituting metal and glass packaging owing to favourable properties such as light weight, low cost, corrosion resistance, and versatility of use. Polymer is also used along with other materials such as paper in the form of barrier coating to enhance packaging quality. PET, a form of polymer packaging, has been increasingly replacing glass to package products with shorter shelf life. Similarly, HDPE containers are used instead of metal containers to package goods in large quantities.

Polymers dominate packaging



Source: CRISIL MI&A

Awareness about the adverse impact of plastics on the environment and push from state governments to reduce its usage have started impacting demand for polymer packaging. However, it is limited to a few segments, as plastic packaging is irreplaceable in some segments, such as food, owing to the cost factor and perishable nature of the products packaged.

Polymer dominates revenue share of the overall packaging industry

Over fiscals 2022-2027, we expect share (%) for polymers projected to see a growth in share to 65% from 62%. The share of metal packaging is expected slightly decline from 10% to 9%, owing to increasing innovation in flexible and sustainable polymer-based packaging solutions. In the pharma industry, aluminium foil is expected to be used primarily for strips, blisters, and pilfer-proof caps while polymer or laminated packaging will be preferred against aluminium. Moreover, aluminium foil has special properties such as protection from light, moisture, oxygen, odour, and, most importantly, bacteria, which is why aluminium is still used in aluminium based laminates (ABL), but the intensity is low. These features make aluminium almost irreplaceable. For paper packaging segment we expect the share to decrease in value terms as the industry will see capacity shifting from writing and printing segment to industrial packaging. This shift will introduce higher supply, lowering the realisation in value terms. The volume growth will be supported by composite packaging and rise in demand for sustainable packaging solutions. Polymer is expected to see a marginal shift to paper packaging (mainly in the non-alcoholic beverages segment where tetra packs are preferred). Moreover, consumers are inclining towards paper packaging since it is more eco-friendly and easily recyclable. In case of glass, PET bottles have already replaced glass bottles in the non-alcoholic beverages segment, especially for bulk volume packaging. However, we do not expect much substitution of glass in the smaller volume segment (200 ml and 300 ml bottles). Further, in the alcoholic beverages segment, glass is expected to remain the primary packaging material, resulting in slight increase in share over the medium term from 5% to 7%.

Increase in preference for flexible packaging in polymer segment

Flexible packaging comprises BOPP, HDPE, and PP bags and rigid packaging includes HDPE containers, PP containers and jars, and PET bottles. There has been a significant shift in preference from rigid to flexible

packaging owing to convenience of use and lower cost. Introduction of new solutions such as laminated pouches and sachets has helped increase the share of flexible packaging over time.

Over the next three fiscals, the rigid packaging segment's revenue is expected to log higher growth rate than that of flexible packaging, largely backed by volume growth and demand from food products and FMCG sectors. Growth in flexible packaging is expected to be slightly higher than rigid packaging, driven by increased use of BOPP in the form of pouches and sachets to package food products, personal care products, etc.

Key growth drivers for packaging industry

1. Growth prospects of end-user sectors

Growth prospects of end-use sectors such as beverages (alcoholic and non-alcoholic), FMCG, pharmaceuticals and industrial products augur well for packaging companies, given the potential growth in demand for glass, aluminium, HDPE and PET, carton boards, etc.

2. Increasing rural demand for small packaged goods

To attract rural consumers, FMCG companies market their products, largely food and personal care products, in small packets. As a result, ready-to-eat foods, biscuits, shampoo and other categories have witnessed growing demand from rural areas and smaller cities, which has further driven up demand for packaging materials. FMCG companies such as Hindustan Unilever have initiated projects such as Telecalling and Columbus to increase penetration in the rural markets. This is expected to boost demand for packaging.

3. Expected growth in organised retail and e-commerce industry

While the overall retail segment is projected to clock 11-12% CAGR over fiscals 2023-2027, organised retail is expected to log a faster CAGR of 17-19%. Consequently, increased urbanisation and growth of the organised retail segment are expected to boost demand for packaging. E-commerce is driving retail and also lifting demand for logistics and packaging. It has a substantial impact on flexible packaging too.

4. Better affordability levels, health-conscious nature of consumers

Over the past few years, per capita disposable income of Indian consumers has grown at a healthy rate, improving their affordability. Consumers are also becoming more health conscious. As a result, they increasingly prefer packaged and branded food and non-food items over unpacked, non-branded ones. This is also increasing the demand for packaging.

5. Growing population of working women, changing lifestyle a key factor

Population of working women in India has risen steadily of late. As women enter the workforce, they find lesser time for household chores such as cooking. This has increased demand for ready-to-eat food items. Also, launch of items such as pasta, soups, and noodles, which are easier to cook, are fuelling demand for polymer packaging. These products are usually packed in HDPE or BOPP packs.

6. Demand for innovative product solutions and sustainable packaging

FMCG companies are increasingly focussing on innovative packaging, which enhances the aesthetic value of products and also helps extend their shelf life. In addition, players are launching new applications, value-added packaging, developing new designs and using colours and graphics to attract consumers. Apart from design players are also looking at sustainable and environment friendly packaging solutions for their products. All these factors will help packaging industry to offer value added products and improve their realizations.

Government notifies the Plastic Waste Management Amendment Rules, 2021, prohibiting identified single use plastic items by 2022

Government notifies the Plastic Waste Management Amendment Rules, 2021, prohibiting identified single use plastic items by 2022. Pollution due to single use plastic items has become an important environmental challenge confronting all countries. India is committed to take action for mitigation of pollution caused by littered Single Use Plastics. In the 4th United Nations Environment Assembly held in 2019, India had piloted a resolution on addressing single-use plastic products pollution, recognizing the urgent need for the global community to focus on this very important issue. The adoption of this resolution at UNEA 4 was a significant step.

The manufacture, import, stocking, distribution, sale and use of following single-use plastic, including polystyrene and expanded polystyrene, commodities shall be prohibited with effect from the 1st July, 2022:-

- ear buds with plastic sticks, plastic sticks for balloons, plastic flags, candy sticks, ice-cream sticks, polystyrene [Thermocol] for decoration;
- plates, cups, glasses, cutlery such as forks, spoons, knives, straw, trays, wrapping or packing films around sweet boxes, invitation cards, and cigarette packets, plastic or PVC banners less than 100 micron, stirrers.

In order to stop littering due to light weight plastic carry bags, with effect from 30th September, 2021, the thickness of plastic carry bags has been increased from fifty microns to seventy-five microns and to one hundred and twenty microns with effect from the 31st December, 2022. This will also allow reuse of plastic carry due to increase in thickness.

The plastic packaging waste, which is not covered under the phase out of identified single use plastic items, shall be collected and managed in an environmentally sustainable way through the Extended Producer Responsibility of the Producer, importer and Brand owner (PIBO), as per Plastic Waste Management Rules, 2016. For effective implementation of Extended Producer Responsibility the Guidelines for Extended Producer Responsibility being brought out have been given legal force through Plastic Waste Management Amendment Rules, 2021.

All thirty-six States/UTs have constituted the Special Task Force under the chairpersonship of the Chief Secretary / Administrator for elimination of identified single use plastic items and effective plastic waste management. A National Level Taskforce has also been constituted by the Ministry for taking coordinated efforts to eliminate identified single use plastic items and effective implementation of Plastic Waste Management Rules, 2016. Three meetings of the National Task Force have been held. The State /UT Governments and concerned Central Ministries/Departments have also been asked to develop a comprehensive action plan for elimination of single use plastic and implement it in a time bound manner.

Directions have been issued under Section 5 of the Environment (Protection) Act, 1986 to the following:

- Plastic raw material manufacturers to stop supplying plastic raw material for manufacture of banned single use plastic items
- SPCBs/PCCs were directed to revoke / modify consent / registration issued to banned SUP producers
- State Urban Development Department have been directed to take necessary action for implementation of SUP ban. Separately, custom authorities have been asked to stop the import of banned SUP items

CRISIL believes that in the absence of economically viable alternatives, it will be difficult to implement the ban. Plastic packaging forms 7-8% of the cost of the final product. If it is replaced with glass, cost would jump up to

~40%. Hence, alternative means are not viable for most end-user industries. Besides, high-barrier films, which are used for packaging certain food products, do not have alternatives as these help retain moisture and aroma. They are widely used in the food packaging industry. In the medium term, CRISIL expects the impact of ban on single-use plastic to have minimal impact on polymer packaging industry.

3 Laminated tube packaging industry in India

Packaging plays an important role in marketing and selling of a product. The function of packaging has undergone a drastic change in the recent years. Packaging today defines the final saleability of a product. Packaging industry can be categorised into three based on: a) the nature of packaging; b) the type of materials used; and c) the function or layer of packaging.

Nature of packaging

The packaging industry can be broadly classified as:

- Rigid packaging
- Flexible packaging

Rigid packaging involves use of glass, tin, aluminium sheet, plastic (polyethylene terephthalate, or PET, bottles and high density poly ethylene, or HDPE, containers) and paper (corrugated boxes and carton board). Flexible packaging involves the use of lightweight, durable and flexible materials such as plastic films (biaxially oriented polypropylene (BOPP) packs, polypropylene (PP) bags and HDPE packs) and aluminium foils.

Materials used for packaging

Based on the materials used for packaging, the industry can be categorised as:

- Glass packaging
- Metal packaging
- Polymer packaging
- Paper packaging

The table below provides a detailed breakup of the packaging industry.

Classification of packaging industry based on materials used

Packaging material used	Type of packaging	
	Flexible packaging	Rigid packaging
Glass		Bottles, vials
Metal	Aluminium foils	Tin cans, steel drums, pilfer proof caps, aerosol containers, aluminium containers
Polymer	BOPP bags, PP bags, HDPE, low density polyethylene or LDPE, linear low-density polyethylene or LLDPE bags, laminated tubes	PET bottles, HDPE containers
Paper		Corrugated boxes, carton board

Source: CRISIL MI&A

Function of packaging

The packaging industry can also be classified based on the function or layer:

- Primary packaging
- Secondary packaging
- Tertiary packaging

The table below explains the three categories:

Primary	Secondary	Tertiary
First layer of packaging uses PET bottles, cans, PP bags, tubes, containers, etc	Second layer of packaging is to assemble the individual units of product. Examples are corrugated boxes, PP HDPE bags, etc	Third layer of packaging is to assemble boxes and barrels for transportations (examples are pallets, PP films for wrapping, etc) and transporting of bulk industrial products (examples are steel drums, IBCs, barrels etc)

Source: CRISIL MI&A

- The primary packaging is the first layer in which a product is packed. This layer comes into direct contact with the product. It is primarily used in packaging of food products such as ready-to-eat foods, chocolates, snacks etc, where paper or aluminium foil is laminated or metalised for use in packaging
- The secondary packaging is the outer layer of primary packaging. Apart from protecting the products, it also acts as a mode of marketing and branding. Examples of secondary packaging are carton board boxes used in packing food products, personal care products, and pharmaceutical products such as creams, ointments etc
- The tertiary packaging is used for bulk packaging, commonly used for storing and transporting products, such as industrial chemicals, consumer durables, fruits and vegetables etc. Examples of tertiary packaging are corrugated boxes, steel drums, HDPE barrels and containers etc

Overall packaging industry in India is projected to be Rs. 2,150 - 2,200 billion for fiscal 2023

The polymer packaging industry contributes substantially to the GDP growth in India and at the same time support the consumer-led key industries such as FMCG and pharma by providing reliable packaging solutions.

Polymers to continue to dominate the packaging market

Polymers dominate the packaging market with a ~62% share as of FY22-23, followed by paper. HDPE (used in jars, packs, and containers), BOPP packs, PET bottles, and PP bags are the key materials used in polymer packaging. Historically, polymers have been substituting metal and glass packaging owing to favourable properties such as light weight, low cost, corrosion resistance, and versatility of use. Polymer is also used along with other materials such as paper in the form of barrier coating to enhance packaging quality.

Flexible packaging increasingly used in consumer industry

Flexible packaging comprises BOPP, HDPE and PP bags, pouches, laminated tubes, whereas rigid packaging includes HDPE containers, PP containers, and jars and PET bottles.

Revenue from the rigid packaging segment is expected to increase at a CAGR of 5.0-6.0%, while revenue from the flexible packaging segment is expected to clock 10.5-11.5% CAGR over FY22 to FY27, backed by volume growth and demand from the food and FMCG sectors. Higher usage of BOPP in the form of pouches and

sachets to pack food products, personal care products, etc, would drive growth in the flexible packaging segment. Tube packaging is one of the niche and high growth segment within the flexible packaging industry on account of increasing adoption of convenience offered by tube packaging.

Type of packaging based on product category in consumer industry

Product	Sector	Rigid packaging			Flexible packaging		
		Glass bottles / containers	Plastic broad mouth containers – jars, tubs	Polymer cylinder slender containers / bottles	Flexible pouches	Flexible laminate tubes	Aluminium tubes
Creams, gels - Semi-solid content (sunscreen, lotions moisturiser, shaving cream, ointment, etc)	Cosmetics	✓	✓			✓	✓ (pharma)
Toothpaste	Oral care					✓	
Toiletries – face wash, shampoo, conditioner	Cosmetics		✓	✓ (with pump)	✓ (Sachet, mini pack)	✓	
Hygiene product and refills packs – liquid detergent and soap, hand wash,	Hygiene			✓	✓		
Hand sanitiser - gel	Hygiene			✓		✓	
Semi-solid food products – tomato sauce, dips and sauces, honey, masala paste, jam, liquid cheese etc	Food	✓	✓	✓		✓	
Food: snacks and biscuits					✓		
Grease, paint colour additive, adhesive, etc	B2C product			✓		✓	✓
Powder (Dry)	Cosmetics Pharma			✓			
Hair colorant products						✓	✓
Small SKU products B2C and hospitality				✓	✓	✓	

Source: CRISIL MI&A

Flexible laminates to clock 9.5-10.5% CAGR between fiscals 2022 and 2027

Flexible laminates constitute 60-65% share in the total flexible polymer packaging space, followed by mono-layer films used in secondary and tertiary packaging, tube laminates, labels and wrappers.

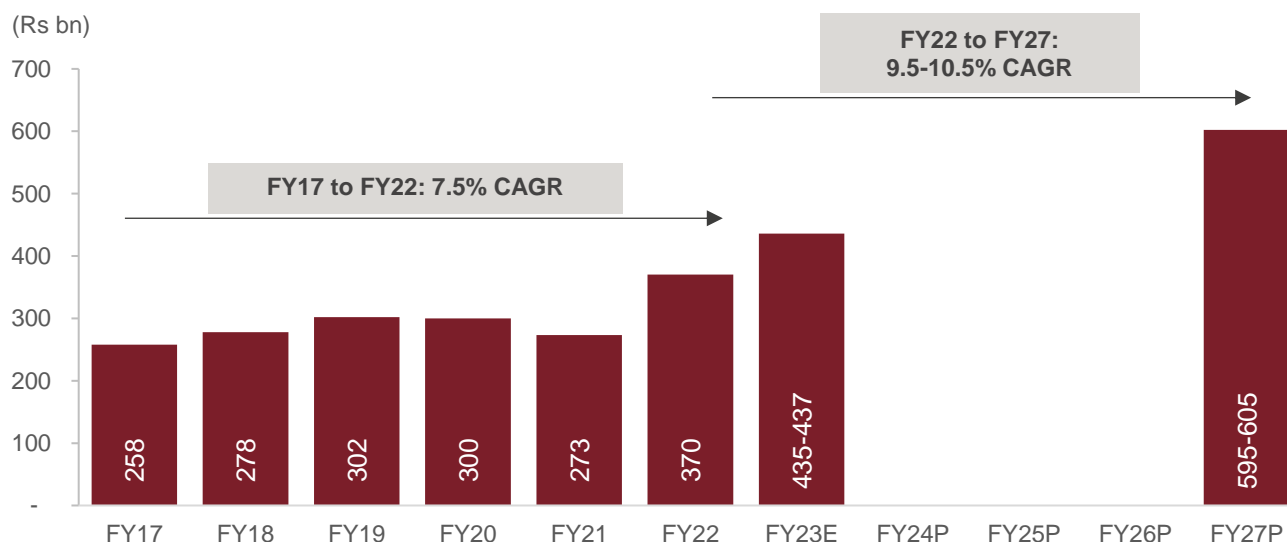
Flexible laminates offer good strength and barrier properties, grease resistance, heat-seal property and attractive designing feature in contrast to mono-layer flexibles and plastic rigid packaging. Flexible packaging is particularly cost effective and environmentally positive because of its light weight. Perfect for dry and liquid applications, flexible packaging laminates create a layer of insulation that protects the packaged products. Various types of packaging materials are used to formulate the laminate structure including PE, polyester, nylon and film foil laminations.

