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Research Report on API Intermediates Industry

10th March 2025

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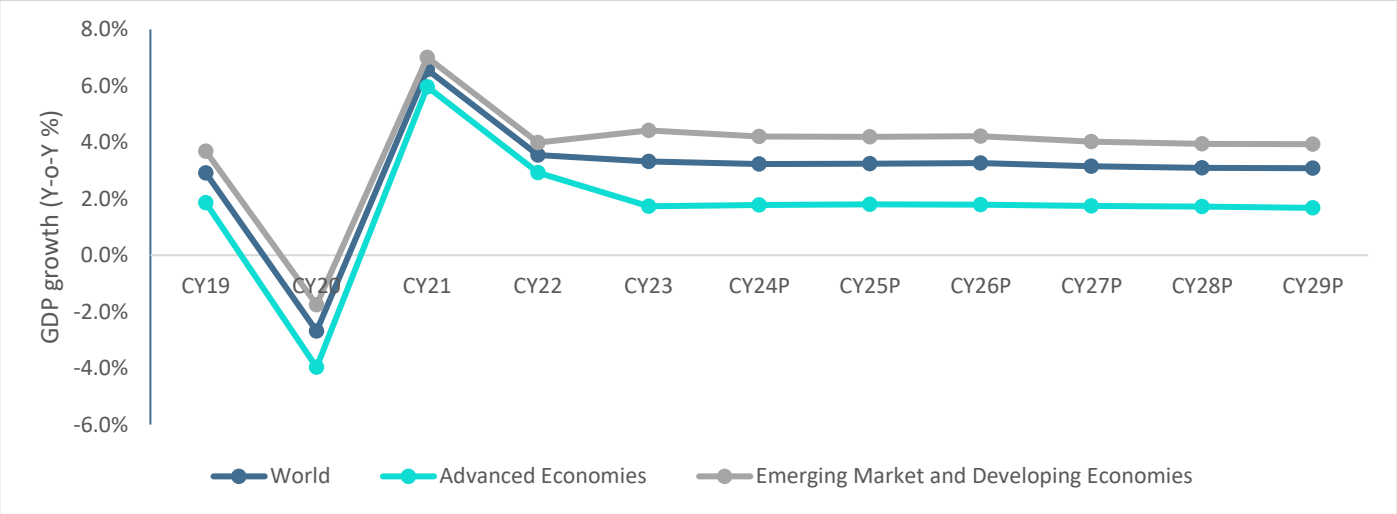
1 Economic Outlook

1.1 Global Economy

Global growth, which stood at 3.3% in CY23, is anticipated to fall to 3.2% in CY24 and then bounce back again to 3.3% in CY25. The CY24 forecast has remained the same compared to the April 2024 World Economic Outlook (WEO) Update and increased by 0.1 percentage point compared to the January 2024 WEO. Despite this, the expansion remains historically low, attributed to factors including sustained high borrowing costs, inflation woes, reduced fiscal support, lingering effects of Russia's Ukraine invasion, Iran–Israel Cold War, sluggish productivity growth, and heightened geo-economic fragmentation.

Chart 1: Global Growth Outlook Projections (Real GDP, Y-o-Y change in %)



Source: IMF – World Economic Outlook, October 2024; P-Projection

Table 1: GDP growth trend comparison - India v/s Other Economies (Real GDP, Y-o-Y change in %)

	Real GDP (Y-o-Y change in %)									
	CY20	CY21	CY22	CY23	CY24P	CY25P	CY26P	CY27P	CY28P	CY29P
Emerging Market and Developing Economies[1]										
India	-5.8	9.7	7.0	8.2	7.0	6.5	6.5	6.5	6.5	6.5
China	2.2	8.5	3.0	5.3	4.8	4.5	4.1	3.6	3.4	3.3
Brazil	-3.3	4.8	3.0	2.9	3.0	2.2	2.3	2.4	2.5	2.5
Advanced Economies[1]										
Japan	-4.2	2.7	1.2	1.7	0.3	1.1	0.8	0.6	0.6	0.5
Euro Area	-6.1	5.9	3.4	0.5	0.9	1.5	1.4	1.3	1.3	1.2
United States	-2.2	5.8	1.9	2.5	2.6	1.9	2.0	2.1	2.1	2.1

Source: IMF- World Economic Outlook Database (October 2024); P-Projection[1]

[1] The IMF World Economic Outlook classifies 39 economies as "advanced," based on such factors as high per capita income, exports of diversified goods and services, and greater integration into the global financial system. The remaining countries are classified as "emerging market and developing" economies.

Advanced Economies Group

Growth in Advanced Economies remained the same at 1.7% in CY23 and CY24 and is expected to increase to 1.8% in CY25.

The **United States** is expected to see growth rise to 2.6% in CY24, followed by a slight slowdown to 1.9% in CY25. This deceleration is attributed to gradual fiscal tightening and labor market softening, which dampen aggregate demand. The CY24 projection has been revised downward by 0.1 percentage points since the April CY24 WEO Update. This revision primarily reflects carryover effects from stronger-than-expected growth in the fourth quarter of CY23, with some of this momentum expected to continue into CY24. While **Japan** is expected to face downward pressure in CY24. This can be attributed to downward revisions in corporate and household spending that have led to the decline. Rising inflation and growing yen has been challenging for Japanese economy.

The **Euro Area's** growth is anticipated to rebound from its sluggish rate of 0.5% in CY23, mainly influenced by significant exposure to the conflict in Ukraine. Projections indicate an increase to 0.9% in CY24 and further to 1.5% in CY25. This recovery is driven by stronger household consumption, as the impact of elevated energy prices diminishes, and declining inflation bolsters real income growth. Additionally, strong momentum in services, higher than expected net exports, and higher investments have further driven this growth. But countries like Germany are expected to have a sluggish recovery on account of weak manufacturing growth.

Emerging Market and Developing Economies Group

Emerging markets and developing economies are forecasted to maintain stable growth at 4.3% in both CY24 and CY25. This forecast has been revised upwards by 0.1 percentage point as compared to the April 2024 WEO update on account of stronger activity in Asia, particularly China and India. Growth prospects in economies across the Middle East and Central Asia continue to be weighed down by oil production and regional conflicts. Low-income developing countries are expected to experience a gradual growth uptick, starting at 3.9% in CY23 and climbing to 4.4% in CY24 and 5.3% in CY25, as certain constraints on near-term growth begin to ease.

The economic forecast for emerging and developing Asia reveals a modest deceleration in growth, with projections indicating a decline from 5.7% in CY23 to 5.4% in CY24 and 5.1% in CY25.

China's trajectory reflects a slowdown, transitioning from 5.2% in CY23 to 5.0% in CY24 and 4.5% in CY25 due to fading post-pandemic stimuli and ongoing property sector challenges. While in the pharma space, with its large population and government support for healthcare improvements, China has become a key player in both the production and consumption of pharmaceuticals products. It has a rapidly growing domestic market and is also a major exporter of active pharmaceutical ingredients (APIs) and intermediates. The country aims to lead in biopharmaceuticals, with ongoing policy support and funding for local development.

In contrast, **India's** growth remains robust, with anticipated rates of 7.0% in CY24 and 6.5% in CY25, bolstered by resilient domestic demand and a burgeoning working-age populace.

On the other hand, **Brazil's** growth is projected to ease to 2.1% in CY24, driven by fiscal consolidation, the lingering impact of tight monetary policies, and reduced contributions from the agricultural sector. There has been a downward revision in forecast for CY24 compared to April 2024 WEO update on account of the near-term impact of flooding. Going forward, GDP is expected to grow at 2.4% in CY25 on account of reconstruction following the floods and supportive structural factors. Brazil has a strong domestic market for pharmaceuticals, with government-driven demand for affordable drugs. Investment in biotech and local production is rising, driving the growth in the pharmaceutical space.

Despite the turmoil in the last 2-3 years, India bears good tidings to become a USD 5 trillion economy by CY27. According to the IMF dataset on Gross Domestic Product (GDP) at current prices, the nominal GDP has been at USD 3.6 trillion for

CY23 and is projected to reach USD 5.3 trillion by CY27 and USD 6.4 trillion by CY29. India's expected GDP growth rate for coming years is almost double compared to the world economy.

Besides, India stands out as the fastest-growing economy among the major economies. The country is expected to grow at more than 6.5% in the period of CY24-CY29, outshining China's growth rate. By CY27, the Indian economy is estimated to emerge as the third-largest economy globally, hopping over Japan and Germany. The growth is expected to be supported by sectors such as IT, Pharma, Energy, FMCG and Infrastructure. India is also known as the "pharmacy of the world" being one of the largest producers of generic drugs and API intermediates. Its cost-effective manufacturing, skilled workforce, and regulatory improvements make it a major player in global pharmaceutical supply chains. India is poised to lead its growth in the pharmaceutical sector along with focused government initiatives coupled with increased emphasis on healthcare is expected to support economic expansion of the country.

Currently, it is the third-largest economy globally in terms of Purchasing Power Parity (PPP) with a ~7.6% share in the global economy, with China [~18.7%] on the top followed by the United States [~15.6%]. Purchasing Power Parity is an economic performance indicator denoting the relative price of an average basket of goods and services that a household needs for livelihood in each country.

Despite Covid-19's impact, high inflationary environment and interest rates globally, and the geopolitical tensions in Europe, India has been a major contributor to world economic growth. India is increasingly becoming an open economy as well through growing foreign trade. Despite the global inflation and uncertainties, Indian economy continues to show resilience. This resilience is mainly supported by stable financial sectors backed by well-capitalized banks and export of services in trade balance. With this, the growth of Indian economy is expected to fare better than other economies majorly on account of strong investment activity bolstered by the government's capex push and buoyant private consumption, particularly among higher income earners.

1.2 Indian Economic Outlook

1.2.1 GDP Growth and Outlook

Resilience to External Shocks remains Critical for Near-Term Outlook

India's real GDP grew by 7.0% in FY23 and stood at ~Rs. 161 trillion, as per the First Revised Estimate, despite the pandemic in previous years and geopolitical Russia-Ukraine spillovers. In Q1FY24, economic growth accelerated to 8.2%. The manufacturing sector maintained an encouraging pace of growth, given the favorable demand conditions and lower input prices. The growth was supplemented by a supportive base alongside robust services and construction activities. This momentum remained in the range in Q2FY24 with GDP growth at 8.1%, mainly supported by acceleration in investments. However, private consumption growth was muted due to weak rural demand and some moderation in urban demand amid elevated inflationary pressures in Q2FY24. The GDP growth figures improved for Q3FY24 to 8.6%.

India's GDP at constant prices surged to Rs. 47.24 trillion in Q4FY24 from Rs. 43.84 trillion in Q4FY23, marking a 7.8% growth rate. This upswing was fueled by robust performances in construction, mining & quarrying, utility services, and manufacturing sectors and investment drove the GDP growth, while both private and government consumption remained subdued.
Real GDP in the year FY24 is estimated to grow at 8.2% at Rs. 173.82 trillion as per provisional estimate of the Ministry of Statistics and Programme Implementation. It is expected that domestic demand, especially investment, to be the main driver of growth in India, amid sustained levels of business and consumer confidence.

In Q1FY25, the real GDP grew by 6.7% y-o-y, hitting a 15-month low, as compared to 8.2% y-o-y in the previous quarter. Private consumption, a key driver of the GDP, showed resilience increasing by 7.45% while government spending contracted by 0.24%. This growth was largely driven by elections and extreme summer conditions, which impacted economic activities across several sectors.

GDP Growth Outlook

- Driven by fixed investment and improving global environment, domestic economic activity continues to expand. The provisional estimates (PE) placed real GDP growth at 8.2% for FY24.

- Industrial activity led by manufacturing continues its momentum on the back of strengthening domestic demand. Moreover, the services sector-maintained buoyancy could be observed by growth in high frequency indicators such as E-way bills, GST revenues, toll collections, aggregate, and a healthy growth in domestic air cargo and port cargo. The purchasing managers' index for both manufacturing and services continues to exhibit a sustained and healthy expansion.

- Domestic economic activity remains strong. On the supply side, the south-west monsoon is progressing well, with higher cumulative kharif sowing and improving reservoir levels, which bodes well for kharif output. The potential development of La Niña conditions in the latter half of the monsoon season could impact agricultural production in 2024-25. On the demand side, household consumption is bolstered by a recovery in rural demand and consistent discretionary spending in urban areas. Fixed investment activity is robust, supported by the government's ongoing focus on capital expenditure, healthy balance sheets of banks and corporates, and other policy measures. Private corporate investment is picking up, driven by an increase in bank credit. Merchandise exports grew in June, albeit at a slower rate, while the growth in non-oil-non-gold imports accelerated, indicating resilience of domestic demand. Services exports saw double-digit growth in May 2024 before slowing down in June 2024.

- Improved agricultural activity would improve rural consumption, while urban consumption would be supported by buoyancy in services activity. Additionally, improvement in global trade prospects are expected to support external demand.

Persistent geopolitical tensions and volatility in international financial markets and geo-economic fragmentation do pose risk to this outlook. Based on these considerations, the RBI, in its August 2024 monetary policy, has projected real GDP growth at 7.2% y-o-y for FY25.

Table 2: RBI's GDP Growth Outlook (Y-o-Y %)

FY25P (complete year)	Q3FY25P	Q4FY25P	Q1FY26P	Q2FY26P
6.6%	6.8%	7.2%	6.9%	7.3%

Source: Reserve Bank of India; P: Projected

1.2.2 Gross Value Added (GVA)

Gross Value Added (GVA) is the measure of the value of goods and services produced in an economy. GVA gives a picture of the supply side whereas GDP represents consumption.

Industry and Services sector leading the recovery charge

• The gap between GDP and GVA growth turned positive in FY22 (after a gap of two years) due to robust tax collections. Of the three major sector heads, the service sector has been the fastest-growing sector in the last 5 years.

• The **agriculture sector** was holding growth momentum till FY18. In FY19, the acreage for the rabi crop was marginally lower than the previous year, which affected the agricultural performance. Whereas FY20 witnessed growth on account of improved production. During the pandemic-impacted period of FY21, the agriculture sector was largely insulated as timely and proactive exemptions from COVID-induced lockdowns to the sector facilitated uninterrupted harvesting of rabi crops and sowing of kharif crops. However, supply chain disruptions impacted the flow of agricultural goods leading to high food inflation and adverse initial impact on some major agricultural exports. However, performance remained steady in FY22.

In FY23, the agriculture sector performed well despite weather-related disruptions, such as uneven monsoon and unseasonal rainfall, impacting yields of some major crops and clocked a growth of 4% y-o-y, garnering Rs. 22.3 trillion.

In Q1FY24, this sector expanded at a slower pace of 3.7% y-o-y growth compared to y-o-y growth a quarter ago. This further stumbled to 1.7% in Q2FY24. Further, it experienced y-o-y growth of 0.4% in Q3 and 0.6% in Q4. leading to expectations of a modest 1.4% rise for the full year, contrasting sharply with the 4.7% growth recorded in FY23. In the Budget 2024-25, the government plans to boost private and public investment in post-harvest activities and expand the application of Nano-DAP across agro-climatic zones. Strategies for self-reliance in oilseeds and dairy development are to be formulated, alongside ramping up the Pradhan Mantri Matsaya Sampada Yojana and establishing Integrated Aquaparks. Allocation for PM-Formalisation of Micro Food Processing Enterprises scheme has increased from Rs. 639 in FY24 to Rs. 880 crores in FY25.

Going forward, rising bank credit in the sector and increased exports will be the drivers for the agriculture sector. However, a deficient rainfall may have impact on the reservoir level, weighing on prospects of Kharif sowing. Considering these factors, the agriculture sector is estimated to attain Rs. 23.1 trillion and mark 1.4% y-o-y growth for complete FY24. In Q1FY25, the agriculture sector grew by only 2% y-o-y as compared to 3.7% in Q1FY24. Better monsoon conditions are expected to brighten the outlook for the agriculture sector.

• From March 2020 onwards, the nationwide lockdown due to the pandemic significantly impacted the **industrial sector**. In FY20 and FY21, this sector felt turbulence due to the pandemic and recorded a decline of 1.4% and 0.9%, respectively, on a y-o-y basis. With the opening of the economy and resumption of industrial activities, it registered 11.6% y-o-y growth in FY22, albeit on a lower base.

The industrial output in FY23 grew by only 2.1% with an estimated value of Rs. 44.74 trillion owing to a decline in manufacturing activities.

The industrial sector grew by 6.0% in Q1FY24, while Q2FY24 growth was up by 13.6% owing to positive business optimism and strong growth in new orders supported by manufacturing output. The industrial growth was mainly supported by sustained momentum in the manufacturing and construction sectors. Within manufacturing, industries such as pharma, motor vehicles, metals, petroleum and pharma witnessed higher production growth during the quarter. The construction sector (13.6% growth in Q2FY24) benefited from poor rainfall during August and September and higher implementation of infrastructure projects. This was reflected in robust cement and steel production and power demand in Q2FY24. Overall, H1FY24 picked up by 9.3% with manufacturing and construction activities witnessing significant acceleration. In Q3FY24, the growth rate slowed down to 10.5%. It further fell to 8.4% in Q4FY24.

India's industrial sector is experiencing strong growth, driven by significant expansion in manufacturing, mining, and construction. This growth is supported by positive business sentiment, declining commodity prices, beneficial government policies like production-linked incentive schemes, and efforts to boost infrastructure development. These factors contribute to the sustained buoyancy in industrial growth due to which the industrial growth is estimated at 9.5% on y-o-y basis registering the value of Rs. 48.9 trillion in FY24.

In Q1FY25, the industrial sector grew by 8.3% y-o-y as compared to 6% in Q1FY24. This growth was driven mainly by sales growth in manufacturing companies, construction, and utility services. Construction grew at the highest rate of 10.5% as compared to a growth rate of 8.3% in the same quarter of the previous year.

• The **Services sector** was the hardest hit by the pandemic and registered an 8.2% y-o-y decline in FY21. The easing of restrictions aided a fast rebound in this sector, with 8.8% y-o-y growth witnessed in FY22.

Overall, in FY23, benefiting from the pent-up demand, the service sector was valued at Rs. 80.6 trillion and registered growth of 10.0% y-o-y.

In Q1FY24, the services sector's growth jumped to 10.7%. Within services, there was a broad-based improvement in growth across different sub-sectors. However, the sharpest jump was seen in financial, real estate, and professional services. Trade, hotels, and transport sub-sectors expanded at a healthy pace gaining from strength in discretionary demand. The service sector growth in Q2FY24 moderated to 6.0% partly due to the normalization of base effects and some possible dilution in discretionary demand. Considering these factors, the service sector marked 8.3% growth in H1FY24. In Q3FY24 growth increased to 7.1% compared to 7.2% last year in the same quarter. In Q4FY24, growth declined to 6.7% compared to 7.2% last year in the same quarter.

With this performance, steady growth in various service sector indicators like air passenger traffic, port cargo traffic, GST collections, and retail credit are expected to support the services sector. With this, the growth of the service sector is estimated at Rs. 86.7 trillion registering 7.6% growth in FY24 overall. In Q1FY25, the services sector grew by only 7.2% y-o-y as compared to 10.7% in Q1FY24.

Table 3: Sectoral Growth (Y-o-Y % Growth) - at Constant Prices

At constant Prices	FY19	FY20	FY21	FY22	FY23 (FRE)	FY24 (PE)	H1FY24	H1FY25
Agriculture, Forestry & Fishing	**2.1**	**6.2**	**4.1**	**3.5**	**4.7**	**1.4**	**2.8**	**2.7**
Industry	**5.3**	**-1.4**	**-0.9**	**11.6**	**2.1**	**9.5**	**9.7**	**6.0**
Mining & Quarrying	-0.9	-3.0	-8.6	7.1	1.9	7.1	8.8	3.9
Manufacturing	5.4	-3.0	2.9	11.1	-2.2	9.9	9.6	4.5
Electricity, Gas, Water Supply & Other Utility Services	7.9	2.3	-4.3	9.9	9.4	7.5	6.8	6.8
Construction	6.5	1.6	-5.7	14.8	9.4	9.9	11.0	9.1
Services	**7.2**	**6.4**	**-8.2**	**8.8**	**10.0**	**7.6**	**9.7**	**6.1**
Trade, Hotels, Transport, Communication & Broadcasting	7.2	6.0	-19.7	13.8	12.0	6.4	6.9	5.9
Financial, Real Estate & Professional Services	7.0	6.8	2.1	4.7	9.1	8.4	9.3	6.9
Public Administration, Defence and Other Services	7.5	6.6	-7.6	9.7	8.9	7.8	8.0	9.3
GVA at Basic Price	**5.8**	**3.9**	**-4.2**	**8.8**	**6.7**	**7.2**	**8.0**	**6.2**

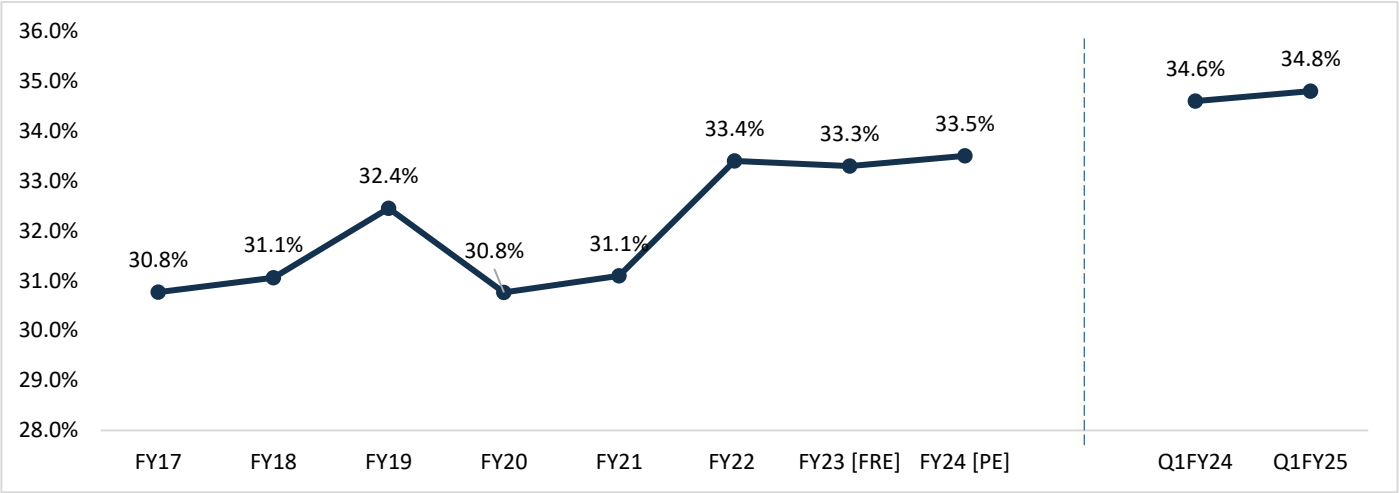
Source: MOSPI, note: FRE – First Revised Estimates, PE – Provisional Estimate;

1.2.3 Investment Trend in Infrastructure

Gross Fixed Capital Formation (GFCF), which is a measure of the net increase in physical assets, witnessed an improvement in FY22. As a proportion of GDP, it is estimated to be at 33.4%, which is the highest level in 5 years (since

FY17). In FY23, the ratio of investment (GFCF) to GDP remained flat at 33.3%. Continuing in its growth trend, this ratio has reached 33.5% in FY24. In Q1FY25, GFCF as a proportion of GDP, reached 34.8% as compared to 34.6% in Q1FY24 mainly reflecting growth in private investment.

Chart 2: Gross Fixed Capital Formation (GFCF) as % of GDP (At constant prices)



Source: MOSPI, Note: 3RE – Third Revised Estimate, 2RE – Second Revised Estimates, 1RE – First Revised Estimates, PE – Provisional Estimate, FAE-First Advance Estimate

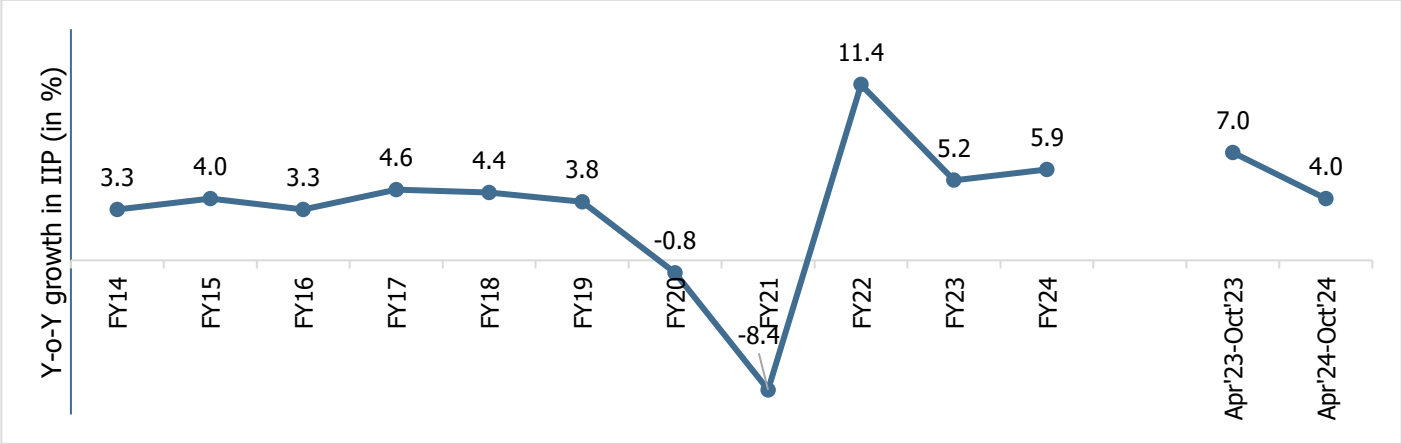
Overall, the support of public investment in infrastructure is likely to gain traction due to initiatives such as Atmanirbhar Bharat, make in India, and Production-linked Incentive (PLI) scheme announced across various sectors.

1.2.4 Industrial Growth

Improved Core and Capital Goods Sectors helped IIP Growth Momentum

The Index of Industrial Production (IIP) is an index to track manufacturing activity in an economy. During FY23, the industrial output recorded a growth of 5.2% y-o-y supported by a favorable base and a rebound in economic activities. During FY24, the industrial output recorded a growth of 5.9% y-o-y supported by growth in the manufacturing and power generation sectors. The period April 2024 – August 2024, industrial output grew by 4.2% compared to the 6.2% growth in the corresponding period last year. For the month of August 2024, the IIP growth contracted by 0.1% as compared to last year's IIP growth of 10.9%. This decline was on account of decline in growth in mining and electricity sectors on account of heavy rainfall and reduced electricity demand. The manufacturing sector also grew modestly in August 2024 by 1% as compared to a growth of 10% in August 2023. Within the growth in manufacturing, the top three positive contributors were Manufacture of basic metals, Manufacture of electrical equipment, and Manufacture of chemicals and chemical products. So far in the current fiscal, the government's strong infrastructure spending and rising private investment are evident, though consumer non-durables production has declined. Urban demand drives consumption, while rural demand improves, highlighting the importance of sustained consumption and investment for industrial performance.

Chart 3: Y-o-Y growth in IIP (in %)

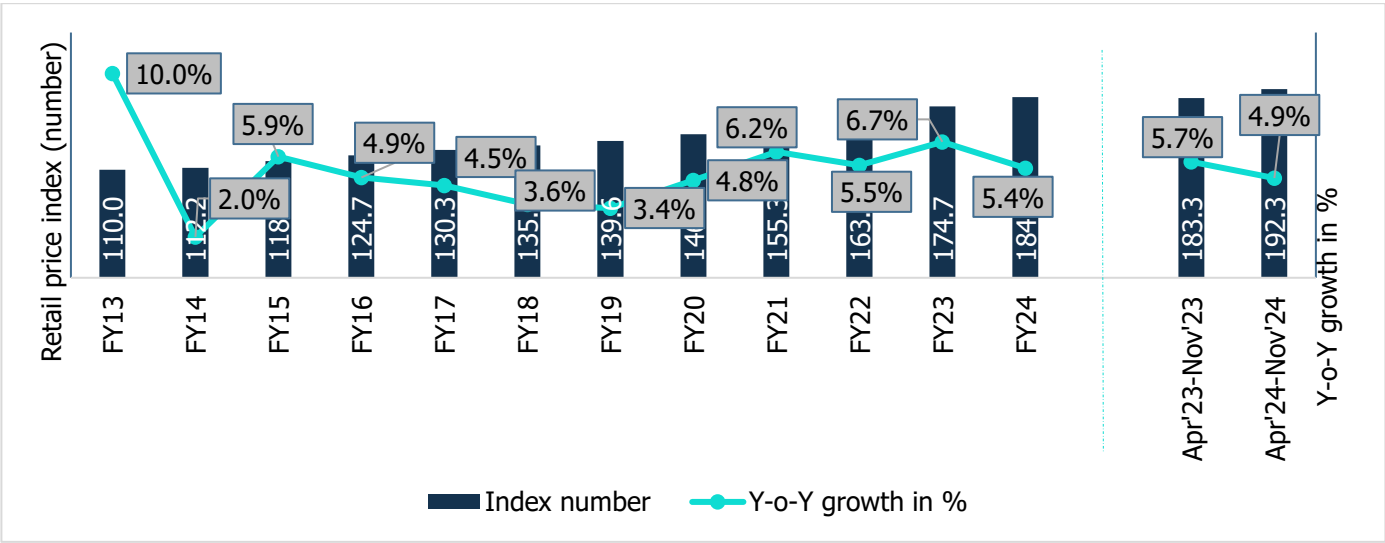


Source: MOSPI

1.2.5 Consumer Price Index

India's consumer price index (CPI) tracks retail price inflation in the economy. During FY23, CPI remained elevated at an average of 6.7%, above the RBI's tolerance level. In FY24, the Consumer Price Index (CPI) showed fluctuations, starting with a moderation to 4.3% in May 2023, followed by a spike to 7.4% in July 2023 due to rising food prices. Overall, inflation moderated to 5.4% for the year, remaining within the RBI's target range of 2% to 6%, despite volatility in food prices throughout the months. High inflation in specific food items poses inflation risk, even though an improvement in south-west monsoon and better kharif sowing are improving the food inflation outlook. The numbers for April 2024-September 2024 show a decline in inflation growth y-o-y to 4.6% as compared to inflation growth y-o-y of 5.5% in April 2023-September 2023 period. For September 2024, CPI inflation stood at 5.5% which has been the highest retail inflation since December 2023. There was a decline in inflation observed among the subgroups meat and fish, pulses and products, sugar and confectionery, and spices.