Flexible laminates are used for FMCG pouches and specialised applications such as pharma sachets, pouches, personal care products sachets, etc. With increase in smaller SKU demand in rural India, flexible laminates used for sachet and pouches are expected to see phenomenal growth. Flexible laminates contribute to around 60-65% share in the total flexible polymer packaging space. The rest is contributed by mono-layer films used on secondary and tertiary packaging, tube laminates, labels and wrappers, etc.

The flexible laminates segment clocked 7.5% CAGR over fiscals 2017-2022, Growth in the segment was driven by strong demand for such packaging in the food and FMCG segments, increase in for specialised pouches and sachets in the pharma and personal care segments, and increase in smaller SKUs and trial packs

CRISIL estimates the industry to register 9.5-10.5% CAGR, up from Rs 370 billion in fiscal 2022 to Rs 595-605 billion in fiscal 2027, driven by volume increase in end-use segments. The FMCG industry represents the largest opportunity for flexible packaging. Sub-segments such as food and beverages, and personal care are the major end-users of flexible packaging in India. With growth of this market, demand for flexible packaging is expected to increase. The following trends will likely support growth of flexible packaging going ahead:

Flexible laminates industry in India



E: Estimated; P: Projected
Source: CRISIL MI&A

- Growth in the FMCG industry and increase in consumption basket size of Indian consumers
- Demand for small packets/ pouches for smaller SKUs
- Growth in laminated tubes and bags in boxes; laminated tubes are being increasingly sought after by FMCG brands compared to plastic and aluminum tubes. laminated tubes are mainly used for pastes and ointments, and bags in boxes for moisture-absorbing products such as tea and coffee
- Tube as a packaging format is being increasingly preferred for products in paste/ gel/ cream and even viscous liquid form due to ease of dispensing, convenience, resource reduction, capability for branding and decoration
- Ease of printing has made flexible packaging a tool for branding and display of retail goods
- A range of colour options in plastics has made package designing easier
- Increase in demand for sustainable and environment friendly packaging
- Consumer preference for the use of convenient packaging and packaged products in affordable quantities in versatile laminates
- Export potential with demand from emerging markets and diversifying potential in global supply chain. USA and select European countries are major contributor to the trade in industry and China has relatively moderate share

Laminated tubes are a niche offering in the flexible packaging space

Typical packaging options for semi-solid or cream-based product includes rigid containers, aluminium tubes, laminated (ABL and PBL tubes). Industry is increasingly moving towards flexible tube packaging than rigid containers for various benefits offered by flexible packaging option. Laminated tubes find application across various product categories. Oral care, beauty care and pharmaceutical are the key end-use segments for tube products. Oral care category contributes to 30-40% of volume share in laminated tubes as of fiscal 2022.

Application of tubes

Sectors	Applications
Oral care	Tooth paste
Beauty care	Cosmetics cream, face wash, hand sanitiser, body lotion, conditioner (hare care), hair colourants
Pharmaceutical: skin care	OTC creams, prescription ointments
Food	Sauces, dips, bread spread, curry pastes, honey, liquid jiggery
Other: Home care / industrial	Adhesives, sealants, grease, paint colour, etc.

Source: CRISIL MI&A

Tubes, as a packaging option, are being increasingly preferred for pastes, gels, creams and even viscous liquid forms for benefits such as ease of dispensing, convenience, resource reduction, branding capability, and designing and decoration. Laminated tubes offer products a competitive edge in the market and are used across the globe for packaging in personal care, food, pharma and industrial applications. The oral care industry is the largest consumer of laminated tubes, while an increasing number of tubes are being used in the cosmetics and pharma sectors that are gaining share in laminated tube consumption.

Benefits of flexible tube packaging over rigid packaging

	Tube packaging	Rigid containers
Shape and size versatility	Yes. Collapsible tubes, round, oval tubes of various diameters.	Yes. Various shapes and forms are possible.
Choice of dispensing (caps and closure types)	Various type of closure to suit application form	Limited options: pumps or lids
Handling of packaging during filling process	Handling is minimum and quick, as tubes are pre-fitted with closures and are sealed automatically on the machine increasing efficiency. No separate handling of closure accessories	Lids can be separately handled and fitted after product is filled in the container. This process increases handling and operation time
Logistics and procurement	Single-source and single unit supply advantage	Labels, caps, lids, containers are source separately
Product exposure and contamination during usage by customer	None, touch free application	High
Barrier properties and shelf life	Increase shelf life of product due to low contamination, use of various laminated to offer improved protection different barrier properties (Aluminium foil-based tubes)	Use of preservatives is high due to contamination risk and direct exposure to environment
Special effects by printing and print innovation: graphics, quality, profiled edge	Various possibilities of printing and graphics on account of laminate sheets. 80-90% of tube can be used for printing	Highly dependent on label printing

Source: CRISIL MI&A

Laminated tubes offer combined properties for aluminium and plastic tubes

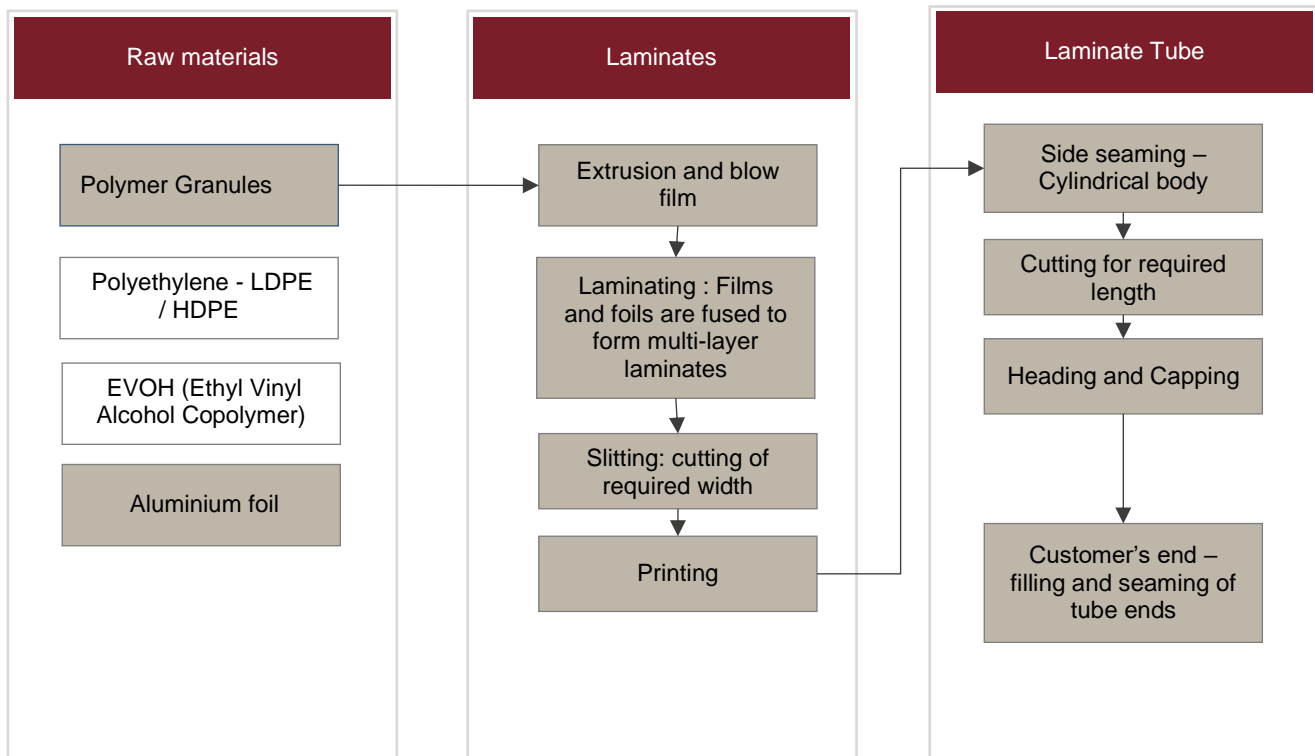
Laminate tubes are a hybrid of aluminium tubes and plastic tubes. They efficiently protect contents thanks to many overlaid layers, one of which is the barrier layer. Both longitudinal edges of the laminate tube are welded together and constitute the body which is then sealed to the tube shoulder. Depending on the product and its content, barrier layers are made of aluminium or ethyl vinyl alcohol (EVOH) plastic.

The multilayer laminated tubes (lami-tube) made from laminates with aluminium foil barrier combine the excellent barrier advantages of traditional metal tubes and the attractive visual and tactile feel of the plastic tubes. Such tubes are not only used for toothpaste applications, but also for cosmetics, food, pharmaceutical and household and industrial applications.

- Laminate is a product made by bonding together two or more materials, whether plastic or aluminium foil
- Laminates assemble materials with individually desirable properties to create an optimum combination
- Aluminium foil possesses the best barrier properties and preserves products from light, oxygen and moisture

Laminated tubes are made of plastic with the barrier layer being made of EVOH plastic granules. EVOH is primarily used in applications where the packaging needs to look extra attractive, especially cosmetic products. Laminated tubes made of all plastic layers can be completely transparent and make the final product packed inside the tube visible to the customers. Distinction between laminated tube and plastic tube packaging is blurring with plastics based laminated tubes due to introduction of EVOH tubes.

Manufacturing process of laminated tube



Source: CRISIL MI&A

Polymer granules or tube laminates are basic raw materials for tube manufactures

The industry has both tube manufactures with no backward integration and those with backward integration (manufacturing of tube laminates). In the former, manufacturers/ suppliers of tube laminates cater to the need of non-integrated tube manufactures.

Laminated tubes are supplied to oral and personal care product manufacturers in the form of open-end cylinder tubes, which are filled with the product at customer’s end and sealed. The tubing process - seaming of cylindrical body of tube and heading and capping, can be done at a smaller unit closer to the end-user. In such a scenario, tube laminates (printed or non-printed laminated sheet rolls) are sold by players with laminate extrusion capacities to smaller tubing units, who roll, seams and fit applicable fittings to the tube. These are then delivered to the end-user. Large to mid-sized players are known to have backward and forward integration – manufacturing polymer granules to printed tubes for filling.

Innovative product offerings to increase category penetration

Many established players have been offering a plethora of aesthetical benefits such as 360-degree printing; utilisation of the entire tube torso for branding from shoulder to crimp; high-definition graphics; imparting metallic effects using advanced registered printing; registered lamination; superior surface finish using matte and gloss effects and electron beam (EBM) coating for ultra-high gloss among several others. Depending on the requirement of the product being packed for the brand/ customer, various layers are used for creating a desired laminate which includes combinations of different types of polyester; metallised polyester; holographic metallised polyester; and metal sheet such as aluminium foil; additional polymer-based barrier such as EVOH or nylon; and special application film with SiOx2 coat; AlOx coat transparent barrier substrate and others.

Players are even innovating and increasing the sustainability and recyclability of laminated tubes. More environment-friendly and green tubes are being introduced.

Growth in lami-tube segment is attributed to integration of printing and design technology by tube manufacturers. Improved packaging, ease of use, portability, and convenience of tube packs. Tube manufacturers are offering innovative products such as collapsible tubes, two or multi chambered tubes, hologram design on tubes, etc. to attract packaging industry to tube packs.

Laminated tubes logged 6.2% CAGR over fiscals 2017-2022, led by non-oral category shifting to laminated tubes

Laminated tubes are used in oral care for toothpastes; in cosmetics for face wash, creams, hairs colourants, etc; and in pharma for cream-based products. These are used in the food segment as well for select semi-solid products such as sauces and dips, albeit limited. On account of increase in demand for laminated tubes due to better packaging and design features, volumes have jumped. The industry recorded 6.2% CAGR between fiscals 2017 and 2022, driven by growth in end-user sectors and shift to lami-tubes from conventional aluminium-based and mono-layer plastic tubes. Laminate tubes are gradually replacing plastic and aluminium packaging tubes as the preferred packaging on account of providing better functionality and product safety.

Growth was supported by the following trends:

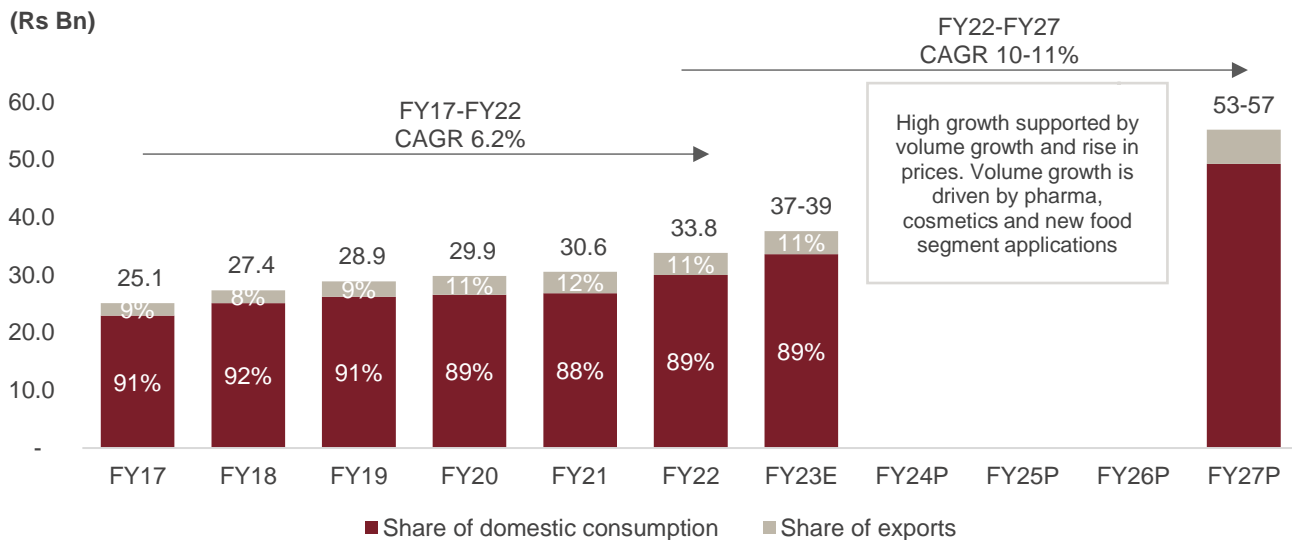
- In the cosmetics segment, shift from rigid packaging solutions such as PET bottles to flexible extruded tube packaging
- Increase in the usage of ABL tubes in pharma application and over the counter (OTC) creams
- Growth in higher value products in the personal care category (non-oral) due to increase in usage of beauty/ cosmetics and pharma OTC creams
- Increase in cosmetics penetration and sales of lip care, eye care, hand creams, face care and OTC ointments/ gels and prescription-based skin application medicine, which are key users of tubes
- New products like sanitizers and henna were launched in laminated tubes

Exports contribute ~10-11% of the industry turnover as of fiscal 2022-23

Exports for tube industry has grown at par with the domestic consumption growth. India largely caters to near-by nations and European, middle East and African markets for exports. Export over long distance is not a viable option for the tube industry. End-use industry prefers procurement of packaging material from near-by regions as logistics cost doesn't make economic sense and customers may end up with logistics cost equivalent to the packaging product cost. Also given tube packaging occupies substantial volume in cylindrical format and product shape may suffer damage, client prefer export of tube laminates over laminated tubes. Tube laminates are exported as rolls of sheets. Thus, packaging industry largely exports intermediates products such as laminates sheet than end products.

Many global groups and players with presence across various geographies such as Essel Propack, Alltub, Abdos and others general cater to the respective markets through domestic units than exports. Going ahead exports share is expected to remain strong supported by growth in end-use sectors in south Asian and African continent and select European regions. Diversification of supply chain to procure from different regions will support growth of exports.