Chart 4: Retail Price Inflation in terms of index and Y-o-Y Growth in % (Base: 2011-12=100)

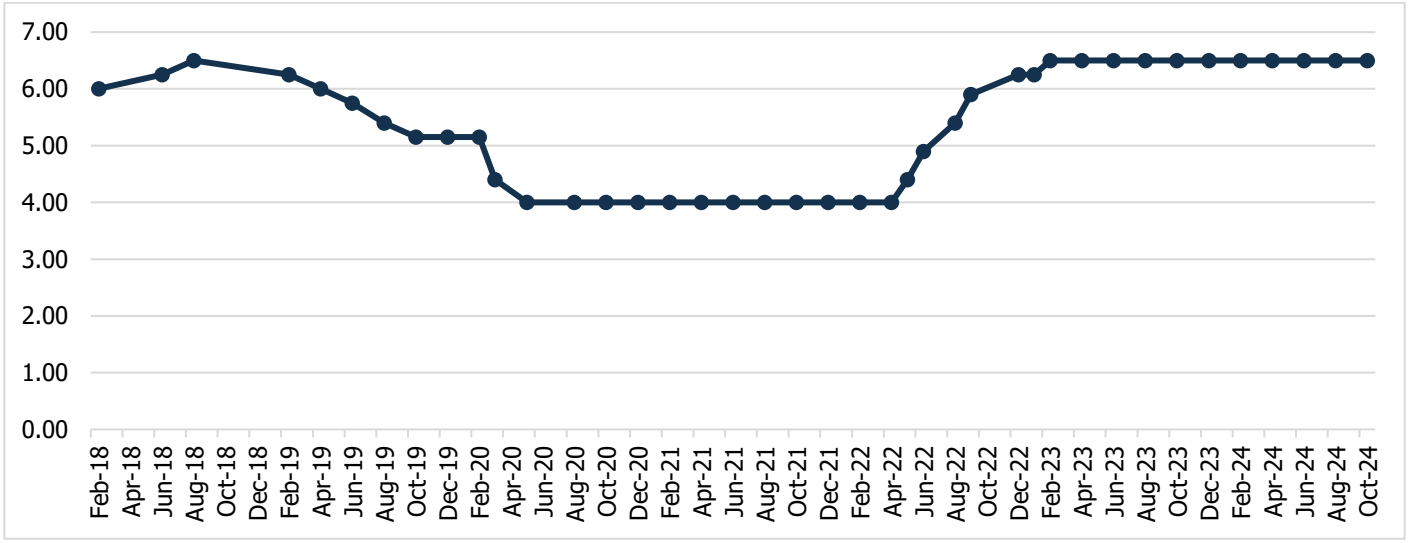


Source: MOSPI

The CPI is primarily factored in by RBI while preparing their bi-monthly monetory policy. At the bi-monthly meeting held in October 2024, RBI projected inflation at 4.5% for FY25 with inflation during Q2FY25 at 4.1%, Q3FY25 at 4.8%, Q4FY25 at 4.2%, and Q1FY26 at 4.3%.

Considering the current inflation situation, RBI has kept the repo rate unchanged at 6.5% again in the October 2024 meeting of the Monetary Policy Committee.

Chart 5: RBI historical Repo Rate



Source: RBI

Further, the central bank changed its stance to neutral. While headline inflation has started easing due to softening in core component and economic activity has been resilient supported by domestic and investment demand, volatility in food prices due to adverse weather conditions pose a risk to the path of disinflation. Core inflation has likely reached its lowest point, and fuel prices are contracting. Domestic growth remains strong, driven by private consumption and investment, allowing the MPC to focus on bringing inflation down to the 4% target. As a result, the MPC decided to adopt a 'neutral' stance, monitoring inflation while supporting growth.

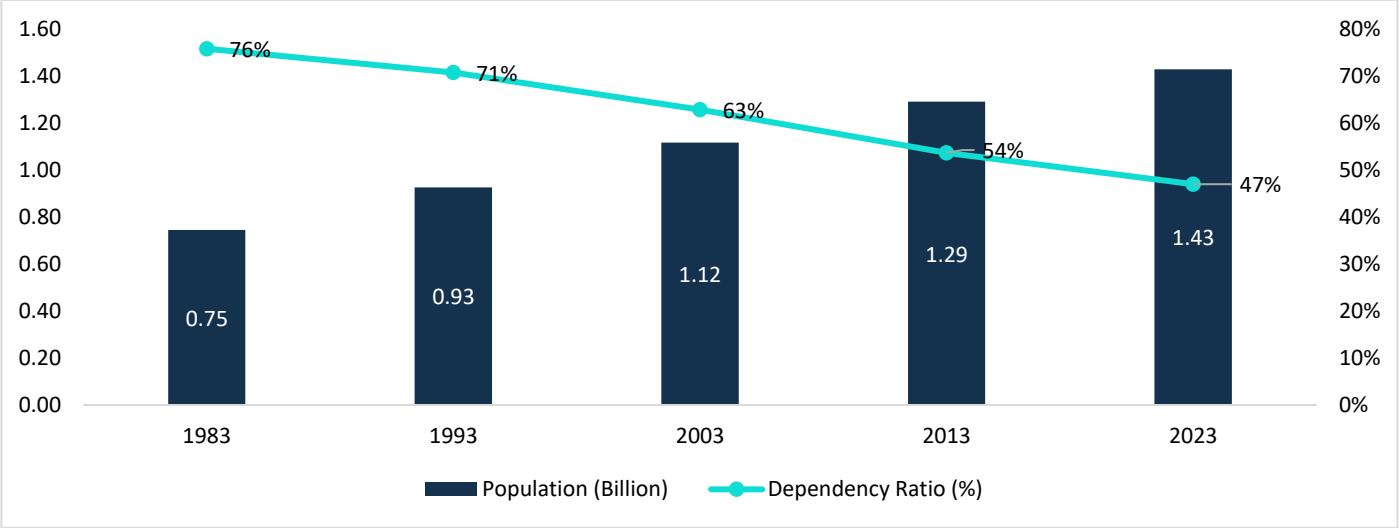
1.2.6 Overview of Key Demographic Parameters

- **Population growth and Urbanization**

The trajectory of economic growth of India and private consumption is driven by socio-economic factors such as demographics and urbanization. According to the world bank, India's population in 2022 surpassed 1.42 billion slightly higher than China's population 1.41 billion and became the most populous country in the world.

Age Dependency Ratio is the ratio of dependents to the working age population, i.e., 15 to 64 years, wherein dependents are population younger than 15 and older than 64. This ratio has been on a declining trend. It was as high as 76% in 1983, which has reduced to 47% in 2023. Declining dependency means the country has an improving share of working-age population generating income, which is a good sign for the economy.

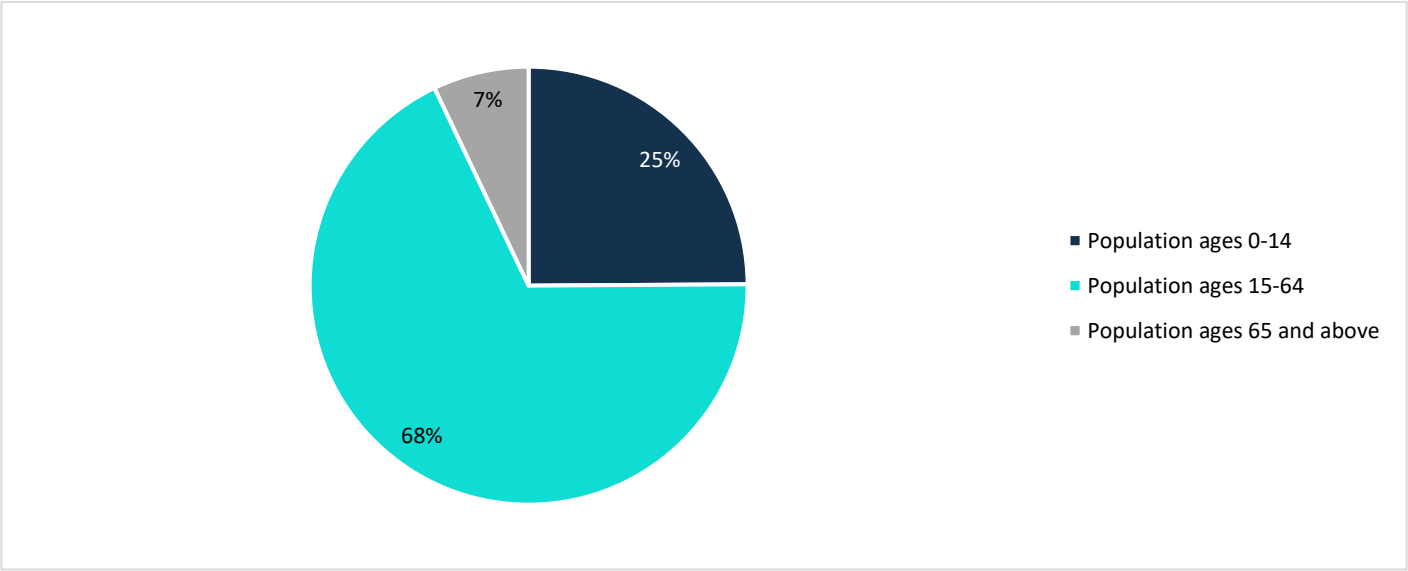
Chart 6: Trend of India Population vis-à-vis dependency ratio



Source: World Bank Database

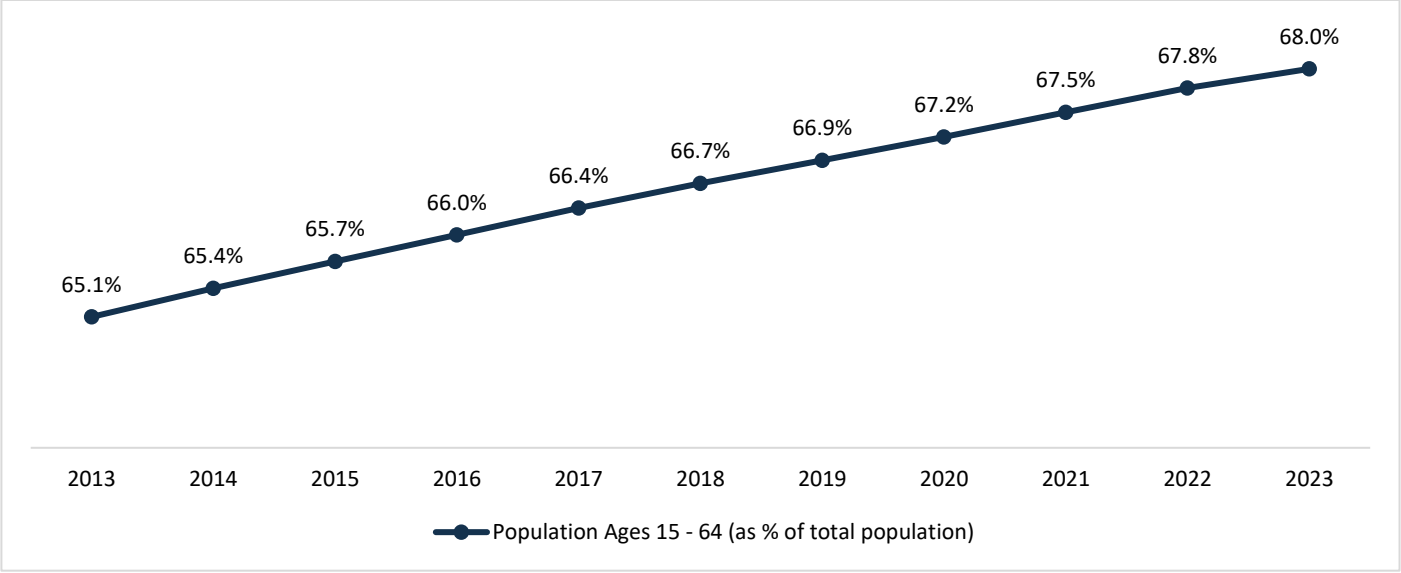
With an average age of 29, India has one of the youngest populations globally. With vast resources of young citizens entering the workforce every year, it is expected to create a 'demographic dividend'. India is home to a fifth of the world's youth demographic and this population advantage will play a critical role in economic growth.

Chart 7: Age-Wise Break Up of Indian population



Source: World Bank Database

Chart 8: Yearly Trend - Young Population as % of Total Population

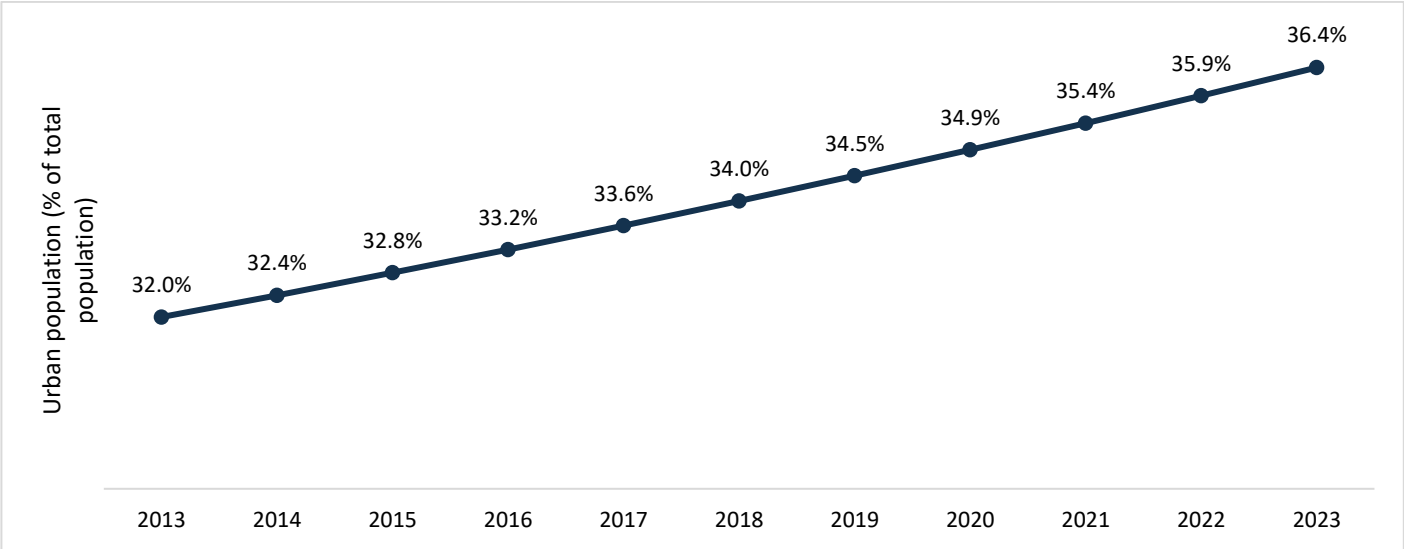


Source: World Bank database

- **Urbanization**

The urban population is significantly growing in India. The urban population in India is estimated to have increased from 413 million (32% of total population) in 2013 to 519.5 million (36.4% of total population) in the year 2023. People living in Tier-2 and Tier-3 cities have greater purchasing power.