Domestic industry size



E: Estimated; P: Projected

Source: CRISIL MI&A

Laminated tubes are estimated to clock 10-11% CAGR over fiscals 2022-2027, led by volume growth in personal care categories – pharma, cosmetics and new food segment

The industry is expected to grow faster going ahead driven by rapid growth in consumption of personal care products – pharma, cosmetics and new food segment. Laminated tubes are expected to clock a CAGR of 10-11% over fiscals 2022-2027, driven by increase in volume sales of personal care categories and higher penetration in the India metro and non-metro markets, increase in value addition and design aspects of tubes for attractive marketing, and moderate increase in raw material prices. The change in mix towards high value tube offerings in personal care and beauty category will drive value growth for the industry. Over the next five years, extruded mono-layer and aluminium tubes are also likely to be substituted by laminate tubes, especially in the skin care and pharma/healthcare segments. The key growth trends expected to drive sales and realisations of tube manufacturers are as follows:

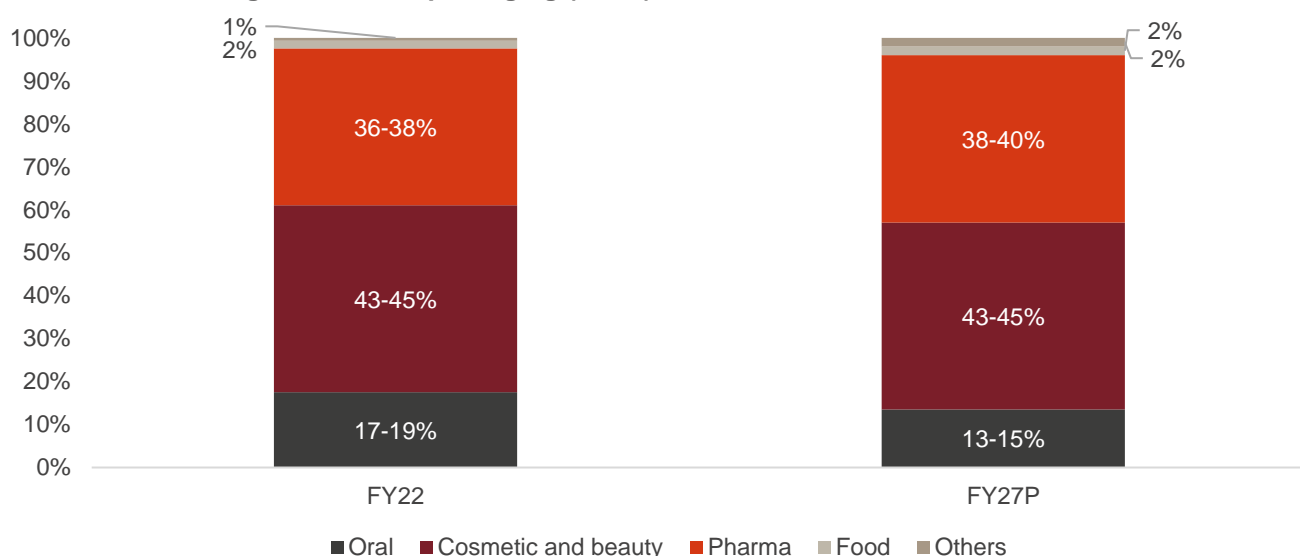
- Continued shift to ABL tubes in the pharma segment for OTC ointments/ gels and prescription cream-based skin application medicine
- Growth in end-user segments and rise in share of personal care categories in tubes, driven by sales of lip care, eye care, hand creams, face care and OTC ointments/ gels and prescription cream-based skin application medicine
- Growing concerns over package sustainability and costs are also likely to facilitate substitution of bottles by tubes in personal care products
- Increase in exports potential and consumption in the European, Middle East and Africa markets. Middle east and African markets have low penetration of production facilities which creates potential for exports
- Shift from conventional oral care to beauty and pharmaceutical products, demanding high packaging protection and value addition
- Increase in demand for sophisticated and attractive designs and prints on tubes leading to rise in realisations

Personal care and beauty products to drive growth for lami-tubes

Tubes have been used for products such as face creams, shaving creams, toothpaste since the product inception. Now, various new products are always increasing using tubes as packaging options due to convenience and increased graphic and printing options. New category penetration for tubes include food products, pharmaceutical and skin care creams, hand sanitisers. Innovation in form of various layers that add safety and protection to contents inside have increased penetration of tubes.

Tube find application in oral care, pharma, cosmetics and food industry, with cosmetics and beauty category contributing a major share of the industry. The change in mix towards high value tube offerings in personal care and beauty category will drive value growth for the industry.

Share of end-use segment in tube packaging (value)



P: Projected

Note: other categories include sealants, adhesives, paints, etc.

Source: CRISIL MI&A

Cosmetics and skin care will contribute to drive volume as well as value growth for the industry

Cosmetics and personal care: Cosmetics and personal care contribute to about 43-45% of the tube industry in India. Growth in tube industry will be largely driven from cosmetic industry due to rise in consumption of cosmetic and personal care product in India.

Brand is the key differentiator for players in this category, thus making product graphic and design an important element for marketing and sales. Various developments on graphics and printing technology in tube industry have moved players to tube packaging. Players have opted for more value added and attractive type of packaging to increase sales of their products. The cosmetics and personal category also contribute to industry as high value product offerings due the printing and designing feature. Tubes for cosmetics and personal care category are valued 2.0 to 5.0 times regular non printed tubes.

The cosmetics and skin care industry grew at 6-8% over the last five years. Going forward, we expect revenues of tube packaging from cosmetics segment to grow by about 10-11% per cent CAGR over the medium term. The growth in cosmetics industry penetration is largely supported from volume growth coming mainly from rural areas through increasing penetration and marketing initiatives. The cosmetic and beauty industry is expected to see revenue growth in both volume and value growth, as existing customer move to high value products. The cosmetics

segment is expected to witness a growth on the back of higher disposable income, increasing awareness of beauty products and rising emphasis on personal grooming.

Rise in demand of value-added product in term of increased graphics and printing requirement on tube packaging will also drive value growth for the tube packaging industry.

Pharmaceutical segment – The pharmaceutical segment, that is skin care OTC and prescription products is one of the fastest growing segments for the pharmaceutical industry. The dermatology segment is expected to see a lower double-digit growth over the next five years. The overall pharmaceutical formulations are expected to witness a CAGR of 11.5-12.5% up to fiscal 2027 driven by increase in penetration of healthcare facilities, improving insurance coverage, increase in per capita income, ageing and health-conscious population.

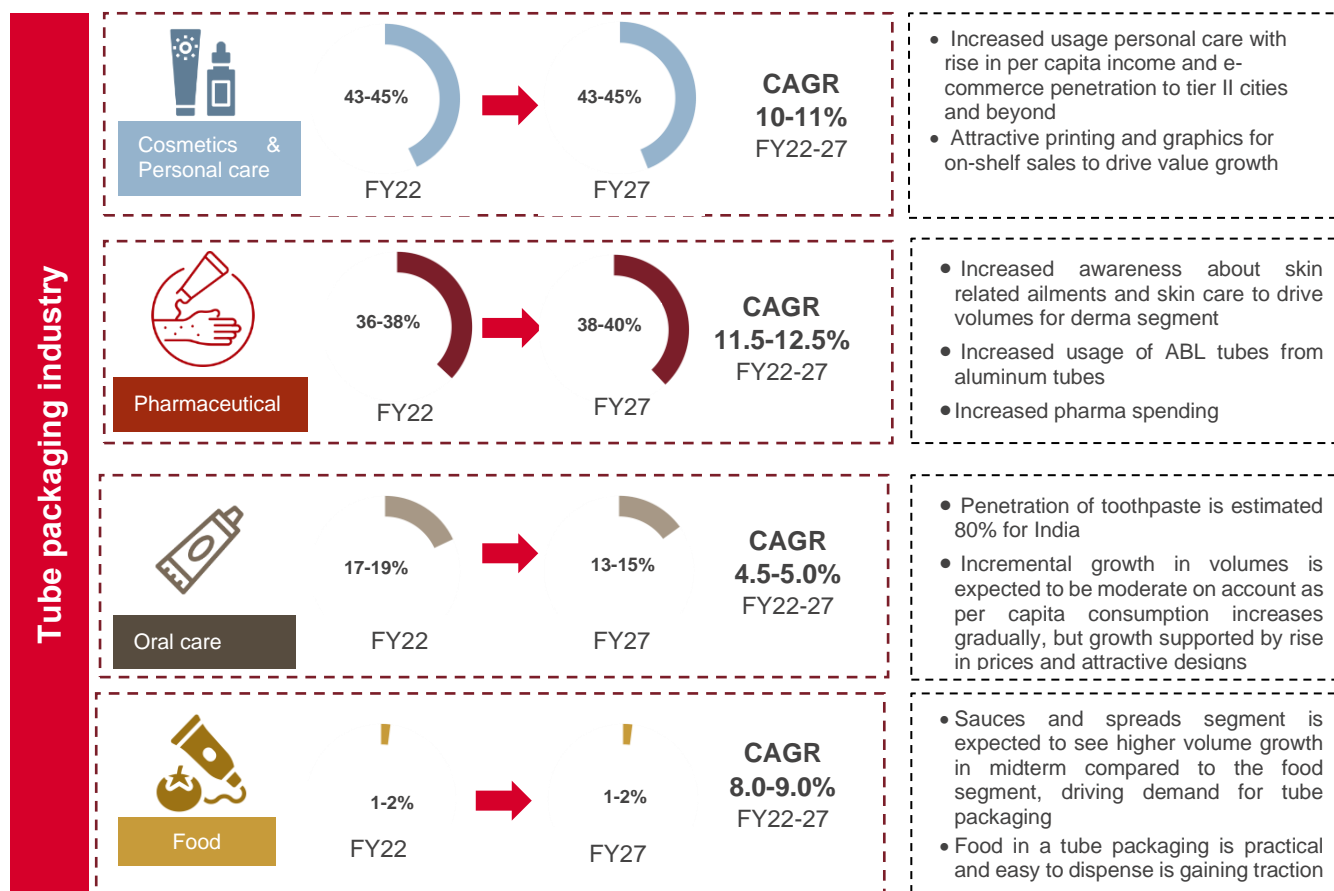
Pharmaceutical segment contributes to 36-38% of tube packaging industry revenue as of fiscal 2022 and is expected to contribute 38-40% share by fiscal 2027. Growth will be driven by rise in volumes due increased penetration and usage of skin care products. Also, the segment has seen shift from aluminium tubes to ABL tubes driven by economic prices of ABL tubes and similar safety, security and sustainability of packaged products offered by ABL tubes. The barrier properties of ABL tubes makes it as effective as aluminium tubes with added benefit of low convenience offered to end-users. ABL tubes retain their original shape and size unlike aluminium tubes making it easier for end-users to use the product at the end of life as well.

Pharmaceutical products need to conform to various standards and safety of product and thus packaging players a crucial role in ensuring safety of the product. Each product may require specialised packaging and barrier properties to ensure safety, longevity and effectiveness of product. Pharma players procure packaging material from pre-approved vendors who offer standard and consistent product with desired quality parameters. Thus select few packaging players cater to the specialised requirement of pharmaceutical industry.

Oral care - Oral care segment which consists of toothpaste have traditionally used laminate and plastic tubes as primary packaging. The segment sees continual and sustainable demand as the product is a basic hygiene commodity product having daily and habitual application by users. Given low penetration of toothpaste in India, the segment is expected to grow gradually driven by volume sales in rural area. Rural consumers are directly shifting to toothpastes instead of gradually shifting from herbal sticks to toothpowders and then to toothpastes. This will drive growth for toothpaste market which is expected to grow at a sustainable pace in the next few years as per capita consumption increases. The growth will be in the range of 4.5-5% driven by volume sales as the segment see gradual improvement in penetration in rural area.

Food segment- Food in a tube packaging is practical and easy to dispense. This segment is gaining traction and is expected to grow at a CAGR of 13-14% by fiscal 2027. Sauces and spread segment are expected to see a slightly higher volume growth in midterm driving the demand for tube packaging.

Growth potential for major end-segments (FY22-FY27)



Source: CRISIL MI&A

Non-oral care categories to support value growth

Non-oral care categories dominated by toiletries, shampoo, skin care and ointments, is product development driven and requires research and development to introduce the right product for effective packaging. Oral care category is akin to commodity product with limited innovation and value addition. Oral care category has highest share in volume terms in the tube industry with share of 30%-40%. Advancement in printing, graphics, look and feel of cosmetics packaging products is essential for client to attract end-users among high competition in the market. The non-oral category tubes sell at premium price as compared to oral category due to various layers of protection and printing and finish of material.

The pharmaceutical category sells at 2.0x – 3.0 times the oral care category products while personal care and cosmetics tubes find 2.0x – 5.0 times the value in the market because of added branding and graphics offered. The non-oral category also enjoys higher margin on account on small order size of single variant, or high variability within a segment leading to small volumes of single SKUs. A short tenure packaging style, and evolving graphics and branding designs increases customisation for tube products and keep price and margins high for the tube manufacturing industry. The shift towards high value products will drive growth of for the laminated tube manufacturing industry.

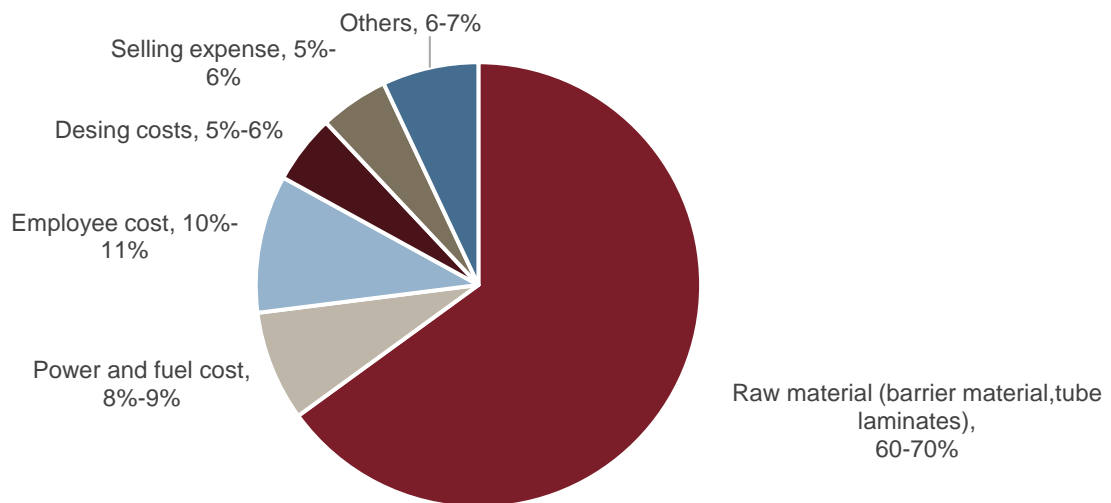
Segment wise product pricing

Segments	Price range
Oral care	1.0x
Pharmaceutical	2.0x - 3.0x
Personal care and cosmetics	2.0x - 5.0x

Source: CRISIL MI&A

Raw material forms large share of tubes cost structure

Raw material such as various barrier materials, laminated sheets form the major share in tube cost structure. Raw material accounts for 60-70% of the total cost structure for tubes, while design costs contribute to 5-6% of cost structure for printed tubes. Given the variability in polymer prices back ward integration for manufacturing of tube laminates in-house increase margin potential for players. Hence many large and medium sized players have integrated laminated manufacturing and printing capabilities.



Source: CRISIL MI&A

Growth drivers and trends in laminated tubes packaging

- Growth in pharmaceuticals and cosmetics to support segment** – Demand for pharmaceutical OTC and cream-based medicines are expected to rise up to fiscal 2027. While the overall pharmaceuticals industry is expected post ~11-12% CAGR till fiscal 2027, the personal care and cosmetics segment is also expected to see an equally healthy growth of 9-10% CAGR, owing to deepening penetration into non-metros, consumers increasingly becoming conscious of skin and face care, and rising discretionary spending as income levels increase. The rise in the dermatology segment will support growth of the domestic tube industry
- Shift from aluminium tubes to laminated tubes:** Aluminum tubes are used for packaging ointments, adhesives and sealants, oxygen-sensitive hair products, skincare products, and art paints. However, drawbacks of aluminum tubes as compared with extruded plastic tubes and plastic laminated tubes, such as higher cost and inability to retain the original shape after repeated usage, is seeing slow, but steady, replacing of aluminum tubes. Also, laminate, which is an assembly of materials such as aluminum foil, HDPE layers, etc., creates layer-based required features

- **Shift from rigid bottles or related packaging to flexible tubes:** Many customers in the pharmaceuticals and cosmetics segments have moved away from rigid packaging in favour of tubes. Even customers in niche segments, such as art supplies and commercial hair products, are moving to tubes. This shift to flexible extruded tube packaging from rigid packaging is also because of the product's superior barrier properties, which increases the product shelf life and ease of use. Low cost is the reason for customers switching to tubes from rigid containers, as well
- Tube as a packaging format is being increasingly preferred for products in paste/ gel/ cream and even viscous liquid form for reasons of ease of dispensing, convenience, resource reduction, capability for branding and decoration. Laminated tubes are being increasingly sought after by FMCG brands compared to plastic and aluminum tubes.
- **Provide sensitive formulas with required protection:** Multi-layered laminate tubes, with barrier layers, provide sensitive formulas with the required protection and flexibility in usage for easy application. Barrier layers in a multi-layered tube structure include EVOH plastic resin or aluminum. Also, the foil polymer tubing eliminates creasing, and provides flexible, rotary or process printing, in addition to the traditional printing methods. This increases the design feature of tubes for brands in their sales and marketing efforts. Lami-tubes offer high aesthetic design, as well as provide metallic effect along with variety of decoration and customisation options
- **Eco-friendly packaging alternatives:** Manufacturers in the tube industry are introducing recyclable designs, such as Essel Propack's Platina 250 and Green GML 300, Albéa's Greenleaf 2 Tube, and Uflex paper-based tube packaging KRAFTIKA. Manufacturers expects a good demand for eco-friendly sustainable packaging over the next five years, despite it being 15-20% costlier than non-ecofriendly packaging products as global brands are looking at sustainable packaging material that can reduce harmful impact on the environment and is recyclable or re-usable.
- **New segments:** New application such as Heena in tube format, hand-sanitizer in tube formats, introduction of sauces and spread in tube format to Indian market is expected to support growth in laminated tube industry.

Challenges and risks in laminated tubes packaging

- **Acute competition:** Competition is considerable for domestic medium and small-scale players in the flexible packaging space. Large and established players enjoy superior positioning owing to innovative products and better service offerings, in terms of design. Rising cost pressures because of several tube manufacturers in the space and standard low-cost offerings will ensure acute competition in the industry. Also, there is competition from unorganised manufacturers owing to the low entry barriers. However, manufacturers can reduce competitive intensity by focusing of research and development of innovative products and introducing better design features.

Furthermore, the ability to provide new products in line with customers' changing requirement will provide an edge over competitors. In fact, the industry is undergoing rapid changes, in terms of product innovation and offerings. But this lower lifecycle of product design has further increased competition, and, hence, the need is for constant innovation and improvement of the production facilities to manufacture new structure or laminates effectively. Traditional rigid packaging users are also shifting to flexible packaging mainly because flexible packages are aesthetically attractive, cost-effective and sturdy

- **Volatility in raw material prices:** Polymer and aluminium foils are the key raw materials. As raw material accounts of 60-65% of the product value, it plays a critical role in determining profitability. Given that polymer is

a crude oil-derivate, it is subject to high volatility in prices. With current high crude prices, going forward crude oil prices will be expected to see downward correction. The risk of loss or decline in realisations from decline in prices is a key monitorable for the company

- **Backward integration by customers:** Currently, laminated tubes are primarily directly delivered to end-use customers. But, any backward integration by customers and the development of in-house tube-making facilities will lower realisation for the laminated tube industry
- **Lack of access to advanced technology:** Consumer goods companies are on a constant lookout for ways to cater to consumers' evolving needs and make use of attractive packaging to sell product in a highly competitive market. They tend to rely on flexible packaging companies to innovate and attract more customers. At times, the flexible packaging industry may find it difficult to keep pace with these fast-changing demands. Furthermore, flexible packaging companies have to make constant technology upgrades from product quality and printing capabilities to meet these demands, which would require huge capital investments.

Due to increasing focus on maximising output and capacity utilisation, there is minimal focus on research and development by small and mid-sized players. Most of the technical components in domestic machinery are imported from Japan, the US and Europe, which leads to a much higher capex to set up a plant.

- **Increased demand for sustainable packaging:** Clients, especially established brands look for sustainable solutions for packaging with minimum impact on environment. Players are innovating to include paper board based tubes, sugar care paper tubes, post-consumer recycled (PCR) tubes made with recycled plastic offering same barrier properties. Separation of laminates for recycling poses challenge and substantial efforts for recycling. Thus demand for sustainable packaging, drives players to constantly innovate and offer better packaging solution to clients without impact the feel, look and protection offered by the tubes.
- **Large capital expenditure (capex):** The packaging industry requires significant capital to enable investments in plant and machinery, technology and research to enable innovation of new products.
- **Working capital cycle:** Poor bargaining power increases their debtor and inventory cycles, which drives up working capital requirements, thus hampering companies' credit profile
- **Impact on tourism:** Travel-tubes sales were impacted on account of slowdown in travel and tourism industry and macro-economic impact from covid pandemic

Impact of Covid-19 on Flexible Packaging Industry

The Flexible packaging industry had seen a mixed impact in its growth rate fiscal 2020- 2021, on one hand the packaging industry had seen a supply chain disruption in terms of raw material and finished goods dispatch delays while on the other hand, there was an increase in the demand for flexible plastic packaging for food, beverage, and chronic pharmaceutical applications for product packaging during COVID-19 as people are resorting to panic-buying and bulk stocking daily staples, FMCG, and fresh food through e-commerce & online channels due to fear of lockdown, which leads to an increase in the demand for flexible plastic packaging solutions. Beauty & Cosmetic category had seen a slowdown in demand but it also recovered eventually.

The demand for flexible plastic packaging in the pharmaceutical industry, remained robust as hospitals, drugs, and PPE manufacturers were responding to the crisis. Companies moved to tube for packing hand sanitizers, as it is considered to be ideal to carry and use. Company secured large orders from leading companies globally and has a healthy pipeline for hand sanitizer tubes.

4 Competitive landscape in tube packaging industry

Data in this section is obtained from publicly available sources, including annual reports of players, regulatory filings, credit rating rationale, investor call transcripts and/or company websites. The financials used in the competitive section are re-classified by CRISIL based on the annual report and financial fillings by the players for standardisation of financials across all competitors.

CRISIL has considered the following companies as competitors for Shree Rama Multi-tech Limited. This list of companies either operate in same line of business or offer same product portfolio as that of Shree Rama Multi-tech Limited and whose financials are available in public domain. Please note the peers set considered below is an indicative list and not an exhaustive list of players present in the tube packaging industry.

Kindly note that the following abbreviations are used for the companies in this section

- Abdos Lamitubes Private Limited: Abdos
- Betts India Private Limited: Betts
- Creative Stylo Packs Private Limited: CSPPL
- EPL Limited: EPL
- Huhtamaki India Limited: Huhtamaki
- Perfect Containers Private Limited: PCPL
- Printotech Global Limited: Printotech
- Prisha Tubes Private Limited: Prisha Tubes
- Shree Rama Multi-Tech Limited: SRMTL
- Skypack India Private Limited: Skypack
- Uflex Limited: Uflex

4.1 Operational overview

Overview of some of the key players considered

	Year of incorporation	Parent location	Global operational presence	End use segments for packaging industry (indicative list)
Abdos	2004	India	-	Cosmetics, food, oral care, pharmaceuticals
Betts	1994	France	-	Cosmetics, oral care, pharmaceuticals
CSPPL*	2011	India	-	Cosmetics, FMCG, personal care, pharmaceuticals, pesticides
EPL	1982	India	USA, Mexico, Colombia, UK, Germany, Poland, Russia, Egypt, India, China, Philippines	Food, home care, Oral care, personal care, pharmaceuticals,
Huhtamaki	1950	Finland	Africa, Middle East, South east Asia, North and South America, LATAM	Food, beverages, petfood, personal care, healthcare, pharmaceuticals
PCPL	1980	India	-	Pharmaceuticals, cosmetics, adhesives

	Year of incorporation	Parent location	Global operational presence	End use segments for packaging industry (indicative list)
Printotech	1993	India	-	Cosmetics, toiletries, pharmaceuticals, chemicals
Prisha Tubes	2001	India	-	Cosmetics, toiletries, pharmaceuticals, chemicals
SRMTL	1993	India	-	Oral care, cosmetics, pharmaceuticals, food, personal care, industrial
Skypack	1987	India	-	Personal care, pharmaceuticals, food, agriculture, industrial, adhesives among others
Uflex	1988	India	Dubai, Mexico, Egypt, Poland, USA, Russia, Hungary, Nigeria	Food, petfood, cement, paint, pharmaceutical, cosmetics

Note:

*: As of FY21, EPL Limited (EPL) has acquired 72.46% share in Creative Stylo Pack Private Limited (CSPPL)

For Betts India Pvt Ltd (Betts), dentifrice is considered as oral care and skincare is considered as cosmetics

For EPL Limited (EPL)

- Personal care includes face care, hair care, eye care.
- Pharmaceuticals consists of OTC and prescription medication, hygiene products

For Prisha Tubes Pvt Ltd, herbal cosmetics is considered as cosmetics

For Skypack India Pvt Ltd, medical packaging is considered as pharmaceuticals and construction adhesives is considered as adhesives

For Uflex Ltd, edible items is considered as food

Source: Company filings, Company website, CRISIL MI&A

Segmental presence of some of the key players considered

Players	BOPP / BOPET / CPP films	Flexible packaging (laminates)	ABL	PBL	Laminated tubes
Abdos	✗	✗	✓	✓	✓
Betts	✗	✗	✗	✗	✓
CSPPL*	✗	✗	✗	✗	✓
EPL	✗	✓	✓	✓	✓
Huhtamaki	✗	✓	✓	✓	✓
PCPL	✗	✗	✗	✗	✓
Printotech	✗	✗	✗	✗	✓
Prisha Tubes	✗	✗	✗	✗	✓
SRMTL	✗	✓	✓	✓	✓
Skypack	✗	✓	✓	✓	✓
Uflex	✓	✓	✓	✓	✓

Note:

*: As of FY21, EPL Limited (EPL) has acquired 72.46% share in Creative Stylo Pack Private Limited (CSPPL)

Source: Company filings, Company website, CRISIL MI&A

Capacity of some of the key players considered

Player	Installed Capacity
Abdos	1,240 Mn tubes
Betts	~1,300-1,500 Mn tubes
CSPPL*	NA
EPL [§]	~8000 Mn tubes (globally) (35-45% capacity in India)
Huhtamaki	NA
PCPL	Laminated tubes: 120 Mn annually, Aluminum Collapsible Tubes: ~550 Mn annual capacity
Printotech	400 Mn tubes (ABL – 270 Mn, PBL – 30 Mn, coextruded – 100 Mn)
Prisha Tubes	NA
SRMTL	Laminated tubes: ~957.4 Mn tubes Laminates (Tubes & Flexibles)- 15,000 MT
Skypack	NA
Uflex	300 Mn tubes

Note:

*: As of FY21, EPL Limited (EPL) has acquired 72.46% share in Creative Stylo Pack Private Limited (CSPPL)

§: value mentioned for EPL Limited (EPL) is production of tubes and not capacity

NA: Not Available

Source: Company filings, Company website, CRISIL MI&A

4.2 Financial overview

Operating income

Among the players considered, Uflex registered the highest on-year growth of 48.4% in operating income of FY22. Uflex, was followed by Skypack having an on-year growth rate of 25.8% and Abdos with 19.5% operating income growth in FY22. In terms of long-term growth of operating income, Huhtamaki registered the highest CAGR 14.7% over FY16-22 among the players considered. This was followed by Skypack (14.4%), PCPL (13.9%), and Uflex (13.8%), over the same period. SRMTL has grown at a CAGR of 5.7% from fiscal 2016 to fiscal 2022. SRMTL reported an operating income of Rs. 1,496.4 million in fiscal 2022 with export share of ~15.7% with export revenue of Rs. 2,346 million in fiscal 2022

Operating income (Rs Mn)	Type	FY16	FY17	FY18	FY19	FY20	FY21	FY22	CAGR FY16-22
Abdos	Standalone	1,096.7	1,057.8	1,179.2	1,497.1	1,622.9	1,546.6	1,847.9	9.1%
<i>On-year growth</i>	%		-3.5%	11.5%	27.0%	8.4%	-4.7%	19.5%	
Betts	Standalone	1,541.3	1,405.0	1,793.0	1,842.1	1,929.0	1,867.6	2,045.2	4.8%
<i>On-year growth</i>	%		-8.8%	27.6%	2.7%	4.7%	-3.2%	9.5%	
CSPPL*	Standalone	554.4	784.9	893.9	917.6	1,045.0	1,018.5	1,096.5	12.0%
<i>On-year growth</i>	%		41.6%	13.9%	2.6%	13.9%	-2.5%	7.7%	
EPL	Consolidated	21,327.3	23,070.1	24,282.3	27,156.2	27,646.0	30,954.0	34,351.0	8.3%
<i>On-year growth</i>	%		8.2%	5.3%	11.8%	1.8%	12.0%	11.0%	

Operating income (Rs Mn)	Type	FY16	FY17	FY18	FY19	FY20	FY21	FY22	CAGR FY16-22
Huhtamaki ^	Standalone	11,509.5	21,803.8	21,332.5	23,690.7	25,843.2	24,627.6	26,253.9	14.7%
<i>On-year growth</i>	%		89.4%	-2.2%	11.1%	9.1%	-4.7%	6.6%	
PCPL	Standalone	342.3	376.2	454.8	560.1	584.0	697.5	748.4	13.9%
<i>On-year growth</i>	%		9.9%	20.9%	23.2%	4.3%	19.4%	7.3%	
Printotech#	Standalone	496.8	548.6	611.9	570.9	527.2	521.2	N.A.	N.Ap.
<i>On-year growth</i>	%		10.4%	11.6%	-6.7%	-7.7%	-1.1%	N.Ap.	
Prisha Tubes	Standalone	125.7	132.4	126.9	121.9	110.7	94.1	104.7	-3.0%
<i>On-year growth</i>	%		5.3%	-4.1%	-4.0%	-9.2%	-15.0%	11.3%	
SRMTL	Standalone	1,070.7	1,209.0	1,224.8	1,174.4	1,299.9	1,354.8	1,496.4	5.7%
<i>On-year growth</i>	%		12.9%	1.3%	-4.1%	10.7%	4.2%	10.5%	
Skypack	Standalone	1,719.3	2,048.0	2,294.3	2,683.0	2,974.3	3,059.7	3,847.7	14.4%
<i>On-year growth</i>	%		19.1%	12.0%	16.9%	10.9%	2.9%	25.8%	
Uflex @	Consolidated	60,351.3	61,594.2	66,888.8	79,093.9	73,931.6	88,485.3	131,350.4	13.8%
<i>On-year growth</i>	%		2.1%	8.6%	18.2%	-6.5%	19.7%	48.4%	

Note:

*: As of FY21, EPL Limited (EPL) has acquired 72.46% share in Creative Stylo Pack Private Limited (CSPPL)

^: Financials for Huhtamaki India Limited (Huhtamaki) are as per calendar year – January to December.