Chart 9: Urbanization Trend in India



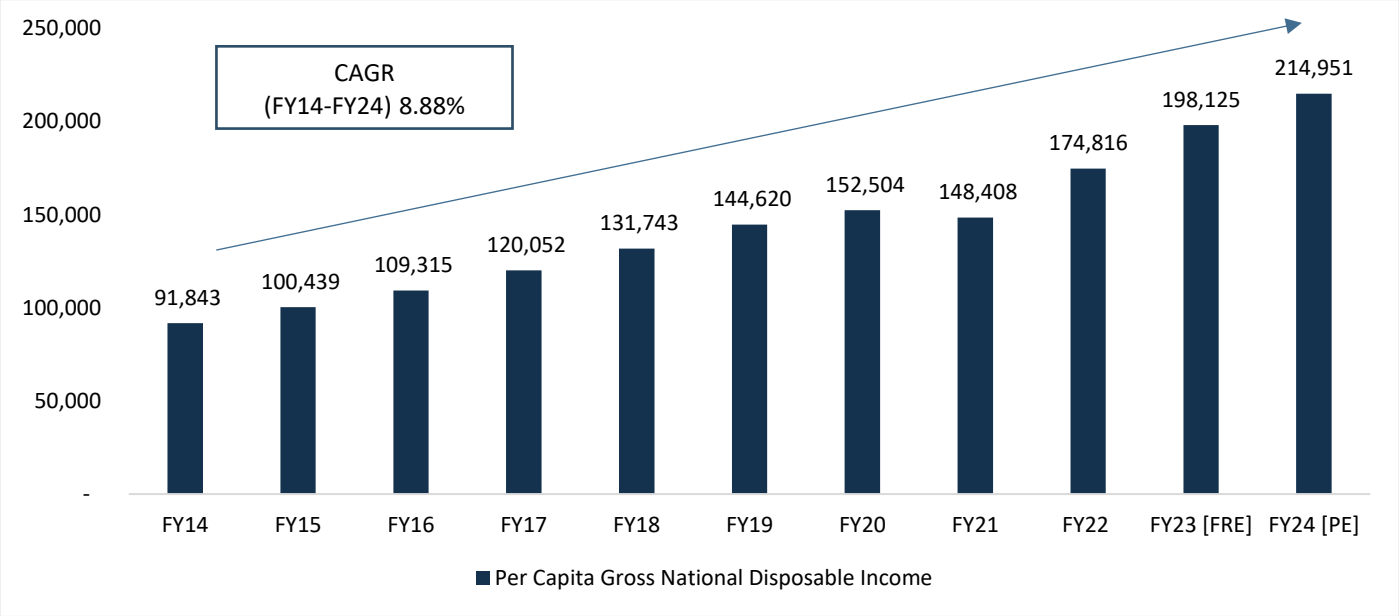
Source: World Bank Database

- **Increasing Per Capita Disposable Income**

Gross National Disposable Income (GNDI) is a measure of the income available to the nation for final consumption and gross savings. Between the period FY14 to FY24, per capita GNDI at current prices registered a CAGR of 8.88%. More disposable income drives more consumption, thereby driving economic growth.

The chart below depicts the trend of per capita GNDI in the past decade:

Chart 10: Trend of Per Capita Gross National Disposable Income (Current Price)

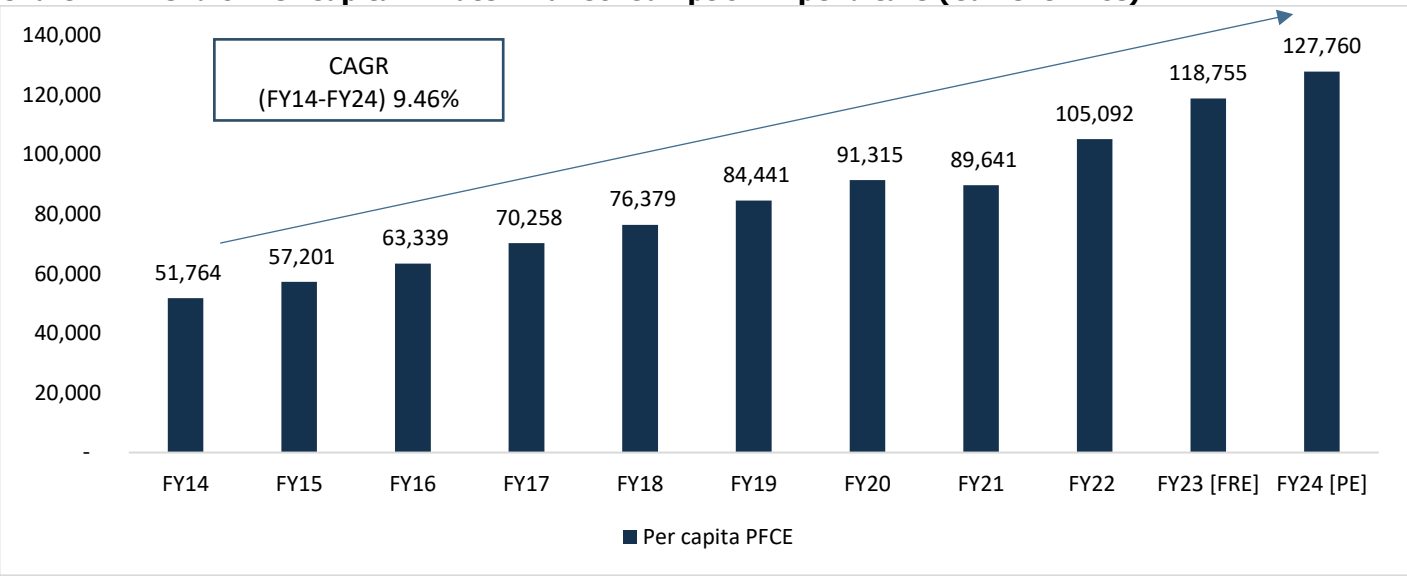


Source: MOSPI, Note: FRE – First Revised Estimates, PE – Provisional Estimate

- **Increase in Consumer Spending**

With increase in disposable income, there has been a gradual change in consumer spending behaviour as well. Private Final Consumption Expenditure (PFCE) which is measure of consumer spending has also showcased significant growth in the past decade at a CAGR of 9.46%. Following chart depicts the trend of per capita PFCE at current prices:

Chart 11: Trend of Per Capita Private Final Consumption Expenditure (Current Price)



Source: MOSPI

1.2.7 Concluding Remarks

The major headwinds to global economic growth are escalating geopolitical tensions, volatile global commodity prices, high interest rates, inflation woes, volatility in international financial markets, climate change, rising public debt, and

new technologies. Despite the global economic growth uncertainties, the Indian economy is relatively better placed in terms of GDP growth compared to other emerging economies. According to IMF's forecast, it is expected to be 7% in CY24 compared to the world GDP growth projection of 3.2%. The bright spots for the economy are continued healthy domestic demand, support from the government towards capital expenditure, moderating inflation, investments in technology and improving business confidence.

Likewise, several high-frequency growth indicators including the purchasing managers index, E-way bills, bank credit, toll collections and GST collections have shown improvement in FY24. Moreover, normalizing the employment situation after the opening of the economy is expected to improve and provide support to consumption expenditure.

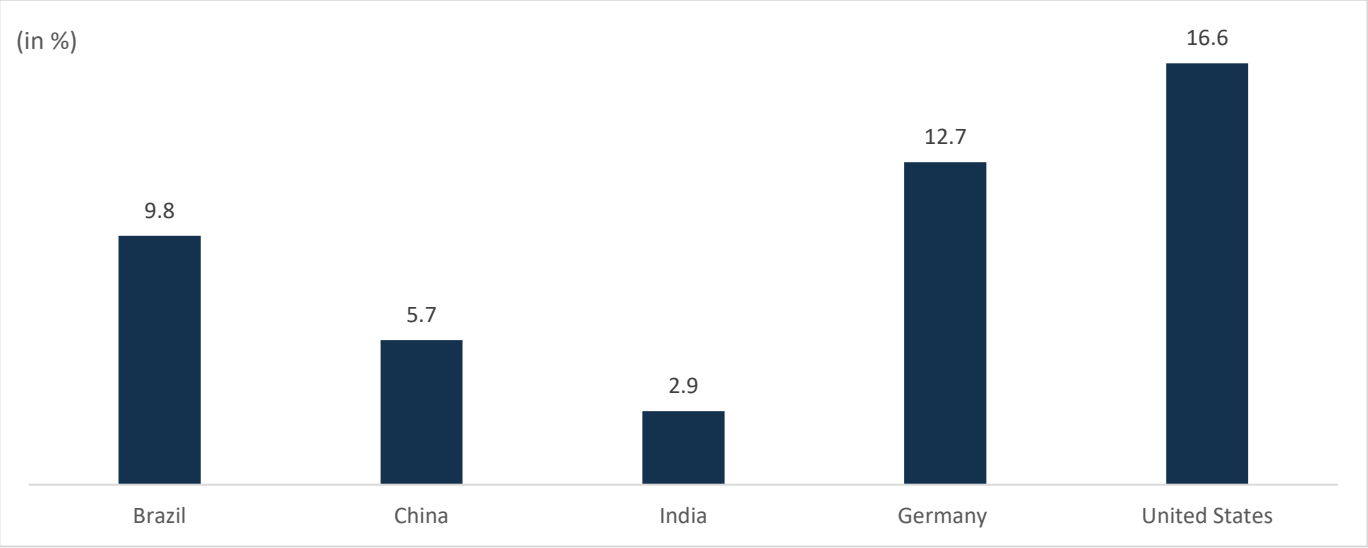
At the same time, public investment is expected to exhibit healthy growth as the government has allocated a strong capital expenditure of about Rs. 11.11 lakh crores for FY25. The private sector's intent to invest is also showing improvement as per the data announced on new project investments and resilience shown by the import of capital goods. Additionally, improvement in rural demand owing to healthy sowing, improving reservoir levels, and progress in the south-west monsoon along with government's thrust on capex and other policy support will aid the investment cycle in gaining further traction.

2 Overview of Global and India's Healthcare Expenditure

2.1 Healthcare Expenditure as % of GDP India Vs Global

The data on health expenditure as a percentage of GDP highlights various differences across countries. The United States leads with the highest health spending at 16.6% of its GDP, followed by Germany at 12.7%, indicating significant expenditure in healthcare. In contrast, Brazil spends 9.8% of its GDP on health, while China and India allocate considerably less at 5.7% and 2.9%, respectively. This disparity underscores the varying levels of healthcare prioritization and investment, with India and China notably focusing on lower health expenditure despite their large populations. These figures reflect the broader economic strategies and healthcare infrastructure across these nations.

Chart 12: Country-wise Health Expenditure as % of GDP in 2022

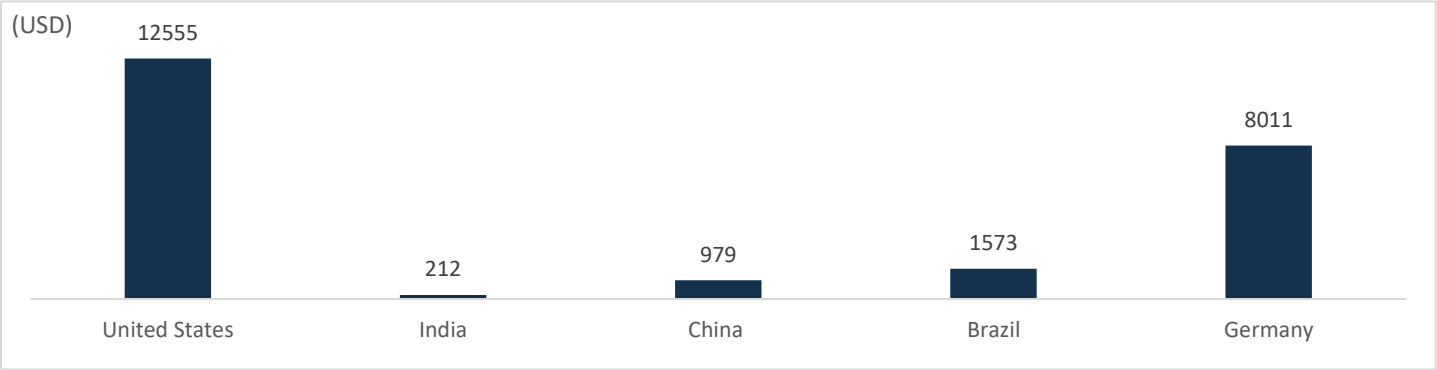


Source: OECD Health Statistics 2023, CareEdge Research; This is the latest available data

2.2 Per-Capita Current Expenditure on Health

For year 2022, India's health expenditure per capita was as low as USD 212 compared to health expenditure per capita of Brazil, China and Germany that was in the range of more than USD 900. For the USA, this expenditure was as high as USD 12,555 in 2022.

Chart 13: Current health expenditure per capita in 2022 (in USD)



Source: OECD Health Statistics 2023, CareEdge Research, This is the latest available data

Poverty is one of the reasons for lower health expenditure in India. As per National Multidimensional Poverty Index (MPI) 2023, the population below poverty line has significantly reduced 24.85% in 2015-16 to 14.96% in 2020-21. This is expected to in turn rise in expenditure on health care going further with rise in spending. In addition to this, lower medical care expenditure by rural population (that accounts for about more than 65% of the total population in India) compared to urban populace contributed to this low health expenditure.

In addition to this, concentrated healthcare facilities in urban areas also compound the problem as these facilities are not so easily accessible and within the monetary reach of most of the people living in rural and remote areas of the country. As per National Health Profile 2023, in rural areas, there were 31,053 functioning primary health center and 6,064 community health centers.

2.3 Outlook - India

For the betterment of overall health of citizens and facilities, the government has made various efforts under the National Health Mission and various such schemes. For ensuring universal health coverage, there is rising importance of public healthcare and social security. The primary healthcare expenditure has increased to 55.9% in 2019-20 from 51.3% in 2014-15. This not only ensures quality services at the grassroot level but also reduces the chances of ailments requiring secondary or tertiary healthcare services.

On account of various initiatives introduced, there is major development in the healthcare space and the development is expected to continue. Indian healthcare is among the largest network in the world. And to support the network, healthcare infrastructure is also expected to grow in the near to medium term.