^: For Huhtamaki India Limited (Huhtamaki) financials for FY22 include CY21 and so on

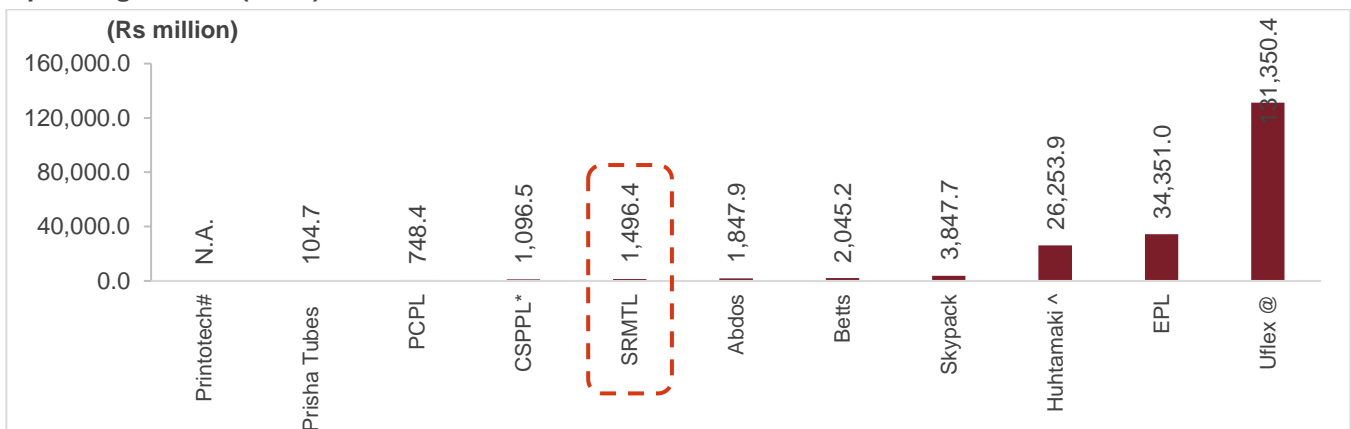
@ : Above mentioned values for Uflex Ltd (Uflex) include all business segments of the company namely films business, flexible packaging business, cylinder business, engineering business, chemicals business

#: FY22 financials for Printotech Global Limited are not available in the public domain

N.A.: Not Available; N.Ap.: Not Applicable

Source: Company filings, CRISIL MI&A

Operating income (FY22)



Note:

*: As of FY21, EPL Limited (EPL) has acquired 72.46% share in Creative Stylo Pack Private Limited (CSPPL)

^: For Huhtamaki India Limited (Huhtamaki) financials for FY22 include CY21

EPL revenue is at consolidated basis for global operations. EPL at standalone basis reports a revenue of Rs. 8,400 million in fiscal 2021 – still making EPL the largest players in the Indian laminated tube industry

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Source: Company filings, CRISIL MI&A

Profitability

During fiscal 2022, CSPPL recorded highest operating profit margin (OPM) among the industry peers compared below. It has an operating profit margin of 23.7%. CSPPL was followed by Skypack (19.9%) and Abdos (19.1%). In FY22, Skypack recorded highest net profit margin (NPM) of 12.6% among the industry peers compared below. Skypack was followed by Abdos (11.3%) and Uflex (8.4%).

Operating Profit Before Depreciation Interest and Tax (OPBDIT)

OPBDIT (Rs Mn)	Type	FY16	FY17	FY18	FY19	FY20	FY21	FY22	CAGR FY16-22
Abdos	Standalone	205.2	182.1	220.9	259.1	259.5	281.2	352.7	9.4%
Betts	Standalone	240.4	186.2	333.8	288.2	287.4	342.6	215.2	-1.8%
CSPPL*	Standalone	154.9	206.9	236.2	230.8	269.6	234.5	260.3	9.0%
EPL	Consolidated	4,095.1	4,260.2	4,656.8	5,088.2	5,625.8	6,151.0	5,784.0	5.9%
Huhtamaki ^	Standalone	1,241.8	2,506.6	2,202.0	2,256.1	2,961.0	2,348.9	1,104.1	-1.9%
PCPL	Standalone	56.8	77.8	69.9	106.0	84.8	85.0	114.1	12.3%
Printotech#	Standalone	81.3	100.8	118.7	119.9	112.2	74.1	N.A.	N.Ap.
Prisha Tubes	Standalone	18.7	17.9	21.3	21.9	15.5	14.2	13.6	-5.1%
SRMTL	Standalone	155.2	141.3	107.4	82.1	172.0	119.5	20.1	-28.8%
Skypack	Standalone	305.7	417.3	441.2	599.3	654.5	714.0	765.8	16.5%
Uflex @	Consolidated	8,101.1	8,744.8	8,739.9	9,432.3	10,864.4	17,989.2	21,782.4	17.9%

Note:

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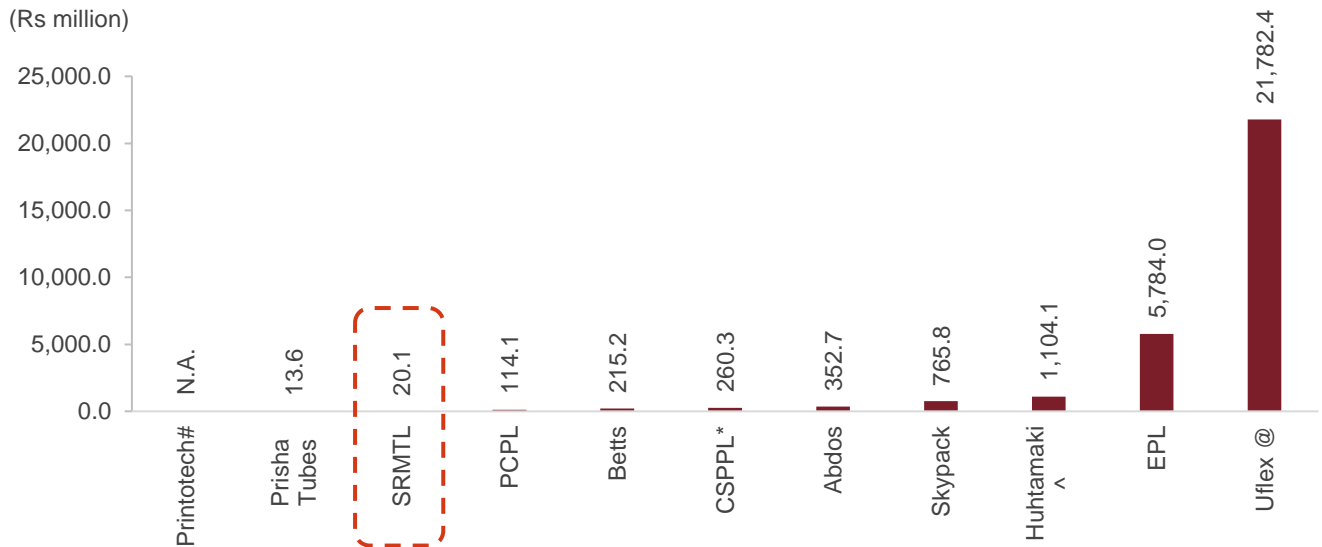
@ : Above mentioned values for Uflex Ltd (Uflex) include all business segments of the company namely films business, flexible packaging business, cylinder business, engineering business, chemicals business

#: FY22 financials for Printotech Global Limited are not available in the public domain

N.A.: Not Available; N.Ap.: Not Applicable

Source: Company filings, CRISIL MI&A

OPBDIT (FY22)



Note:

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N.A.: Not Available

Source: Company filings, CRISIL MI&A

Operating profit margin (OPM)

OPM (%)	Type	FY16	FY17	FY18	FY19	FY20	FY21	FY22
Abdos	Standalone	18.7	17.2	18.7	17.3	16.0	18.2	19.1
Betts	Standalone	15.6	13.3	18.6	15.6	14.9	18.3	10.5
CSPPL*	Standalone	27.9	26.4	26.4	25.2	25.8	23.0	23.7
EPL	Consolidated	19.2	18.5	19.2	18.7	20.3	19.9	16.8
Huhtamaki ^	Standalone	10.8	11.5	10.3	9.5	11.5	9.5	4.2
PCPL	Standalone	16.6	20.7	15.4	18.9	14.5	12.2	15.2
Printotech#	Standalone	16.4	18.4	19.4	21.0	21.3	14.2	N.A.
Prisha Tubes	Standalone	14.8	13.5	16.8	18.0	14.0	15.1	13.0
SRMTL	Standalone	14.5	11.7	8.8	7.0	13.2	8.8	1.3
Skypack	Standalone	17.8	20.4	19.2	22.3	22.0	23.3	19.9
Uflex @	Consolidated	13.4	14.2	13.1	11.9	14.7	20.3	16.6

Note:

*: As of FY21, EPL Limited (EPL) has acquired 72.46% share in Creative Stylo Pack Private Limited (CSPPL)

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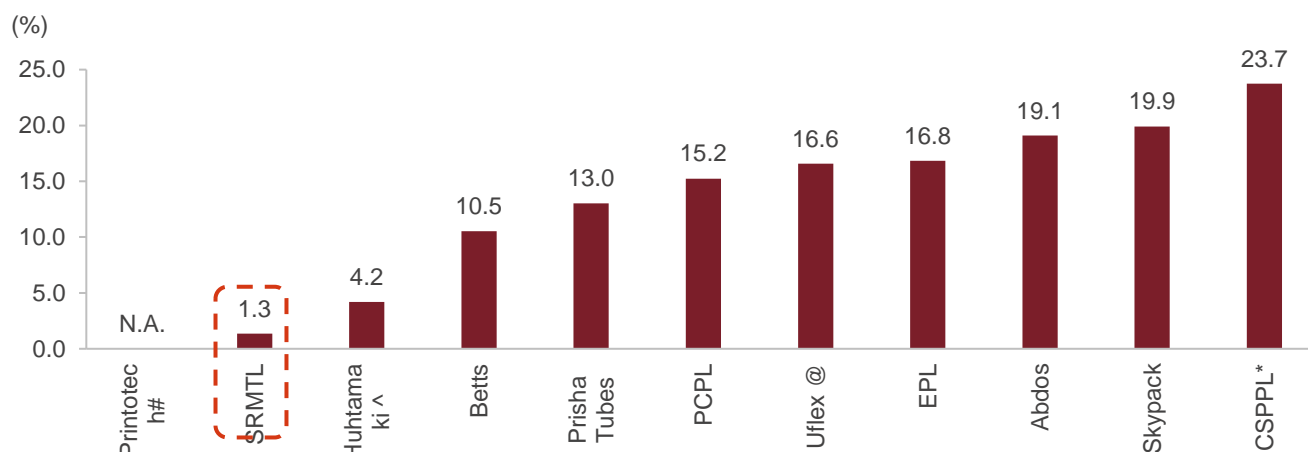
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Source: Company filings, CRISIL MI&A

OPM (FY22)



Note:

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@ : Above mentioned values for Uflex Ltd (Uflex) include all business segments of the company namely films business, flexible packaging business, cylinder business, engineering business, chemicals business

#: FY22 financials for Printotect Global Limited are not available in the public domain

N.A.: Not Available

Source: Company filings, CRISIL MI&A

Net Profit

Net Profit (Rs Mn)	Type	FY16	FY17	FY18	FY19	FY20	FY21	FY22	CAGR FY16-22
Abdos	Standalone	105.0	89.9	81.9	97.9	136.5	176.8	208.5	12.1%
Betts	Standalone	132.7	57.5	99.5	83.8	70.4	120.0	40.3	-18.0%
CSPPL*	Standalone	61.7	76.1	102.8	92.6	94.1	60.5	82.5	5.0%
EPL	Consolidated	1,720.0	1,821.4	1,689.4	1,879.8	2,066.7	2,443.0	2,213.0	4.3%
Huhtamaki ^	Standalone	478.9	815.4	636.2	348.8	1,700.4	959.9	-226.9	-6.7%
PCPL	Standalone	-4.3	-1.9	-3.3	23.3	9.0	1.9	16.7	NM
Printotect&	Standalone	30.4	20.1	58.4	47.3	63.7	26.7	N.A.	N.Ap.
Prisha Tubes	Standalone	1.6	1.4	1.6	1.8	2.2	1.5	1.5	-1.4%
SRMTL #	Standalone	-22.1	-21.1	-25.7	-30.3	210.6	34.3	-49.2	NM
Skypack	Standalone	128.1	191.8	210.0	322.9	372.0	456.7	484.2	24.8%
Uflex @	Consolidated	3,169.4	3,507.5	3,122.0	3,152.1	3,708.7	8,436.8	10,994.3	23.0%

Note:

*: As of FY21, EPL Limited (EPL) has acquired 72.46% share in Creative Stylo Pack Private Limited (CSPPL)

NM: Not Meaningful as respective companies have reported negative net profit during FY16

#: For FY20, higher net profit when compared to OPBDIT is majorly due to deferred tax reversal of ~Rs. 103.45 million

^: Financials for Huhtamaki India Limited (Huhtamaki) are as per calendar year – January to December.

^: For Huhtamaki India Limited (Huhtamaki) financials for FY22 include CY21 and so on

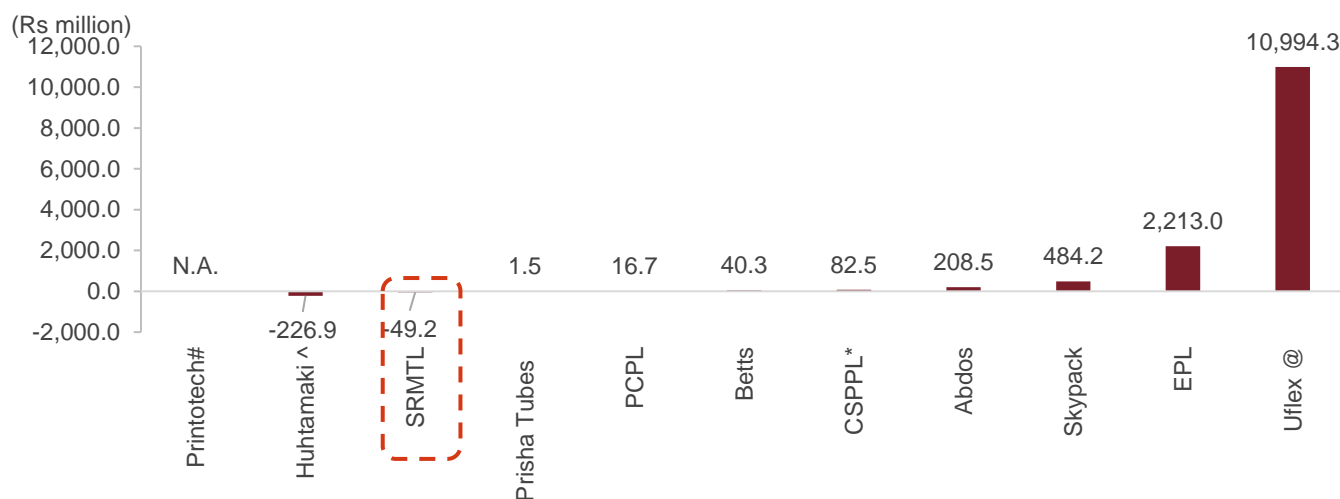
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&: FY22 financials for Printotect Global Limited are not available in the public domain

N.A.: Not Available; N.Ap.: Not Applicable

Source: Company filings, CRISIL MI&A

Net Profit (FY22)



Note:

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N.A.: Not Available

Source: Company filings, CRISIL MI&A

Net profit margin (NPM)

NPM (%)	Type	FY16	FY17	FY18	FY19	FY20	FY21	FY22
Abdos	Standalone	9.6	8.5	6.9	6.5	8.4	11.4	11.3
Betts	Standalone	8.6	4.1	5.5	4.5	3.6	6.4	2.0
CSPPL*	Standalone	11.1	9.7	11.5	10.1	9.0	5.9	7.5
EPL	Consolidated	8.1	7.9	7.0	6.9	7.5	7.9	6.4
Huhtamaki ^	Standalone	4.2	3.7	3.0	1.5	6.6	3.9	-0.9
PCPL	Standalone	-1.2	-0.5	-0.7	4.2	1.5	0.3	2.2
Printotech#	Standalone	6.1	3.7	9.5	8.3	12.1	5.1	N.A.
Prisha Tubes	Standalone	1.3	1.1	1.3	1.5	2.0	1.6	1.4
SRMTL	Standalone	-2.1	-1.7	-2.1	-2.6	16.2	2.5	-3.3
Skypack	Standalone	7.4	9.4	9.2	12.0	12.5	14.9	12.6
Uflex @	Consolidated	5.3	5.7	4.7	4.0	5.0	9.5	8.4

Note:

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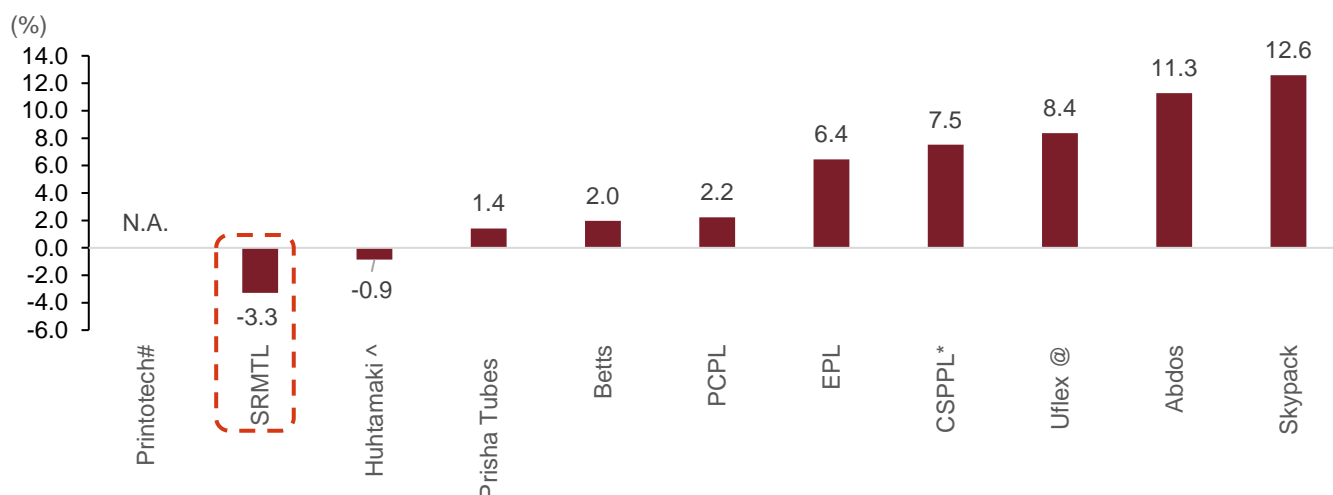
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Source: Company filings, CRISIL MI&A

NPM (FY22)



Note:

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Source: Company filings, CRISIL MI&A

Other key financial ratios

Gearing

Key players in the industry reported gearing ratio of less than 1 during fiscal 2022. Gearing for SRMTL has improved sharply to 3.4 times in fiscal 2022 from 31.5 times in fiscal 2019 owing to the company reducing its debt.

Gearing (times)	Type	FY16	FY17	FY18	FY19	FY20	FY21	FY22
Abdos	Standalone	0.5	0.8	1.2	1.5	0.8	0.5	0.3
Betts	Standalone	0.1	0.3	0.2	0.2	0.2	0.1	0.0
CSPPL*	Standalone	3.7	2.2	1.4	1.2	0.9	0.6	0.3
EPL	Consolidated	0.7	0.8	0.6	0.5	0.4	0.3	0.5
Huhtamaki ^	Standalone	0.7	0.9	0.8	0.8	0.4	0.4	0.5
PCPL	Standalone	3.1	3.7	3.8	3.3	3.2	3.5	3.0
Printotech#	Standalone	1.3	1.0	0.5	0.4	0.0	0.4	N.A.
Prisha Tubes	Standalone	0.9	1.4	1.3	1.1	1.0	1.1	1.0
SRMTL	Standalone	11.9	13.7	17.1	31.5	3.1	2.5	3.4
Skypack	Standalone	0.4	0.3	0.3	0.2	0.1	0.0	0.0
Uflex @	Consolidated	0.6	0.6	0.5	0.5	0.8	0.7	0.7

Note:

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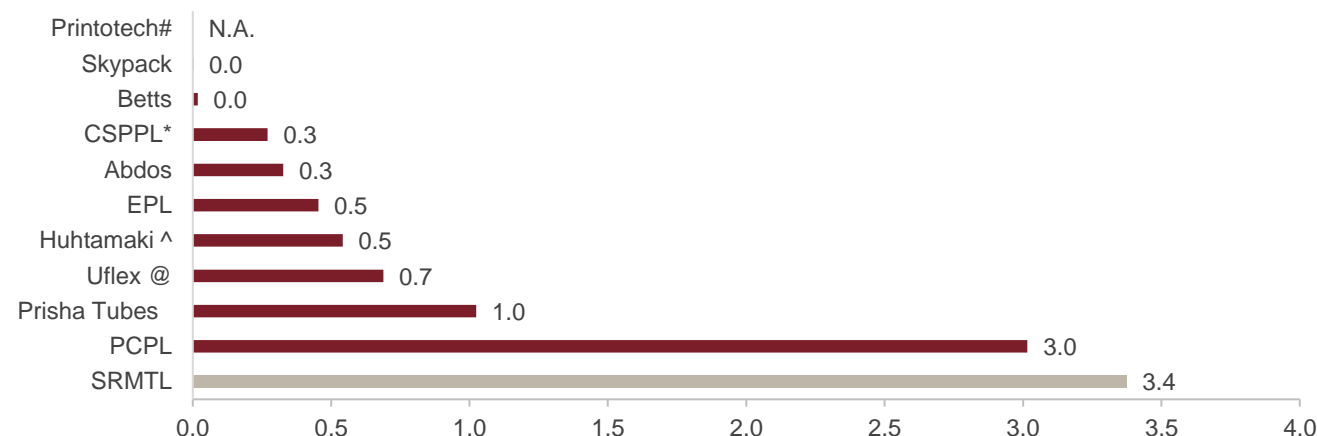
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Source: Company filings, CRISIL MI&A

Gearing (FY22)

(times)



Note:

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Source: Company filings, CRISIL MI&A

Asset turnover

In fiscal 2022, Huhtamaki had an asset turnover of 2.9 times, followed by Skypack at 1.5 times. SRMTL's asset turnover has been in the range of 0.2-0.3 times over the past fiscals from 2016 to 2022.

Asset turnover (times)	Type	FY16	FY17	FY18	FY19	FY20	FY21	FY22
Abdos	Standalone	3.8	1.6	1.5	1.5	1.3	1.1	1.4
Betts	Standalone	1.7	0.7	0.8	0.8	0.8	0.7	0.7
CSPPL*	Standalone	0.8	0.9	1.0	0.8	1.0	1.1	1.1
EPL	Consolidated	1.2	1.8	1.5	1.5	1.3	1.3	1.3
Huhtamaki ^	Standalone	2.1	3.9	3.8	3.7	3.6	3.1	2.9
PCPL	Standalone	1.3	1.1	1.2	1.3	1.2	1.2	1.2
Printotech#	Standalone	0.8	0.8	0.8	0.7	0.6	0.6	N.A.
Prisha Tubes	Standalone	1.2	1.3	1.0	0.9	0.8	0.7	0.7
SRMTL	Standalone	0.2	0.3	0.3	0.3	0.3	0.3	0.3
Skypack	Standalone	1.4	1.4	1.3	1.3	1.3	1.3	1.5
Uflex @	Consolidated	1.2	1.2	1.2	1.3	1.1	1.2	1.4

Note:

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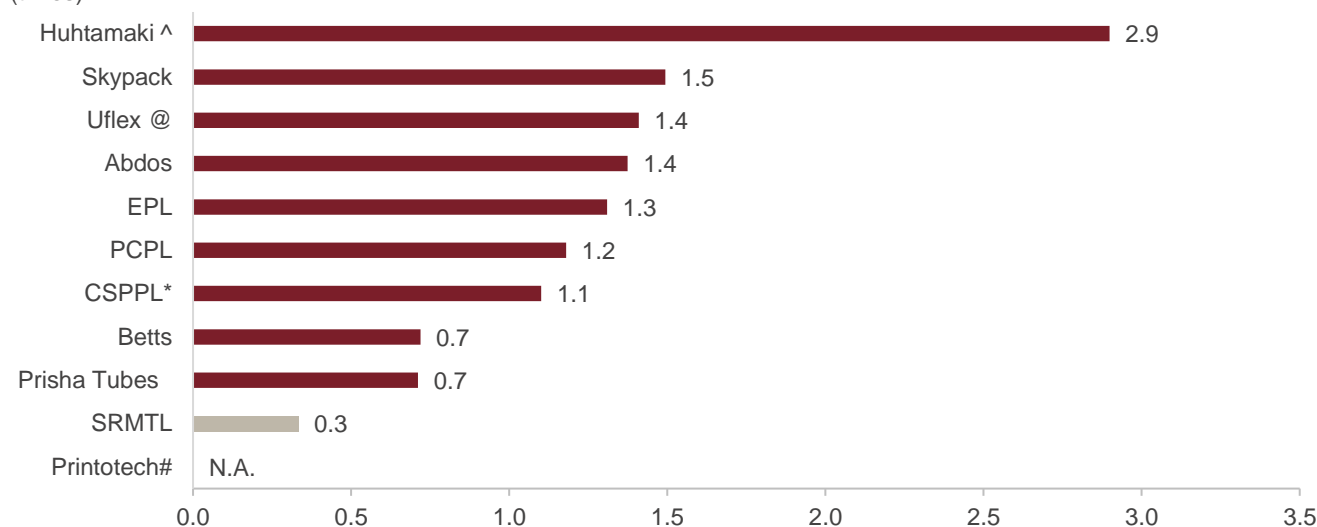
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Source: Company filings, CRISIL MI&A

Asset turnover (FY22)

(times)



Note:

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Return On Capital Employed (ROCE)

In fiscal 2022, Skypack had a ROCE of 22.4%, followed by Uflex at 16.0% and Abdos at 14.5%.

ROCE (%)	Type	FY16	FY17	FY18	FY19	FY20	FY21	FY22
Abdos	Standalone	57.7	21.1	14.5	12.2	12.8	14.5	14.5
Betts	Standalone	31.0	6.9	12.0	9.4	7.9	11.5	3.2
CSPPL*	Standalone	18.2	16.8	20.1	16.5	14.2	10.2	13.6
EPL	Consolidated	18.1	18.3	16.8	17.4	16.2	16.9	13.8
Huhtamaki ^	Standalone	12.1	18.1	15.9	14.5	29.9	16.6	0.4
PCPL	Standalone	5.7	7.7	6.9	14.6	8.8	6.2	10.5
Printotech#	Standalone	12.6	12.1	21.7	18.6	22.5	8.2	N.A.
Prisha Tubes	Standalone	9.3	8.2	9.5	9.8	8.8	5.8	5.6
SRMTL	Standalone	1.8	2.1	0.4	-1.3	12.4	4.3	-4.3
Skypack	Standalone	18.9	22.4	20.4	24.9	23.9	24.7	22.4
Uflex @	Consolidated	10.3	10.1	9.2	9.9	9.4	15.1	16.0

Note:

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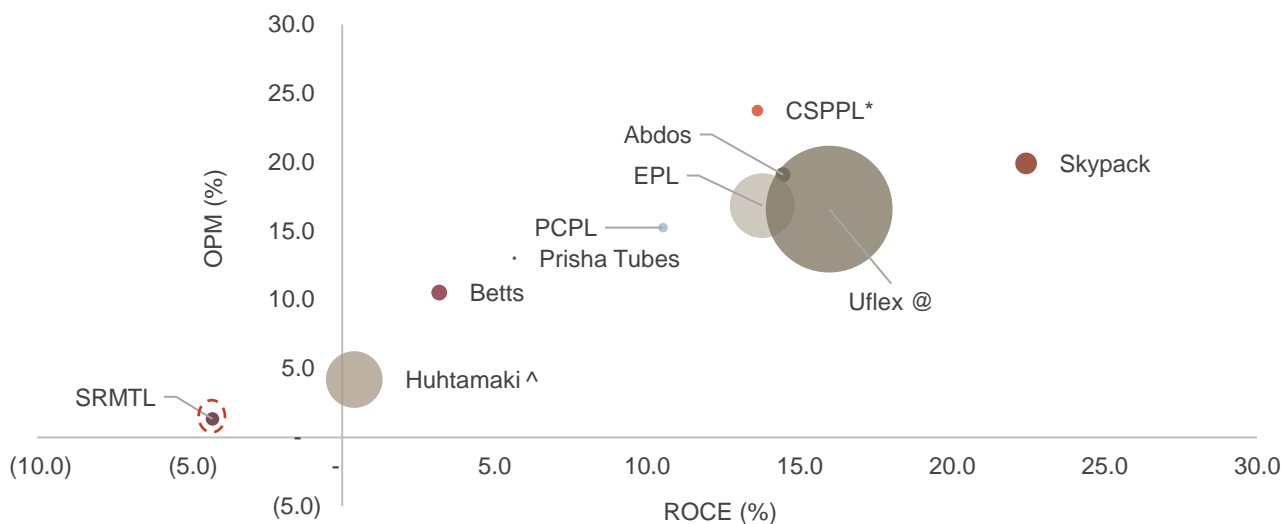
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Source: Company filings, CRISIL MI&A

ROCE (%) vs Operating profit margin (%) – FY22



Note:

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^: For Huhtamaki India Limited (Huhtamaki) financials for FY22 include CY21

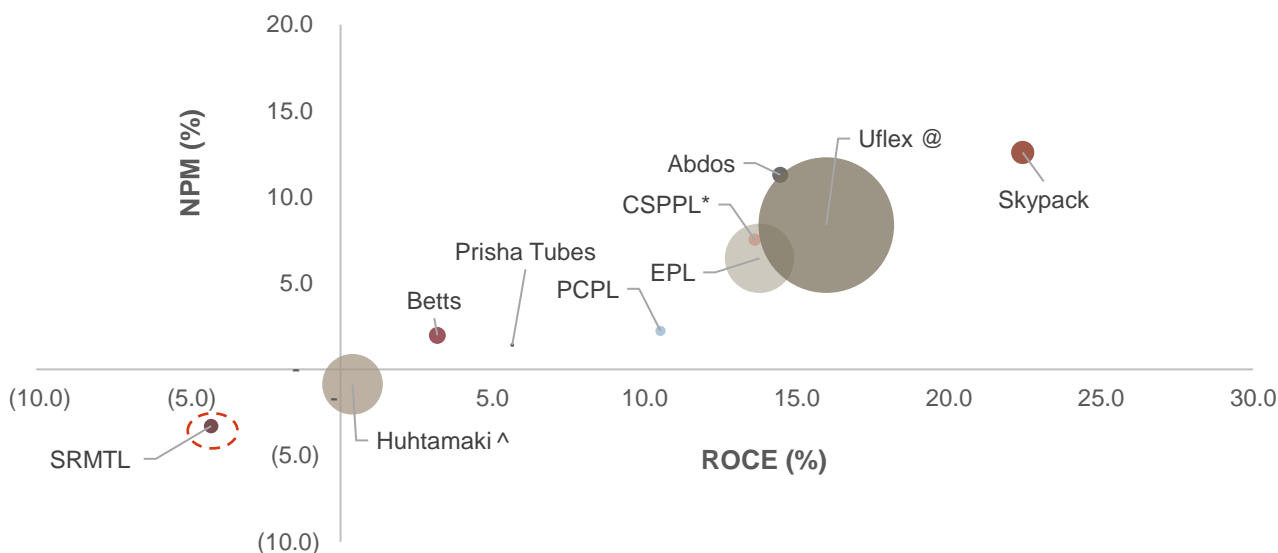
Size of the bubble indicates the operating income for the company for FY22

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Source: Company filings, CRISIL MI&A

ROCE (%) vs Net profit margin (%) – FY22



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Size of the bubble indicates the operating income for the company for FY22

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FY22 financials for Printotech Global Limited are not available in the public domain

Source: Company filings, CRISIL MI&A

Financial snapshot of the companies compared above – FY22

Company	Type	Operating income	CAGR FY16-22	OPBDIT	CAGR FY16-22	Operating profit margin	Net Profit	CAGR FY16-22	Net profit margin
		Rs Million	%	Rs Million	%	%	Rs Million	%	%
Abdos	Standalone	1,847.9	9.1	352.7	9.4	19.1	208.5	12.1	11.3
Betts	Standalone	2,045.2	4.8	215.2	-1.8	10.5	40.3	-18.0	2.0
CSPPL*	Standalone	1,096.5	12.0	260.3	9.0	23.7	82.5	5.0	7.5
EPL	Consolidated	34,351.0	8.3	5,784.0	5.9	16.8	2,213.0	4.3	6.4
Huhtamaki [^]	Standalone	26,253.9	14.7	1,104.1	-1.9	4.2	-226.9	-6.7	-0.9
PCPL	Standalone	748.4	13.9	114.1	12.3	15.2	16.7	NM	2.2
Printotech [#]	Standalone	N.A.	N.Ap.	N.A.	N.Ap.	N.A.	N.A.	N.Ap.	N.A.
Prisha Tubes	Standalone	104.7	-3.0	13.6	-5.1	13.0	1.5	-1.4	1.4
SRMTL	Standalone	1,496.4	5.7	20.1	-28.8	1.3	-49.2	NM	-3.3
Skypack	Standalone	3,847.7	14.4	765.8	16.5	19.9	484.2	24.8	12.6
Uflex [@]	Consolidated	131,350.4	13.8	21,782.4	17.9	16.6	10,994.3	23.0	8.4