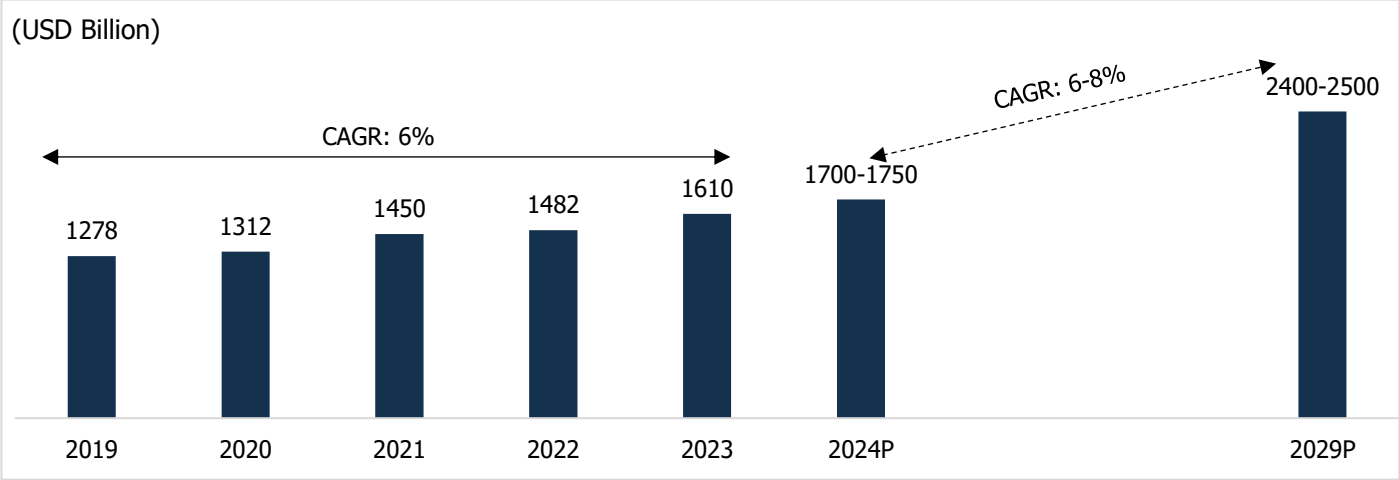
The foreseeable future presents a promising outlook for the industry in the export market, characterized by increasing demand within both regulated and emerging pharmaceutical markets. Furthermore, the impending expiration of patents on certain drugs presents an opportunity for substantial export growth, anticipated to be around 8% during FY24 and FY25. Indian pharmaceutical industry expanded from approximately USD 34.7 billion in FY17 to reach approximately USD 50 billion in FY23; and is envisaged to further increase to USD 57 billion by FY25.

3 Overview of Global Pharmaceuticals Market

3.1 Overview and market size

The global pharmaceutical industry has traditionally been dominated by a few high-income and developed regions, such as North America and Europe, which still hold a significant share of the market in terms of value, primarily due to the presence of high-priced drugs and cutting-edge products. However, in recent years, middle-income countries like India, China, and Brazil have seen substantial growth in both production and consumption. These so-called "Pharmerging" markets now contribute significantly to global pharmaceutical volume consumption and have surpassed the growth rates of high-income markets. As a result, these emerging markets have become key strategic targets for multinational pharmaceutical companies, as evidenced by the increasing pharmaceutical exports from these regions. Despite this shift, high-income countries continue to lead in pharmaceutical research and development (R&D) spending across both the public and private sectors.

Chart 14: Global Pharmaceuticals market size

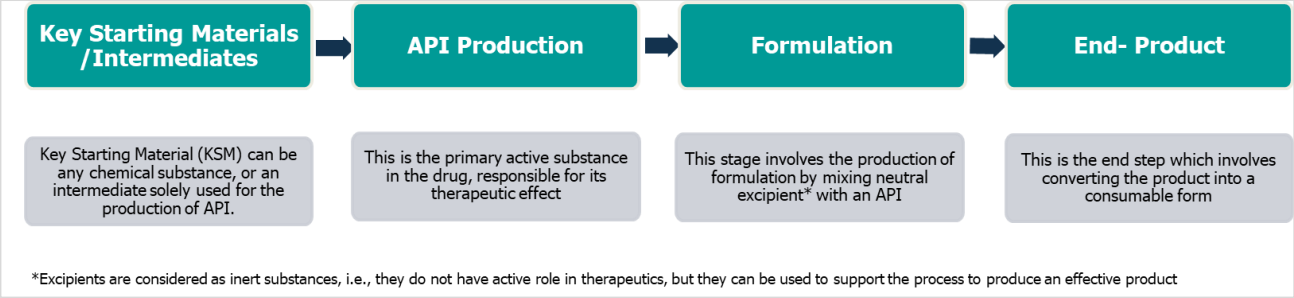


Source: Pharma Company Reports, CareEdge Research; P: Projected

The global pharmaceutical market has expanded at a compound annual growth rate (CAGR) of around 6%, rising from around $1,278 billion in 2019 to approximately $1,610 billion in 2023. Key factors driving this growth include an ageing population, robust development in the generics market, increasing patient demand for more effective and better-tolerated novel drugs, and improved access to medications in emerging markets. Looking ahead, the market is projected to continue growing at a 6-8% CAGR over the next five years, reaching an estimated $2,400 to 2,500 billion by 2029. On a global scale, pharmaceutical companies are increasingly focusing on personalized treatment and precision medicine, aiming to tailor medical care to individual patient characteristics, needs, preferences, and genetic profiles.

The pharmaceutical value chain begins with the selection of **Key Starting Materials / Intermediates**, which are basic chemical or biological substances. These materials serve as the foundation for drug development. These are the important compounds that are formed during the multi-step synthesis of the Active Pharmaceutical Ingredients (APIs). Next step involves the production of **Active Pharmaceutical Ingredients (APIs)**, which serve as the core components of medications using sophisticated chemical techniques which ensures critical examination on quality and purity. Once the API is produced, it is mixed with excipients- these are neutral substances like for e.g., binders, flavors, preservatives, lubricants etc. which are used with combining APIs during the **formulation** stage. Further, the product is created by transforming it into consumable forms like tablets, capsules, injectables, ointments, powder, liquid orals, sprays, etc.

Chart 15: Pharmaceutical Industry Value Chain



Source: CareEdge Research

In the pharmaceutical industry, the production of active pharmaceutical ingredients (APIs) and their intermediates often involve complex chemical processes that require specialized equipment and facilities. The ability to handle different types of chemistry capabilities like acetylation, cyanation, Dieckmann Cyclization, Grignard reaction, phase transfer reaction, etc. opens a lot of opportunities to scale up the business profitably. One such critical process is hydrogenation, which is widely used to modify the chemical structure of drug molecules by adding hydrogen to unsaturated bonds.

Hydrogenation facilities are essential in the production of API intermediates, enabling the addition of hydrogen to unsaturated compounds. This process alters chemical structures, improving stability, selectivity, and biological activity, which is crucial for APIs in cardiovascular, oncology, and CNS therapies. Hydrogenation is used to produce saturated compounds, which are often more stable and easier to handle in later production stages. The process involves controlled reactors and catalysts, ensuring high reproducibility and consistent quality. These facilities also enhance cost-effectiveness by streamlining production, reducing waste, and improving yields, making hydrogenation a key step in API manufacturing.

Additionally, prior to manufacturing, essential steps such as research and development (R&D) and securing regulatory approvals must be completed to ensure the safety and usefulness of the final product.

3.2 Key growth drivers for the Pharmaceutical Industry: Global Markets

3.2.1 Improved access to medicine in emerging markets

The global population nearing 8 billion has led to increased daily per capita medicine consumption, particularly in emerging markets like China, India, Brazil, and Indonesia. Factors such as rising incomes, better healthcare infrastructure, and expanded insurance coverage have narrowed the gap between medicine usage in developed and emerging markets. In India, the widespread availability of advanced medicines highlights the country's strides in healthcare accessibility. This growth is further bolstered by government safety nets, private insurance, and ongoing public and private sector investments, which are crucial for sustaining higher medicine consumption levels.

3.2.2 Frequency and prevalence of chronic diseases

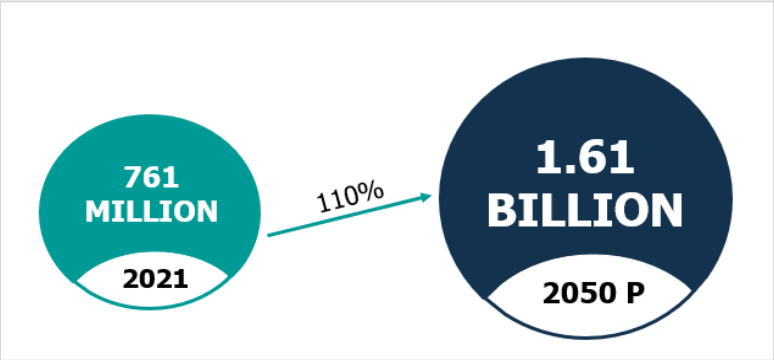
The prevalence of chronic diseases like cardiovascular diseases, cancer, diabetes, and respiratory conditions is rising globally, significantly impacting economies and fueling pharmaceutical demand. Cardiovascular diseases account for the highest mortality, causing 17.9 million deaths annually, followed by cancer (9.3 million), respiratory illnesses (4.1 million), and diabetes (2 million). Together, these account for 80% of chronic disease-related deaths. The OECD's Health at a Glance 2021 report highlights that nearly one-third of individuals aged 16 and above live with a severe illness. With chronic diseases responsible for 41 million annual deaths (70% of all global deaths), advancements in pharmaceutical treatments are becoming increasingly critical to address this growing health burden.

3.2.3 Increase in ageing population

Based on the data in the 'World Social Report 2023' from the United Nations, the global population of elderly individuals (65 years and older) is projected to increase by nearly 110%, rising from 761 million in 2021 to 1.6 billion in 2050.

Worldwide, the population of individuals aged 65 and older is experiencing quicker growth compared to all other age groups. The increasing demand for healthcare services from the elderly population, who are predominantly suffering from chronic conditions, is projected to fuel the expansion of the worldwide pharmaceutical sector.

Chart 16: Number of people aged 65 years or over



Source: UN World Social Report 2023, CareEdge Research; P: Projected

3.2.4 Number of products going off patent in the United States to peak in 2024

The expiration of patents for major medications significantly drives growth in the generics industry. As patents expire, generic pharmaceutical companies and CDMOs (Contract Development and Manufacturing Organizations) capitalize on the opportunity to launch cost-effective versions of branded drugs. This competition intensifies as companies aim to bring new products to market swiftly, ensuring a competitive edge. According to India's Department of Pharmaceuticals, over 300 drugs across various therapeutic categories and regions lose patent protection annually, fueling the expansion of the generics market and enabling greater accessibility to affordable medications.

3.3 Key challenges in global pharmaceutical industry

3.3.1 Regulatory and Compliance Pressures:

Pharmaceutical companies face challenges in dealing with intricate regulatory systems in various countries, causing delays in drug approvals and higher expenses. Adherence to proper manufacturing practices and changing safety and efficacy regulations create additional stress. Furthermore, in numerous nations, governments and healthcare systems implement price controls and bargain on drug prices, which reduces profit margins for pharmaceutical companies.

3.3.2 R&D costs and innovation pressure:

The process of developing drugs is costly and lengthy, with numerous potential treatments proving unsuccessful during clinical trials. There is increasing demand for the creation of improved medications, especially for medical issues that are not currently being addressed and uncommon diseases. The increasing popularity of personalized medicine and advanced biologics requires substantial funding for innovative technologies.

3.3.3 Supply chain vulnerability:

The fragility of global pharmaceutical supply chains was underscored by the covid-19 pandemic, as factors such as geopolitical tensions, natural disasters, and logistical bottlenecks can cause disruptions in production, resulting in shortages.

3.3.4 Intellectual property and patent expirations:

Numerous medications are approaching the end of their patents, resulting in heightened rivalry from generic and biosimilar versions. This decrease in income for big corporations forces them to innovate and create new products. Safeguarding intellectual property in various markets, especially in developing countries, continues to be difficult because of inconsistent enforcement of Intellectual Property regulations and the increase in counterfeit medications.

4 Domestic Pharmaceutical Industry

4.1 Overview of the domestic pharmaceutical industry

The Indian pharmaceutical industry (IPI) ranks 3rd globally in terms of volume and 13th in terms of value. Its lower market share by value is largely due to the dominance of generic medicines, which make up around 70% of the industry's revenue and are priced lower. The IPI is highly fragmented, with over 10,000 manufacturers in both the organized and unorganized sectors. Pharmaceutical manufacturing is primarily concentrated in Maharashtra, Gujarat, Andhra Pradesh, Telangana, Uttarakhand and Himachal Pradesh. As per the Confederation of Indian Industries (CII), approximately 8,000 small and medium enterprises (SMEs) make up about 70% of the total pharmaceutical units in India.

The growth of the domestic pharmaceutical market is anticipated to be driven by factors such as increased health insurance coverage, better access to healthcare facilities, a growing prevalence of chronic diseases, and rising per capita income. On the export front, growth is expected to be fueled by greater generic drug penetration in regulated markets, supported by a focus on niche and complex product segments, patent expiries, licensing agreements from the medicine patent pool, and rising demand from semi-regulated markets. In the long term, emerging markets like Russia, Brazil, and South Africa are expected to sustain export growth.

India's prominence in the pharmaceutical industry is largely driven by its cost-effective manufacturing capabilities. The country offers significantly lower production costs compared to many developed nations, making it an attractive hub for outsourcing and contract manufacturing[2]. Furthermore, India has the largest number of USFDA-compliant pharma plants outside the USA, underscoring its strong regulatory compliance. The industry's focus on R&D fosters the development of novel formulations and the discovery of new APIs, enhancing growth and competitiveness. Over the next 2-3 years, patented products worth USD 240 billion are set to go off patent, presenting a substantial opportunity for Indian pharma companies to capitalize on.

4.2 Domestic market size of pharmaceutical industry and growth prospects

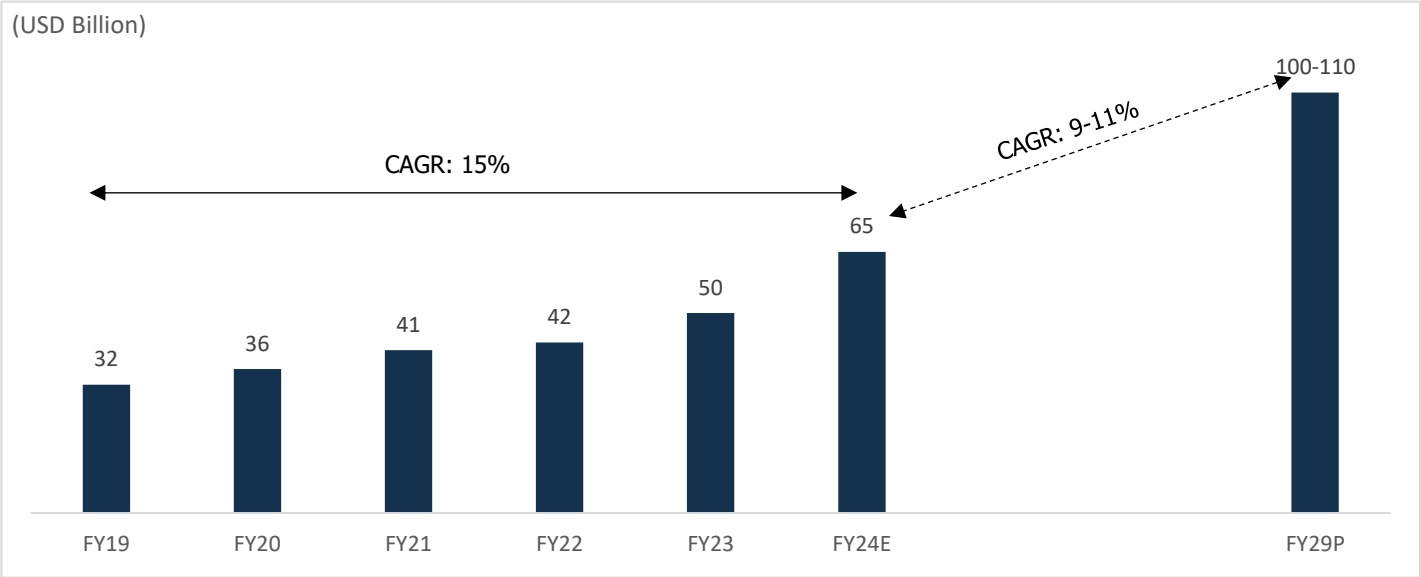
The Indian pharmaceuticals market has shown a robust growth over the past five years, since FY19. The pharmaceuticals market grew at a CAGR of 15% from FY19 to FY24 reaching about $65 billion. Low cost of production without compromising on quality along with highest number of USFDA approved pharmaceutical plants (outside the USA) has placed India strategically to emerge out as one of the leading producers for pharma products, which has led to robust growth.