Note:

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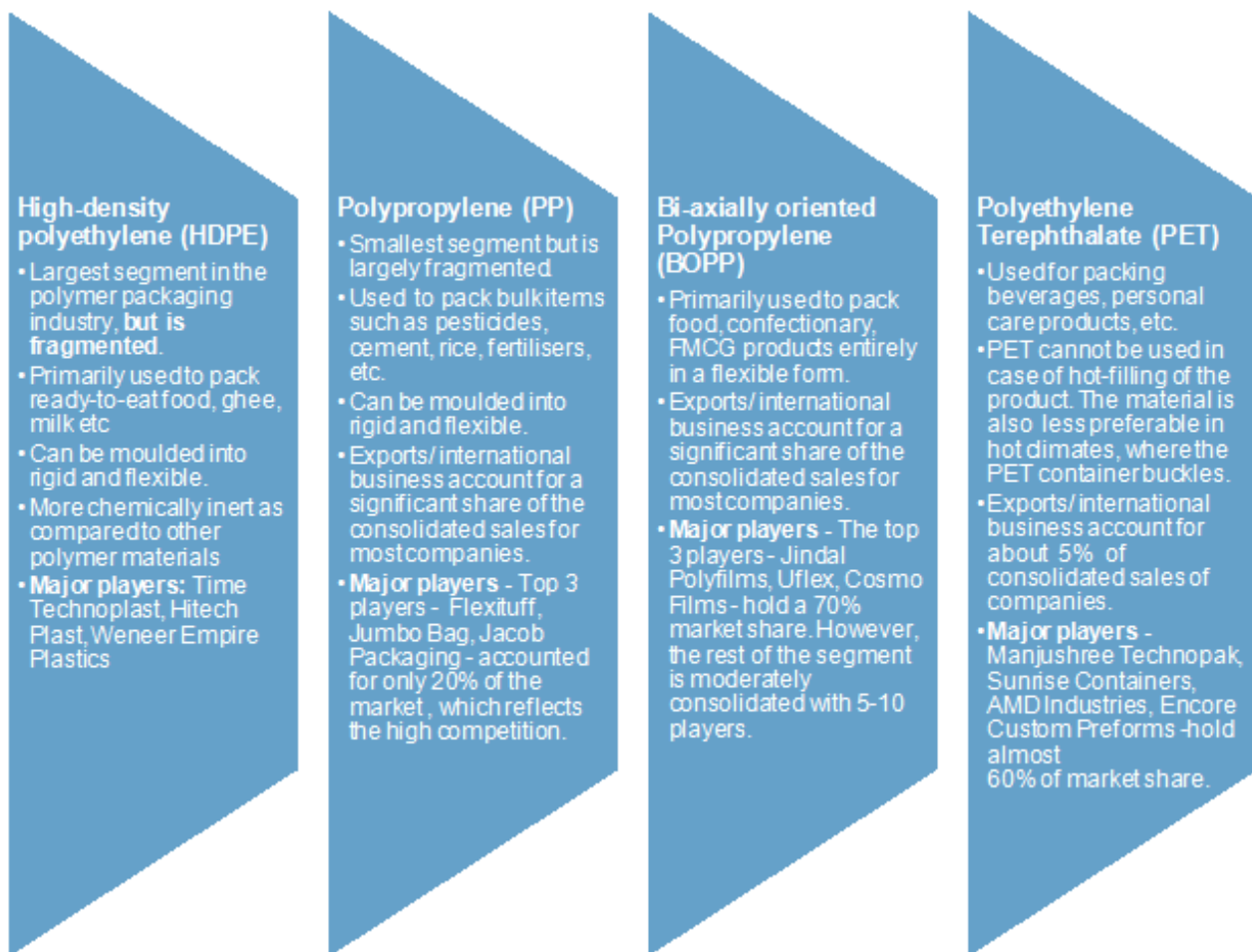
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Source: Company filings, CRISIL MI&A

5 Overview of flexible polymer packaging market in India

Based on material, polymer packaging can broadly be categorised into four types - PP, HDPE, BOPP, and PET. Decision to pack a particular product in a specific type of polymer material is based on chemical inertness, aesthetics, utility, weight, and cost. Entry barriers in this segment are low and, so, competition is significantly high. Given the excess capacity and heightened competition, bigger players are expanding their reach in the export markets to support revenue growth.

Market segmentation



Source: CRISIL MI&A

Advantages of polymer over other forms of packaging

Despite its environment hazards, we cannot ignore the advantages of plastic over other forms of packaging. Only ~40% of plastic is recycled every year, while the corresponding figure for glass containers is at 30-40% even though 100% of glass can be recycled. Below are some advantages of plastic packaging over glass and metal packaging:

- Plastic is more flexible than glass and metal:** Shape, weight, cost, and recyclability are major factors governing packaging of any product. One of the biggest benefits of plastic is its flexibility. Glass and metal

indeed can be shaped to contain a whole range of different products. But plastic has more possibilities. Apart from bottles, plastic can be easily moulded into all kinds of shapes such as canisters, trays, and containers

- **Transportation and storing:** Plastic packaging generally takes up less storage space, allowing more products to be stored in the given space. Plastic is also much lighter than glass and metal, which is a huge benefit for consumers who buy in bulk. Lower weight and less requirement of space help transport more products
- **Most useful for perishable items:** Plastic packaging protects food from spoiling. Food waste has a significantly higher environmental impact, particularly in the form of its carbon footprint, than packaging waste. Plastic packaging allows food to travel longer distances, and stay longer on shelves. It ensures large amount of food is not wasted. Some types of plastics are chemical and heat resistant as well. The barrier properties of polymer packaging can be customised to cope with different product needs. For example, laminated pouches have a low oxygen transfer rate, improving shelf stability. Custom barrier materials can be added to flexible packaging films to keep out air, moisture, odours, and microscopic substances.

Polymer packaging to log 8-9% CAGR over fiscals 2022-2027, led by volume growth

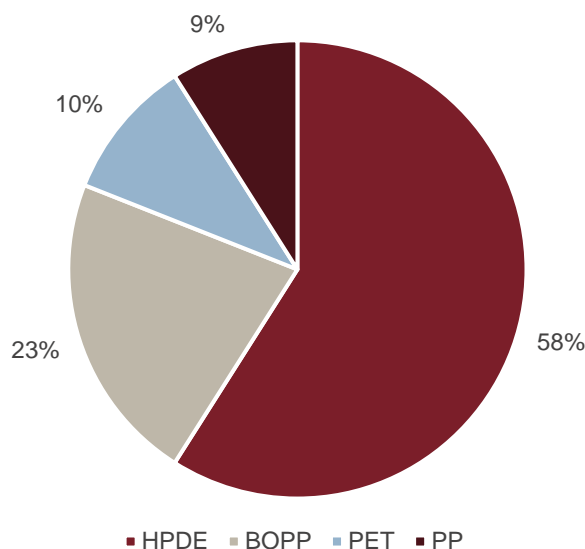
From fiscals 2017 to 2022, the polymer packaging segment logged 5.7% CAGR, driven by food products (~70% of total polymer packaging demand), which registered 6-7% CAGR in the same period. Pharmaceuticals segment recorded a healthy 7-8% CAGR and industry chemicals grew at 5.0-6.0% CAGR, driving industry revenue. Other sectors such as non-alcoholic beverages and personal care registered relatively slower growth of 1-2% CAGR.

Polymer packaging segment de-grew by 11 to 12% in fiscal 2021 at the back of a low volume growth and a decline in PE and PP prices. We expect revenue to increase at a CAGR of 8-9% to Rs 1,750-1800 billion by fiscal 2027. Healthy growth in sales of food and personal care products is likely to boost the polymer packaging segment.

HDPE and BOPP to maintain higher share

Flexible packaging to slowly gain share from rigid as demand for HDPE and BOPP products increases in the long-term. HDPE accounts for the largest share of the polymer packaging market (~59%) followed by BOPP with 23% market share.

Polymer packaging by material (fiscal 2022)



Source: CRISIL MI&A

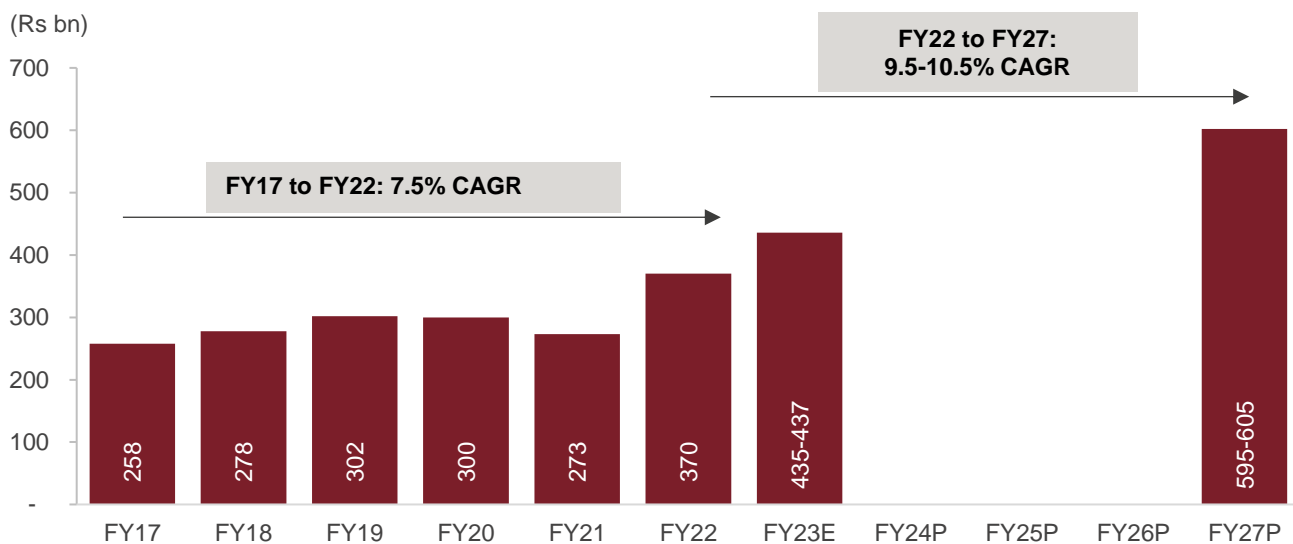
Within polymer packaging, Flexible laminates to clock 9.5-10.5% CAGR between fiscals 2022 and 2027

Flexible laminates constitute 60-65% share in the total flexible polymer packaging space, followed by mono-layer films used in secondary and tertiary packaging, tube laminates, labels and wrappers.

The flexible laminates segment clocked 7.5% CAGR over fiscals 2017-2022, Growth in the segment was driven by strong demand for such packaging in the food and FMCG segments, increase in for specialised pouches and sachets in the pharma and personal care segments, and increase in smaller SKUs and trial packs

CRISIL estimates the industry to register 9.5-10.5% CAGR, up from Rs 370 billion in fiscal 2022 to Rs 595-605 billion in fiscal 2027, driven by volume increase in end-use segments. The FMCG industry represents the largest opportunity for flexible packaging. Sub-segments such as food and beverages, and personal care are the major end-users of flexible packaging in India. With growth of this market, demand for flexible packaging is expected to increase. The following trends will likely support growth of flexible packaging going ahead:

Flexible laminates industry in India



E: Estimated; P: Projected

Source: CRISIL MI&A

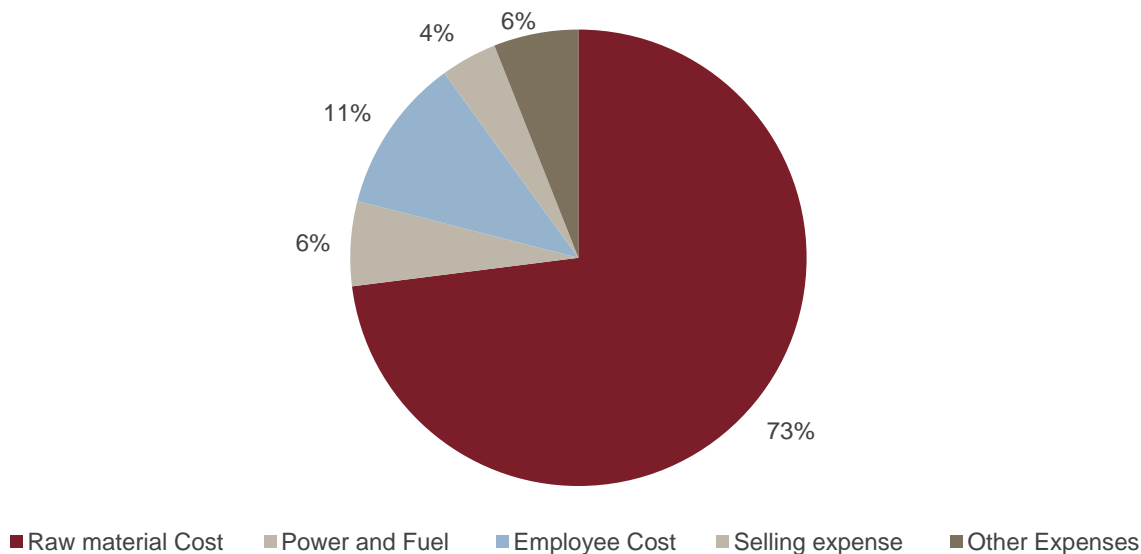
- Growth in the FMCG industry and increase in consumption basket size of Indian consumers
- Demand for small packets/ pouches for smaller SKUs
- Growth in laminated tubes and bags in boxes; laminated tubes are being increasingly sought after by FMCG brands compared to plastic and aluminum tubes. laminated tubes are mainly used for pastes and ointments, and bags in boxes for moisture-absorbing products such as tea and coffee
- Tube as a packaging format is being increasingly preferred for products in paste/ gel/ cream and even viscous liquid form due to ease of dispensing, convenience, resource reduction, capability for branding and decoration
- Ease of printing has made flexible packaging a tool for branding and display of retail goods
- A range of colour options in plastics has made package designing easier
- Increase in demand for sustainable and environment friendly packaging

- Consumer preference for the use of convenient packaging and packaged products in affordable quantities in versatile laminates
- Export potential with demand from emerging markets and diversifying potential in global supply chain. USA and select European countries are major contributor to the trade in industry and China has relatively moderate share

Raw material cost dominates polymer packaging players’ total costs

Raw material cost accounts for 70-80% of polymer packaging players’ total operational costs. Converters incur higher raw material costs than integrated players, as the former procures polymer films and manufactures finished products, while the latter directly procures raw polymers (HDPE, BOPP, PET and PP). Thus, raw material prices determine the packaging industry’s value growth. The packaging industry recorded strong growth in revenue thanks to expansion of domestic consumption pie as well as export growth in the food and beverage industry, and deepening of consumption penetration in beauty and cosmetics, home care, FMCG and pharmaceuticals products.

Break-up of operating expenses



The above operating expenses are based on FY21 aggregated data for the following companies: Jindal Polyfilms, UFLEX, Ester Industries, Cosmo Films, Polyplex and Garware Polyester

Source: CRISIL MI&A

Food products to drive polymer flexible packaging sales

Food products account for nearly 70% of overall demand for polymer packaging. Over the next five years from fiscal 2022 to fiscal 2027, this segment is expected to clock 7.5-8.5%% CAGR, driven by robust demand. Usage of BOPP in the form of pouches and sachets is expected to support growth of packaged food products.

The pharmaceuticals and nutraceuticals industries have also been driving demand for flexible packaging, as it provides a polymer-based sustainable and recyclable alternative. Rising demand for cost-effective packaging solution -- which provides the ease of preserving and easy distribution of food, beverages, pharmaceuticals and other products, which require extended shelf life -- has given a boost to flexible packaging.

Increase in demand for processed meat and seafood, ready-to-eat meals, soups, dairy products and baby foods will give flexible packaging more room to grow.