Going forward, industry is likely to continue growing at a CAGR of 9-11% reaching about $100-110 billion by FY29. One of the key growth drivers for the Indian pharmaceutical industry is the increasing prevalence of non-communicable diseases such as cardiovascular disease, stroke, cancer, diabetes and chronic lung diseases. In addition, a growing population and, in turn, growing demand for medicine generally, is expected to fuel the growth of the Indian pharmaceutical industry. India is expected to become one of the leading countries in the world in terms of spending on medicine over the next few years. Along with the above-mentioned factors, favorable initiatives and schemes from the Government of India to encourage companies to manufacture ingredients domestically (PLI scheme) will also support the growth of the domestic pharmaceutical industry. However, the growth trajectory is expected to remain slightly slower compared to the historical growth rate. The slowdown in growth rate could be attributable to rising competitiveness and saturation in the generics market, which has driven the growth in the past. Additionally, government

[2] Contract manufacturing entails the development of a product under confidentiality for a single customer using the process know-how and the technical specifications provided by the customer.

initiatives like price controls on essential medicines, such as the Drug Price Control Order (DPCO) are likely to put downward pressure on prices, limiting revenue growth.

Chart 17: Domestic market size for Pharmaceuticals Industry



Source: IBEF, Department of Pharmaceuticals, CareEdge Research; E: Estimated; P: Projected

4.3 Market segmentation of the domestic pharmaceutical industry

The products manufactured by the Indian pharmaceutical industry can be broadly classified into bulk drugs (active pharmaceutical ingredients - API) and formulations. Of the total number of pharmaceutical manufacturers, about 77% produce formulations, while the remaining 23% manufacture bulk drugs. Bulk drug is an active constituent with medicinal properties, which acts as basic raw material for formulations. Formulations are specific dosage forms of a bulk drug or a combination of bulk drugs.

4.4 Key growth drivers for the overall Pharmaceutical Industry

• Growth in chronic diseases segment

The chronic disease segment is poised for sustained growth in the medium term, driven by the need for long-term treatments and recurring prescriptions. Chronic care drugs, addressing non-communicable diseases like cancer, cardiovascular ailments, diabetes, and mental disorders, see higher prescription frequency due to their prolonged treatment cycles and the interconnected pharmaceutical supply chain. According to WHO data, India has experienced an increase in life years lost to non-communicable diseases from 2000 to 2021, while losses from communicable diseases like tuberculosis and respiratory infections have declined, reflecting the rising burden of chronic conditions. This trend underpins the expanding demand for chronic care medications.

Table 4: Disability adjusted life years lost in India led by non-communicable diseases

Particulars	Disability adjusted life years (DALYs)	
	2000	2021
Communicable diseases	**32.6%**	**15.2%**
Tuberculosis	15.4%	3.4%
Respiratory functions	4.3%	7.6%

Diarrhea diseases	4.8%	1.3%
Other	8.1%	2.9%
Non-communicable diseases		
Cancer	1.0%	1.6%
Diabetes mellitus	0.5%	1.0%
Mental disorders	2.0%	2.2%
Endocrine, blood, immune disorders	0.3%	0.2%
Neurological conditions	1.0%	1.1%
Cardiovascular diseases	4.2%	5.5%
Respiratory diseases	1.8%	2.3%
Sense organ diseases	0.9%	1.1%
Other	6.3%	6.3%
Total non-communicable diseases	**18.1%**	**21.4%**

Source: World Health Organisation, CareEdge Research

- **Government support via PLI schemes**

The support under PLI schemes is expected to promote the production of high-value products in the country and increase the value addition in exports as well as generate employment for both skilled and unskilled personnel, estimated at 20,000 direct and 80,000 indirect jobs as a result of growth in the sector. Three bulk drug parks, located in Gujarat, Himachal Pradesh, and Andhra Pradesh should provide a consistent supply of bulk drug active components and will ensure India's drug security. Additionally, in March-2024, 27 greenfield bulk drug park projects and 13 greenfield manufacturing plants for medical devices were inaugurated under the PLI scheme. The scheme aims to support the production of 41 bulk drugs with a total allocation of ₹6,940 crore over its duration, spanning FY21 to FY30.

- **Growing Infrastructural development**

India has the greatest number of FDA-regulated drug manufacturing facilities after the U.S. Around 650 plants, constituting a quarter of all USFDA-approved facilities outside the United States, highlight its significant role in pharmaceutical production.

- **With life expectancy improving and changing demographic profile, healthcare services a must**

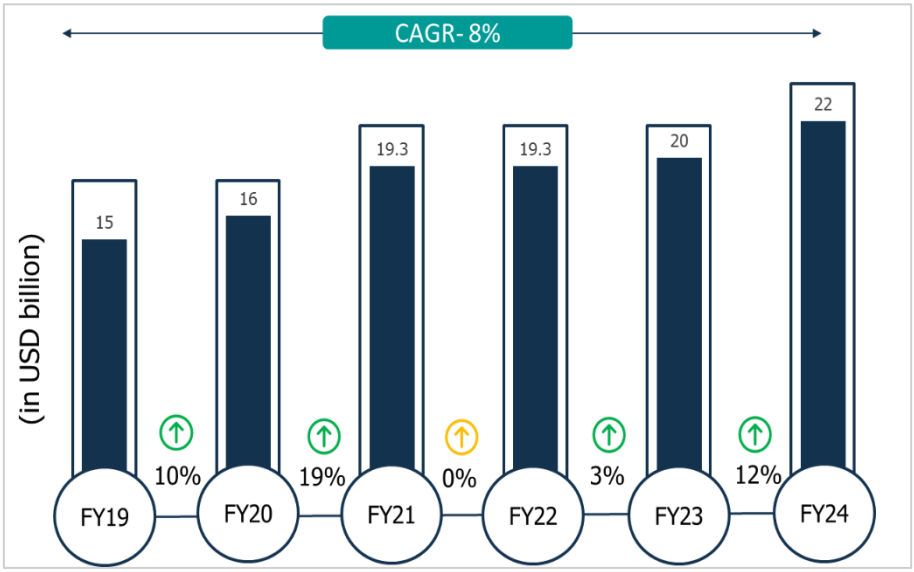
India's improving life expectancy and demographic shift are driving increased healthcare needs. By 2031, 13% of the population is projected to be aged 60 or older, compared to 8% in 2011. According to the UNFPA's 2023 report, over 30% of elderly women and 28% of men suffer from chronic conditions such as arthritis, hypertension, and diabetes, with one-fourth experiencing multiple morbidities. With India’s population expected to reach 1.4 billion by 2026, the rising prevalence of age-related diseases highlights significant growth opportunities for the domestic pharmaceutical industry, particularly in chronic care formulations.

4.5 Trade scenario of the pharmaceutical industry

Exports Scenario:

India is third largest exporter of pharmaceutical products globally, known primarily for its generic medicines. The country’s exports reached $22 billion in FY24 clocking around 12% over FY23, contributing significantly to the global supply chain. Competitive pricing, a robust manufacturing base, and compliance with international regulatory standards are key factors driving the growth of pharmaceutical exports from India.

Chart 18: Exports of Overall Pharmaceutical products from India

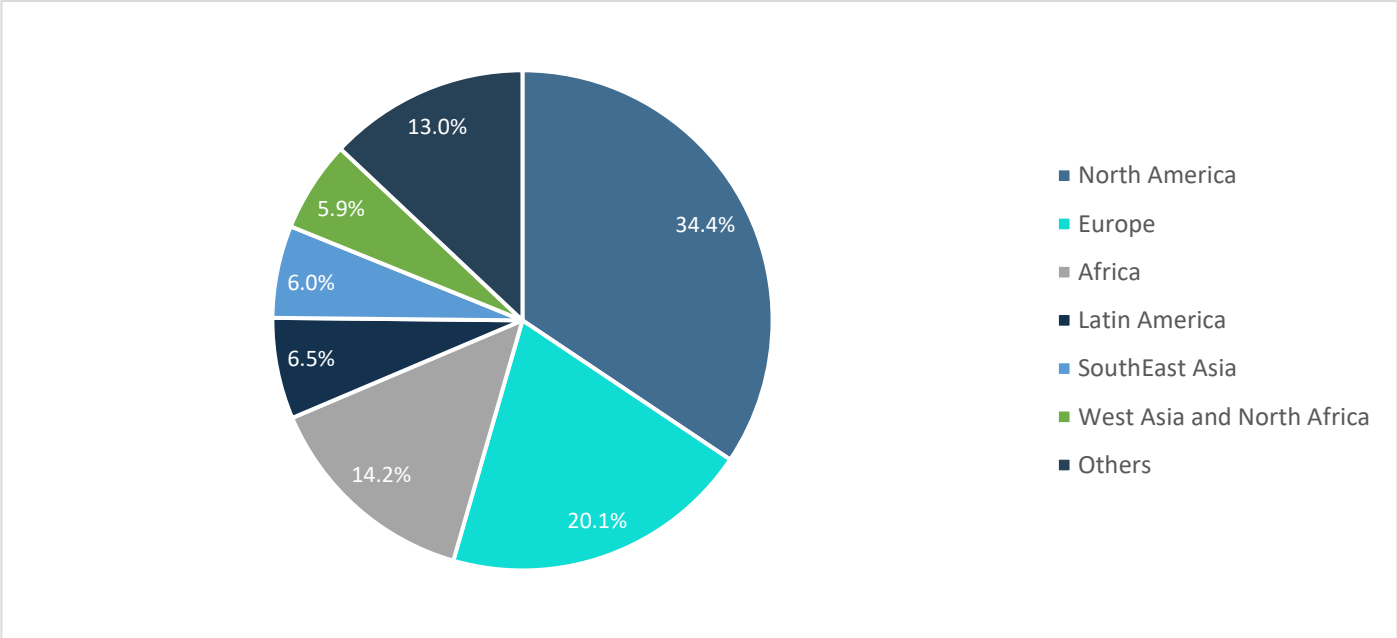


Source: DGFT, CareEdge Research; Note: HS code considered at 2-digit level for overall Pharmaceutical Products; HSN Code- 30

Key export destinations from India

The North American region, particularly the United States is the largest importer of Indian Pharmaceutical products, accounting for more than 30% of India's pharma exports. Other major markets include the European Union, Africa, Southeast Asia, and Latin America.

Chart 19: India's Key Export Destinations (FY24)

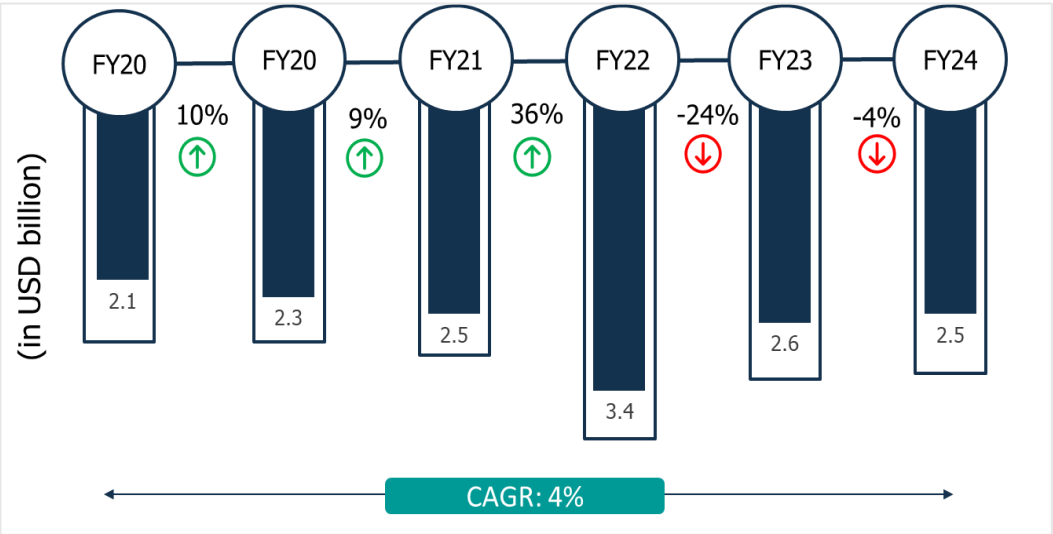


Source: IBEF, CareEdge Research

Imports Scenario: India's pharmaceutical imports are relatively smaller compared to its exports. India is heavily reliant on imports of APIs, especially from China which supplies around 60-70% of the APIs used in pharmaceutical

manufacturing. However, the Indian government is working to reduce import dependency on imports, particularly APIs by promoting domestic production through initiatives like Production Linked Incentives (PLI) scheme.

Chart 20: Imports of Pharmaceutical products from India



Source: DGFT, CareEdge Research; Note: HS code considered at 2-digit level for overall Pharmaceutical Products; HSN Code- 30

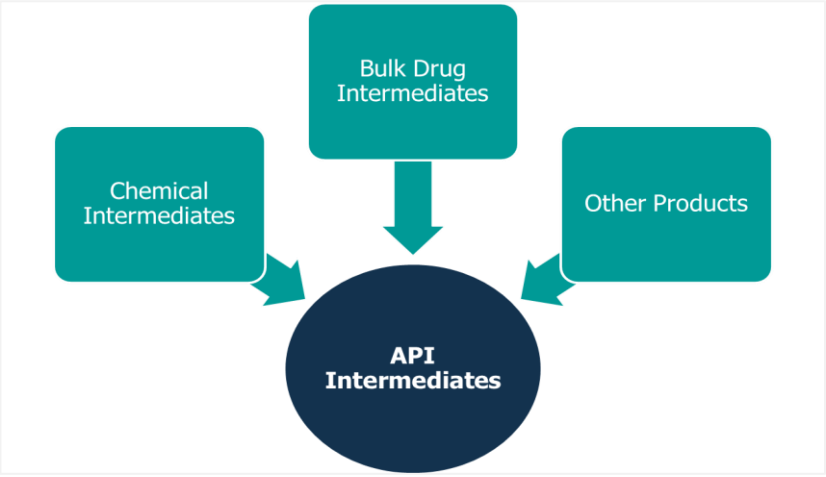
5 Global API Intermediates market

5.1 Global market overview and market size

API intermediates are critical chemical compounds utilized in the production of active pharmaceutical ingredients (APIs). These intermediates act as transitional building blocks, essential for the synthesis process, undergoing chemical transformations that ultimately result in the final API. Their complexity ranges from simple compounds to highly intricate structures, which significantly influence the efficiency, purity, and safety of the pharmaceutical manufacturing process. With advancements in drug development, new intermediates are being continuously developed, enhancing drug synthesis and formulation processes.

API intermediates are classified into various types, such as chemical intermediates, bulk drug intermediates, and other products. As industry progresses, these intermediates play a vital role in improving production chain efficiency, ensuring better quality and performance of the final pharmaceutical products.

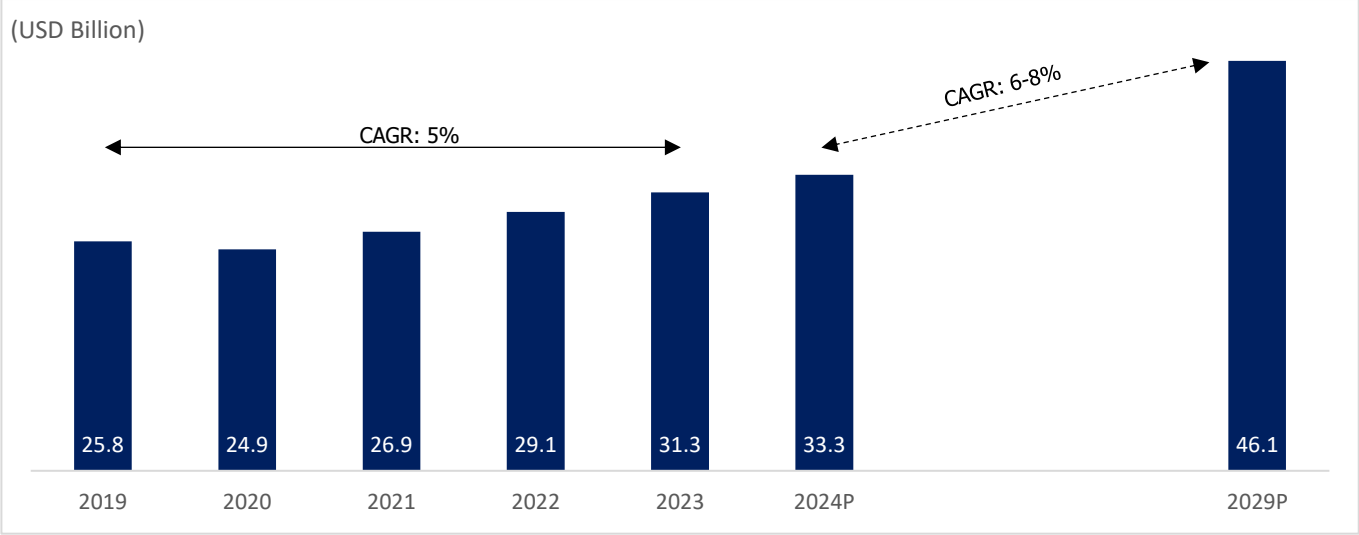
Chart 21: Classification of Global API Intermediates by product



Source: The Business Research Report on API Intermediates from EMIS Professional Database, CareEdge Research

1. **Chemical Intermediates:** These are essential compounds produced during the synthesis of more complex chemicals also known as essential building blocks used to synthesize active pharmaceutical ingredients (APIs), enabling the creation of more complex molecules that form the core of various medicines. Examples include piperazine derivatives and acetophenone intermediates, which are critical in the development of antibiotics, antihistamines, and anti-cancer drugs.
2. **Bulk Drug Intermediates:** These compounds are produced on a larger scale and are used in the formulation of APIs, ensuring the mass production of medications. These intermediates streamline the production process, enabling pharmaceutical companies to optimize their manufacturing capabilities.
3. **Other Products:** This category encompasses excipients, catalysts, and custom intermediates that support pharmaceutical synthesis and production.

Chart 22: Global API Intermediates Market size



Source: The Business Research Report on API Intermediates from EMIS Professional Database, CareEdge Research; P: Projected

The global API Intermediates market stood at ~$26 billion in CY2019 to reaching $31.3 billion in CY2023, growing at a CAGR of 5% over the period. The global API intermediates market was driven by several key factors, including a rapidly ageing population and the growing need for diverse drug formulations. The market is also strengthened by large pharmaceutical and biopharmaceutical industries, high production of generic drugs, increasing demand for pharmaceuticals, and significant R&D activity in drug discovery. Moreover, supportive government initiatives further promote growth, creating a favorable environment for both innovation and production in the pharmaceutical sector.

Going further, from CY2024 to CY2029 the API intermediates market is projected to expand at a CAGR of 7%, driven by key factors such as the rising prevalence of chronic diseases, an increasing ageing population, and the robust growth of pharmaceutical manufacturing. These trends are contributing to heightened demand for innovative drug formulations, expanding the role of intermediates in the pharmaceutical production chain.

5.2 Global Piperazine[3] and Pyridine Market Assessment

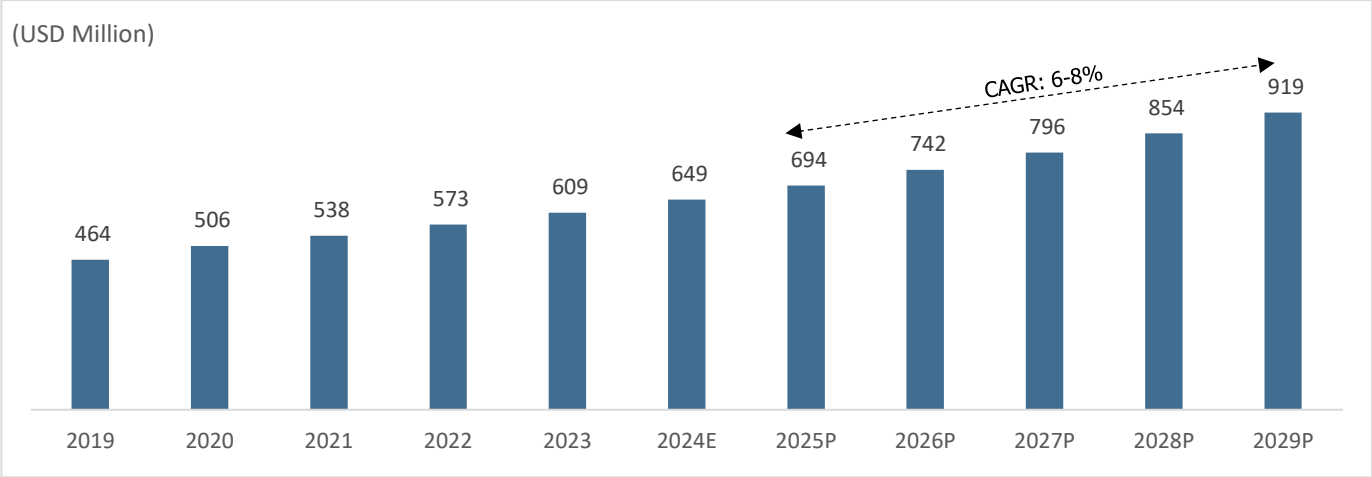
In the global API intermediate market, the demand for high-quality intermediates that can be used in the synthesis of diverse and effective pharmaceutical compounds is steadily increasing. Among these, piperazine and pyridine derivatives play a vital role in the production of active pharmaceutical ingredients (APIs) for drugs targeting central nervous system (CNS) disorders, mental health conditions, parasitic infections, and allergic reactions.

The pharmaceutical industry has been witnessing positive trends, during Covid and post covid times, particularly for antibiotics drugs. These factors contributed to an increase in market for drugs containing piperazine, as they turn out to be the key ingredients in treatments for anxiety, depression, and infections.

Going forward, the piperazine market is expected to grow at a CAGR of 6-8% from CY24 to CY29 driven by increasing prevalence of chronic and infectious diseases, coupled with advancements in drug discovery processes, is likely to boost the adoption of piperazine derivatives as essential intermediates in pharmaceutical manufacturing.

[3] Piperazine is an organic compound that consists of a six-membered ring containing two nitrogen atoms at opposite positions in the ring. They are a broad class of chemical compounds, many with important pharmacological properties

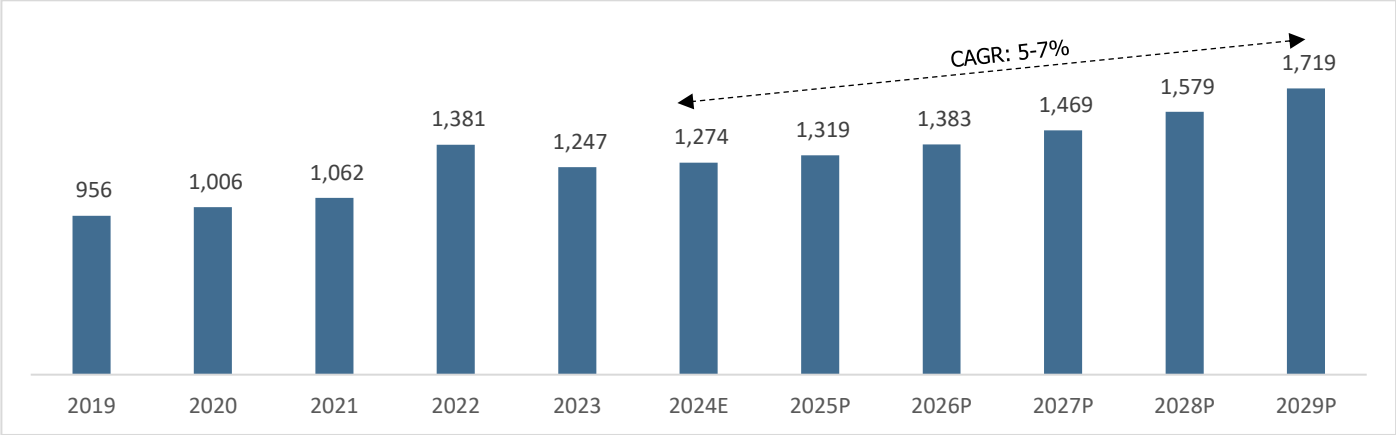
Chart 23: Global Piperazine Market: Industry Size



Source: Grand View Research, CareEdge Research; E: Estimated; P: Projected

The growing global demand for CNS drugs, mental health medications, antihistamines, and parasitic disease treatments is a key driver for their continued relevance. As the focus on personalized and targeted therapies intensifies, the market for piperazine and pyridine derivatives is expected to grow further. Their integral role in producing high-demand APIs ensures their position as essential components of the pharmaceutical manufacturing process, with ongoing growth expected due to increasing healthcare needs worldwide. Following the similar traction, the global pyridine market is expected to grow at a CAGR of 5-7% from CY24 to CY29.

Chart 24: Global Pyridine[4] Market: Industry Size



Source: Grand View Research, CareEdge Research; E: Estimated; P: Projected

Additionally, growing investments in healthcare and R&D are further propelling the market's development, positioning it for steady growth in the coming years. Key driving factors for the Global API Intermediates Industry

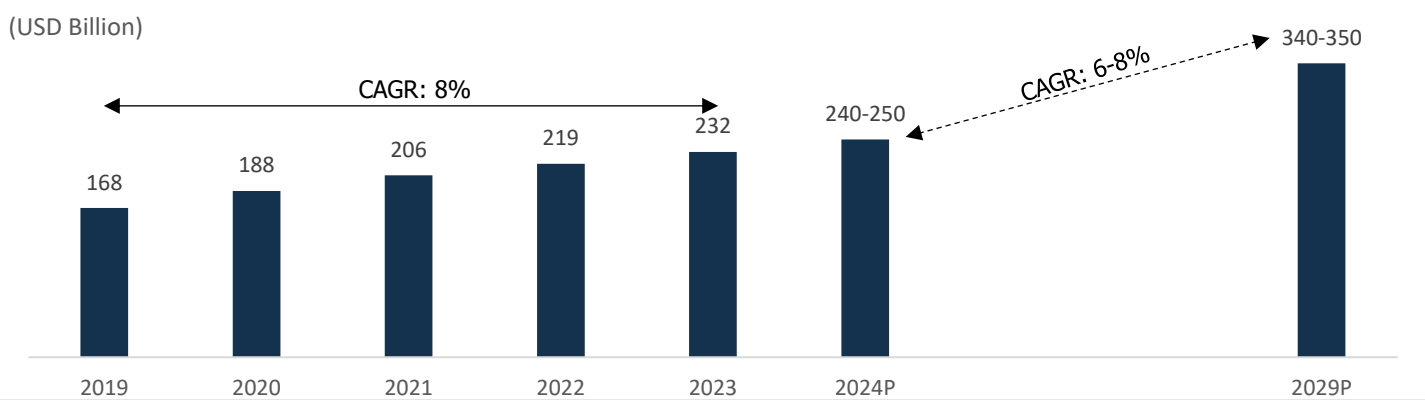
[4] Pyridine is an organic compound consisting of a six-membered aromatic ring containing one nitrogen atom in place of a carbon atom. It is a heterocyclic compound and serves as a key structural framework for a wide range of chemicals, including many with significant industrial and pharmacological applications.

5.2.1 Key Growth Drivers

1. Continued demand from API Industry: The growing demand for active pharmaceutical ingredients (APIs) is a significant driving force behind the API intermediates market. As the healthcare landscape evolves, particularly with the rise in chronic diseases and an ageing population, the need for APIs continues to escalate.

API intermediates serve as essential building blocks in the synthesis of these APIs, making their production critical for meeting the increasing pharmaceutical needs. This interdependence highlights the importance of intermediates in enhancing the efficiency of pharmaceutical manufacturing processes. Notably, the global API market grew at a CAGR of 8% from 2019-2023 to reach $232 billion. Further, the growth trajectory is expected to continue, and industry is likely to witness a CAGR of 6-8% to reach in the range of $340-350 billion in 2029.

Chart 25: Market size & forecast of Global API Industry



Source: Grand View Research, Active Pharmaceutical Ingredient Market Analysis Report from EMIS Professional Database; P: Projected, CareEdge Research

2. Expansion of Specialty APIs

With the rising popularity of specialty drugs (e.g., for rare diseases and niche markets), there is growing demand for specialized API intermediates. These drugs often require highly customized chemical building blocks, leading to increased production of niche intermediates.

3. Growing Outsourcing Trends

Pharmaceutical companies are increasingly outsourcing the production of intermediates to contract manufacturing organizations (CMOs) in cost-effective regions like India and China. The Contract manufacturing entails the development of a product under confidentiality for a single customer using the process know-how and the technical specifications provided by the customer. This allows them to focus more on core competencies such as R&D, clinical trials, and commercialization. The growth of the outsourcing model is directly boosting the API intermediates industry.

4. Regulatory Push Driving Adoption of China Plus One Strategy to Diversify Supply Sources

Post-pandemic, the global pharmaceutical industry is reducing its dependence on single-country sourcing (particularly China). The reliance on China had led to face major disruptions. However, as India has been the evolving player, the country has been strategically positioned to become the upcoming market leader in the API Intermediates space supported by government backed investment as well as rising investment opportunities as a part of the China plus one strategy.

5. Emphasizing Green Chemistry to Mitigate the Environmental Impact of Synthetic Chemistry

The synthetic chemistry industry and API intermediates market are increasingly prioritizing green chemistry to lessen their environmental footprint and support sustainable development. Green chemistry focuses on creating processes and

products that minimize hazardous substances by adhering to principles such as waste reduction, atom economy, energy efficiency, and renewable feedstock usage. Driven by heightened environmental awareness, stringent regulations, and consumer demand for eco-friendly options, this trend encourages industries to adopt innovative practices, such as using safer solvents and energy-efficient methods, to decrease waste and carbon emissions. As a result, there is a growing preference for vendors to employ eco-friendly processes, making sustainability a critical factor in supplier selection.

5.3 Assessment of key countries to regulations with respect to API & Intermediates market

The global API & Intermediates market is governed by diverse regulatory frameworks that vary significantly in focus regions such as North America, Europe, Asia. Each region has developed its regulatory standards to ensure the safety, efficacy.