Non-alcoholic beverages account for ~5-10% of polymer packaging. The shift from metal and glass containers to PET bottles, especially in the aerated drinks segment, coupled with healthy growth in demand for fruit juices has been driving demand in this segment. PET bottles have inherent advantages over rigid glass bottles (RGB) such as attractive packaging, easy portability and storage, and less breakage. PET bottles are made from preforms and different sizes can be manufactured from a single machine (unlike tetra packs). This gives PET manufacturers the flexibility to produce different sizes of bottles without investing in multiple machines. However, the recent awareness about environmental impacts of plastic usage and talks on nation-wide ban in plastic packaging are expected to impact this shift to a certain extent. Thus, growth in this segment is expected to grow at 7.5-8.5% CAGR over the next five years.

Industrial chemicals – Demand for paints is expected to register 10-11% CAGR during this period, driven by overall growth of the Indian economy, particularly the real estate segment.

Polymer packaging exports clocked a strong recovery of 27.4% in FY22

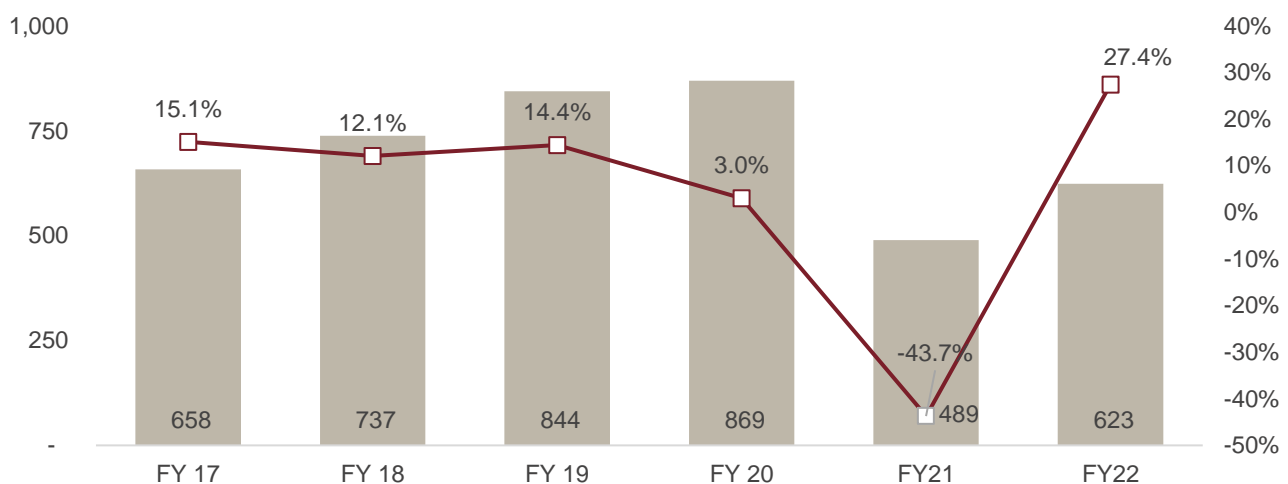
India is a major exporter of packaging materials; the plastic sector constitutes ~3% of total merchandise exports. Within the plastic sector, packaging material contributes 5%; while all types of plastic sheets, films and plates account for 15-16%. India is a net importer of raw materials required for production of plastics but is an exporter of the intermediate and end-use plastic packaging and products.

The polymer packaging material segment exports logged -1.1% CAGR over fiscals 2017-2022. The exports declined due to the global pandemic in fiscal 2021 but had seen a quick rebound in fiscal 2022. Polymer packaging exports grew from \$658 million in fiscal 2017 to \$869 million in fiscal 2020 and it reached \$623 million in fiscal 2022. Only during fiscal 2021 exports de grew on account of disruption due to pandemic, otherwise the industry exports have increased at 12-15% year-on-year during till fiscal 2019

India exports mainly to the US (20-25% share), the UK (7-8%), the United Arab Emirates (5-6%) and some European countries. Exports have increased on the back of strong growth in exports of polyester films, flexible laminated plates, sheets, film, foil and strips of plastic.

Trend in polymer packaging exports

in USD Mn



Source: DGFT, Plastic Export Promotion Council, CRISIL MI&A

Flexible polymer packaging to grow faster than rigid counterpart

Flexible packaging comprises BOPP, HDPE and PP bags; whereas rigid packaging includes HDPE containers, PP containers, and jars and PET bottles.

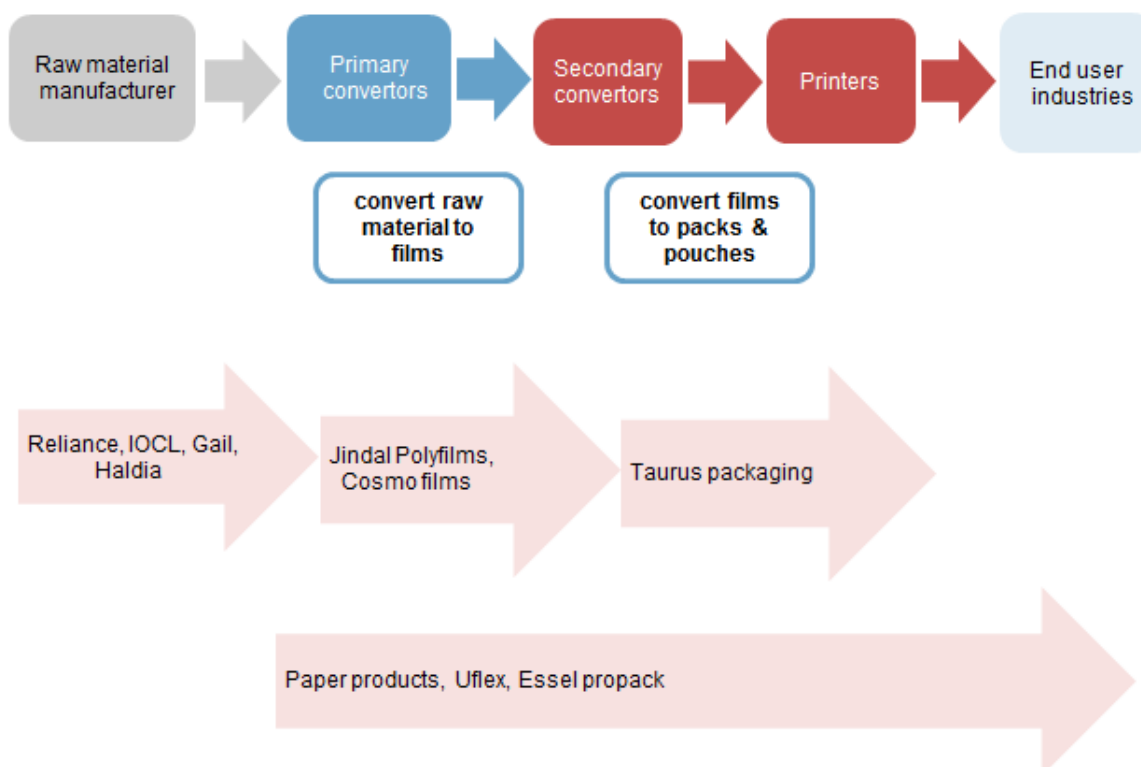
The share of flexible packaging in the overall polymer packaging market is going to increase from 48-50% in FY22 to 55-57% in FY27 backed by volume growth and demand from the food and FMCG sectors. Higher usage of BOPP in the form of pouches and sachets to pack food products, personal care products, etc, would drive growth in the flexible packaging segment. However, the share of rigid packaging is expected to go down to 43-44% in FY27 from the current level of 50-52% in FY22

Value chain in flexible polymer packaging

The industry broadly comprises two main segments - raw material manufacturers and converters. Of these, the former is fairly consolidated, comprising four large players - Reliance Industries, IOCL (Indian Oil Corporation Ltd), GAIL, and Haldia Petrochemicals. In sharp contrast, converters are fragmented into a number of organised and unorganised players. Converters in the rigid (HDPE, PET) and flexible (PP) packaging segments procure polymer granules from raw material manufacturers and convert them into bottles, jars, drums, and containers. In addition, players such as Hitech Plast provide printing facilities, in line with the client's requirements.

The flexible (BOPP/ BOPET) packaging segment comprises primary and secondary converters. Primary converters make films from polymer granules and sell them to secondary converters, who further transform films into products such as packs and pouches. Apart from these players, there are integrated converters, who operate in both the segments and also provide printing facilities. However, given the capital-intensive nature of the business, such integrated players are few and largely organised.

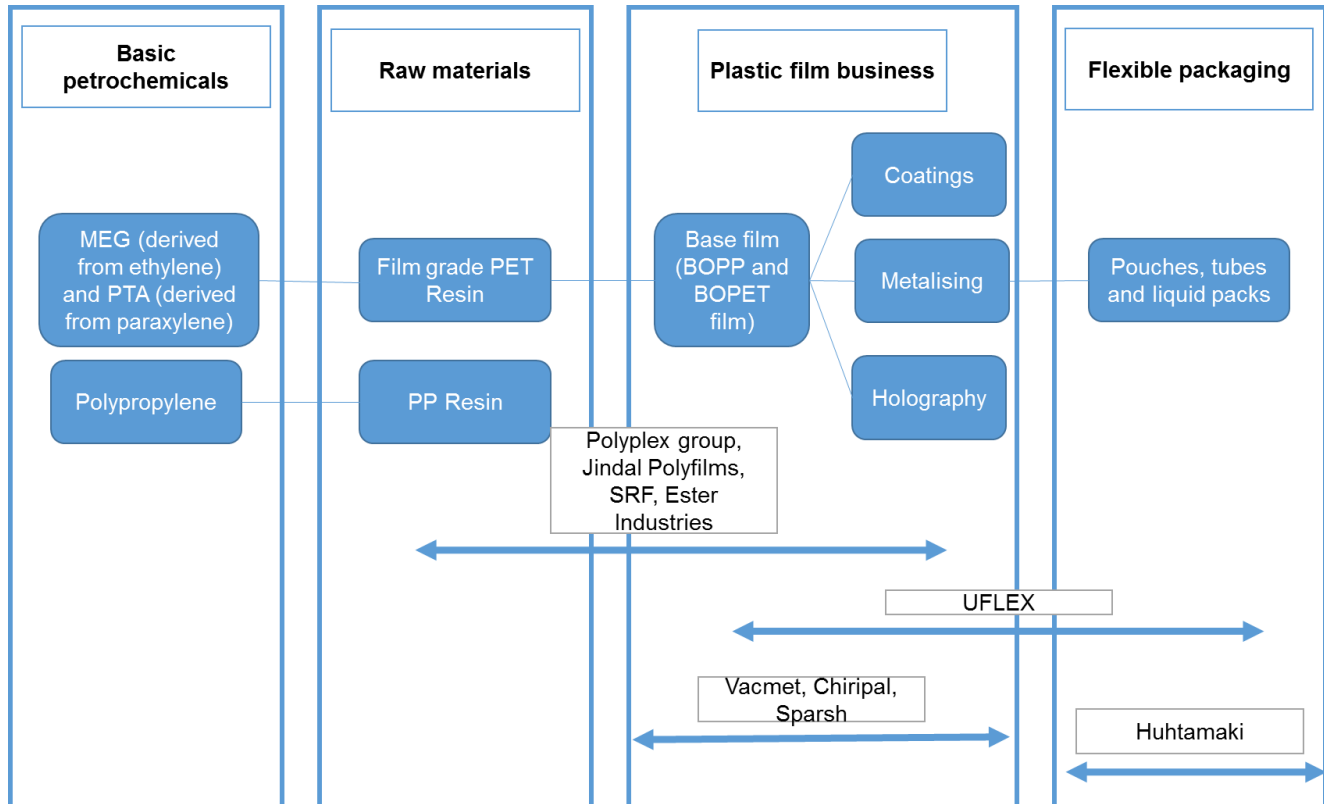
Value chain of flexible polymer packaging (BOPP and BOPET)



Source: CRISIL MI&A

Several players in the market have backward as well as forward integrated. Being integrated helps them control the value chain and generate cost synergies, thereby improving margins and reducing business volatility. Polyplex, Uflex and Vacmet have strong capacities in value-added coated and metalised films.

Integration in flexible packaging business



Growth drivers in flexible packaging

- **Growth in organised retail:** India is emerging as the most favoured destination in the world for organised retail. Also, e-commerce has been expanding rapidly, leading to a revolution in the retail industry. Retailers are now leveraging digital retail channels, thereby enabling wider reach to customers with less amount of money spent on real estate. Therefore, organised retail and boom in e-commerce offer huge potential for growth of retailing in India, which, in turn, is pushing growth of the flexible packaging sector.
- **Increase in packaged branded food products:** Packaged branded food products have been increasing rapidly, for which flexible packaging is preferred. The ready-to-eat food product industry is expected to witness 20-22% growth going ahead.
- **Increasing use of small packets:** With a view to attract smaller consumers, FMCG companies market their products (largely food and personal care) in small packets. As a result, ready-to-eat foods, biscuits, shampoo, and other FMCG categories have witnessed increase in consumption in rural areas and smaller cities, which has further lifted demand for packaging materials.
- **Shift in consumer preferences:** Rising consumer demand for lightweight, convenient, durable, tamperproof, and aesthetic packaging has also been a big boost for flexible packaging. Further, improved barrier property parameters and superior functionality give flexible packaging an edge over other packaging materials.
- **Innovation led by high competition and demanding consumers:** The industry is increasingly becoming technologically advanced and creating new-age products to cater to different requirements of customers.

These innovated and value-added products help players differentiate themselves amid high competition in the industry. Players are offerings and innovating new designs, sustainable and recyclable packaging solutions to the market as per customer demand driving growth for the industry

- **Sustainability:** Shifting demographics and consumer preferences are driving the demand for more sustainable solutions in flexible packaging. Huge sustainable benefits are responsible for shifting demand from rigid to flexible packaging. Focus is also on more cost-effective and technologically feasible recyclable packaging solutions.

Challenges and risks in flexible packaging

- **Environmental issues:** As it is widely known and already highlighted in this report, plastic poses environmental concerns. The Indian packaging industry uses more than 50% of the plastic produced in the country. This has resulted in increased legislation and regulations to minimise the environmental impact of packaging materials. Companies, especially in the flexible and rigid plastic space, are being targeted by regulators, as these are seen to have maximum impact on the environment. For example, in February 2011, the Supreme Court of India banned the usage of flexible plastics for tobacco products. Government of India also notified the Plastic Waste Management Amendment Rules, 2021, prohibiting identified single use plastic items by 2022. Thickness of plastic carry bags increased from 50 to 75 microns from 30th September, 2021 and to 120 microns with effect from the 31st December, 2022.
- **High input costs:** Raw materials account for 70-80% of the total cost for a packaging player. The ability of players to pass on the rise in input prices is limited as the industry is highly fragmented. At the same time, a decline in input price has to be passed on to the customers. In many cases, raw materials are imported, which exposes packaging players to volatility in exchange rates.
- **Large capital expenditure (capex):** The packaging industry requires significant capital to enable investments in plant and machinery, technology and research to enable innovation of new products.
- **Lack of technology:** Due to increasing focus on maximising output and capacity utilisation, there is minimal focus on research and development by small and mid-sized players. Most of the technical components in domestic machinery are imported from Japan, the US and Europe, which leads to a much higher capex to set up a plant.
- **Rapid technological changes:** Consumer packaged goods (CPG) companies are on a constant lookout for ways to cater to consumers' evolving needs. They tend to rely on flexible packaging companies to innovate and attract more customers. At times, the flexible packaging industry may find it difficult to keep pace with these fast-changing demands. Furthermore, flexible packaging companies have to make constant technology upgrades to meet these demands, which would require huge capital investments.
- **Working capital cycle :** Poor bargaining power increases their debtor and inventory cycles, which drives up working capital requirements, thus hampering companies' credit profile.
- **Regulatory constraints:** Due to stringent government regulations, changing consumer preferences, and environmental pressures, manufacturers are steering their strategies toward circularity and leveraged new plastic technologies to develop recyclable and sustainable solutions that include specific properties such as oxygen, moisture, light, puncture, and chemical resistance, and easy-tear propagation. Key focus areas for manufacturers include the development of alternative bioplastics solutions such as polybutylene succinate and biopolypropylene, along with the price and disposal of bioplastics.

Supply Chain Disruption: Due to the Covid-19 outbreak, the the flexible packaging manufacturers were facing supply chain disruption like delayed dispatch of finished goods along with decreasing manufacturing at the site in many parts of the world.

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