Chart 26: Regulatory framework of key countries for API and Intermediates

Country/Region	Regulatory Body	Key Regulations for APIs & Intermediates	API Licensing/Submission Process	API Intermediate Licensing/Submission Process
 **Canada**	Health Canada	Food and Drugs Act & Food and Drug Regulations	APIs require a Drug Establishment License (DEL) and compliance with GMP standards.	API intermediates must comply with GMP and are included in the DEL requirements.
 **USA**	Food and Drug Administration (FDA)	FD&C Act, 21 CFR Parts 210 & 211	APIs require submission of a Drug Master File (DMF). Approval is part of the ANDA/NDA process for drug products.	API intermediates are included in the DMF and subject to cGMP requirements but do not require separate licensing.
 **EU**	European Medicines Agency (EMA)	Directive 2001/83/EC, ICH Q7, EU GMP Guidelines	APIs require submission of an Active Substance Master File (ASMF) or a Certificate of Suitability (CEP) to demonstrate compliance.	API intermediates must comply with GMP and are part of the ASMF or CEP submission for the final API.
 **India**	Central Drugs Standard Control Organization (CDSCO)	Drugs & Cosmetics Act, 1940, Drugs and Cosmetics Rules	APIs require licensing from CDSCO, with full compliance to Schedule M GMP guidelines for domestic and export markets.	API intermediates also require Schedule M GMP compliance and are licensed alongside APIs.
 **China**	National Medical Products Administration (NMPA)	Drug Administration Law, DMF System	APIs require submission through the DMF system for review and must comply with GMP standards for local production and export.	API intermediates must comply with GMP and are part of the DMF submission process, ensuring quality in final API production.
 **Japan**	Pharmaceuticals and Medical Devices Agency (PMDA)	Pharmaceutical and Medical Device Act, ICH Q7	APIs require a Drug Master File (DMF) submission and must comply with Japan's strict GMP regulations for approval.	API intermediates are included in the DMF, and GMP compliance is required for the manufacturing of the final API.

Source: CareEdge Research

6 Global growth prospects and market size for key therapy areas

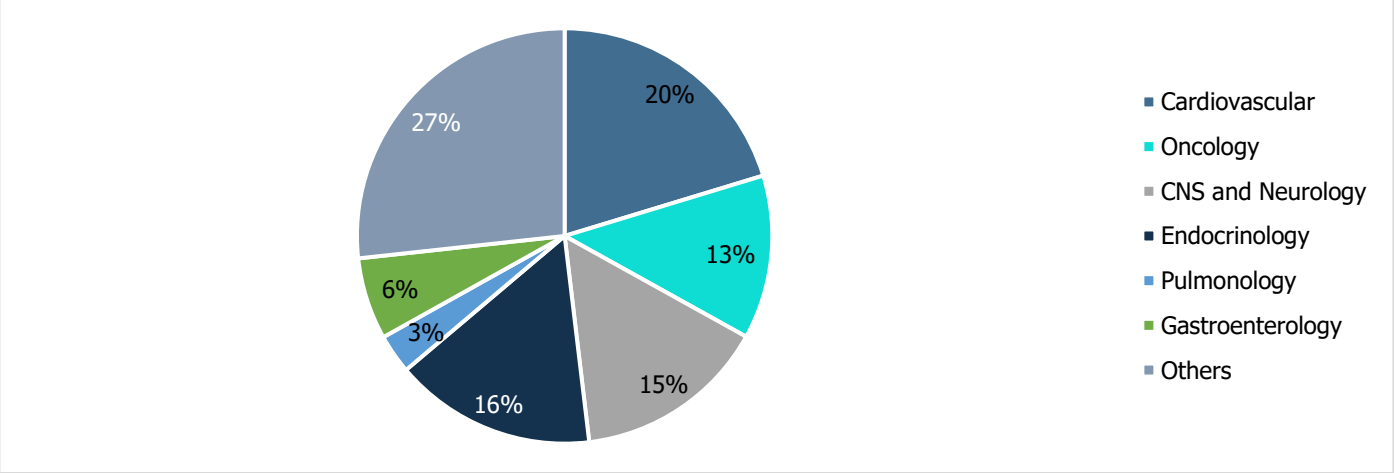
Overview of Therapeutic categories

In the field of medicine, therapeutic categories are essential for classifying treatments based on the specific diseases and conditions they address. Each category targets a particular system or set of disorders, allowing for a more focused approach to patient care. This framework helps in organizing healthcare solutions and advancing research in specialized areas of medicine.

One of the largest therapeutic areas is Cardiovascular, which encompasses treatments for heart and blood vessel diseases such as hypertension, heart failure, and arrhythmias. Another critical field is Oncology, which focuses on cancer treatments, including chemotherapy, targeted therapies, and immunotherapy, addressing one of the most challenging areas of healthcare today. CNS & Neurology therapies are crucial for managing disorders of the nervous system, including conditions like epilepsy, Parkinson's, Alzheimer's, and various mental health disorders like depression.

Gastroenterology targets diseases of the digestive system, including common issues like acid reflux, Crohn's disease, and liver disorders. Together, these therapeutic categories form the backbone of modern medical treatments, addressing a wide range of chronic and acute health conditions. Each therapeutic category is advancing with research focused on improving efficacy, reducing side effects, and meeting global health challenges.

Chart 27: Segmental share of therapeutic categories (value terms)

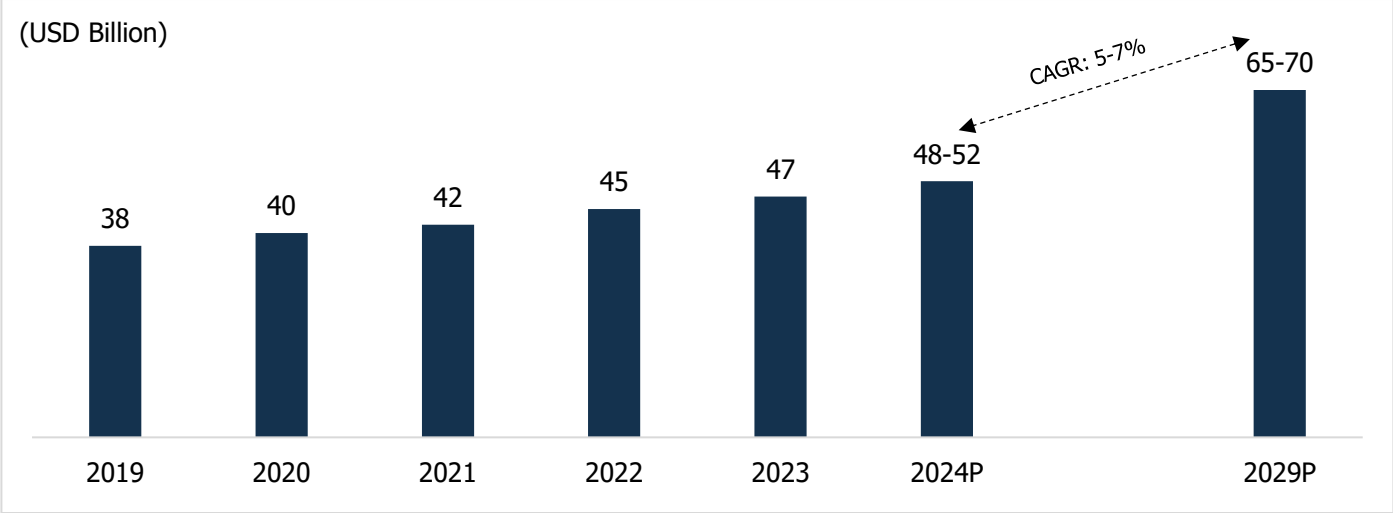


Source: Grand View Research, Active Pharmaceutical Ingredient Market Analysis Report from EMIS Professional Database, CareEdge Research; data as of CY2023

6.1 Cardiovascular APIs market

According to the World Health Organization (WHO), approximately 17.5 million people die annually due to cardiovascular diseases, accounting for 31% of global deaths. Heart attacks and strokes are responsible for 80% of these fatalities. Cardiovascular diseases have become a significant global public health challenge, fueling extensive research and development in the field of Active Pharmaceutical Ingredients (APIs). The increasing prevalence of cardiovascular conditions is driven by factors such as lifestyle changes, rising obesity rates, and excessive alcohol consumption. To reduce mortality, early diagnosis and effective treatment are essential. Additionally, the global incidence of stroke continues to rise, further highlighting the need for improved cardiovascular care and prevention strategies. Key intermediates include beta-blockers such as hydrochlorothiazide to prepare APIs like Labetalol. These intermediates are critical for synthesizing APIs used in treating heart diseases and hypertension.

Chart 28: Global Market size for cardiovascular APIs



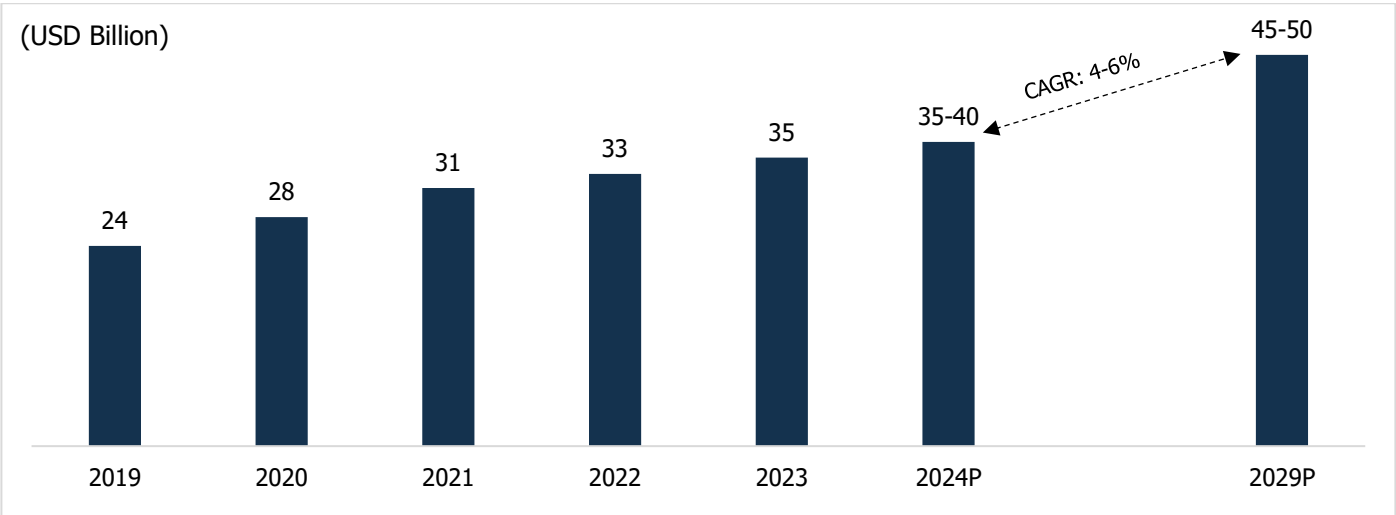
Source: Grand View Research, Active Pharmaceutical Ingredient Market Analysis Report from EMIS Professional Database; P: Projected, CareEdge Research

6.2 CNS and Neurology APIs market

Neurological disorders are a leading cause of disability worldwide, driving demand for effective treatments. The development of APIs for central nervous system (CNS) drugs, such as analgesics, muscle relaxants, and anesthetics, is critical for managing conditions like pain, epilepsy, and psychotic disorders.

CNS diseases stem from genetic predisposition (e.g., Alzheimer's, Parkinson's, epilepsy), environmental triggers (toxins, infections, injuries), age-related degeneration (dementia), and lifestyle factors (diet, inactivity, stress). Key conditions like multiple sclerosis, Alzheimer's, and psychotic disorders dominate the CNS therapeutics market, underscoring the need for innovation in treatment strategies. Piperazine derivatives are one of the key intermediate category commonly used in the synthesis of antipsychotic drugs, particularly quetiapine, which is widely prescribed for the treatment of schizophrenia, bipolar disorder, and major depressive disorder.

Chart 29: Global Market size for CNS and Neurology APIs



Source: Grand View Research, Active Pharmaceutical Ingredient Market Analysis Report from EMIS Professional Database; P: Projected, CareEdge Research

6.3 Gastroenterology APIs market

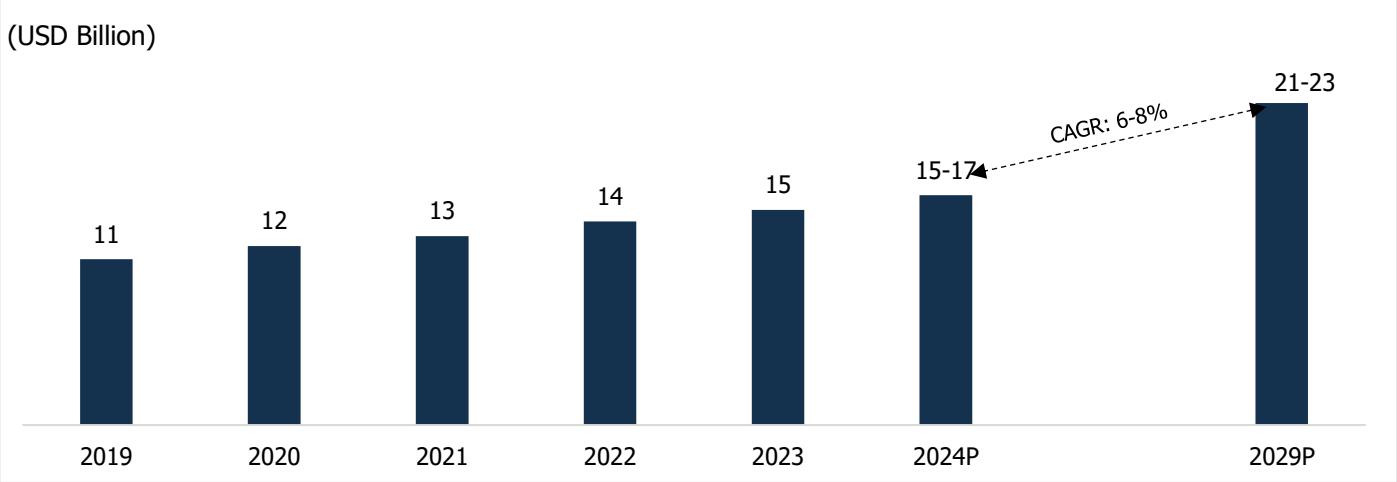
Gastrointestinal (GI) disorders encompass a range of conditions affecting the stomach, esophagus, and both the small and large intestines. Common APIs used in treating these disorders include loperamide, famotidine, and pantoprazole. Notable GI conditions include Gastroesophageal Reflux Disease (GERD), Crohn's disease, ulcerative colitis, gastritis, ulcers, infections, and constipation. Among these, GERD is one of the most frequently recurring and chronic conditions worldwide, with observational studies indicating that nearly everyone experiences GERD at least once in their lifetime.

As people age, the prevalence of GI disorders tends to increase, underscoring the need for effective treatments, including parenteral drugs. GERD not only significantly impacts patients' quality of life and health but also places a heavy burden on healthcare systems and economies.

Despite the growing need for effective GI treatments, the oral route of drug administration remains highly preferred. This trend could negatively affect the market for certain forms of gastrointestinal drugs, as patients increasingly opt for self-treatment and over the counter (OTC) products. This shift in consumer behavior is expected to drive demand for APIs used in the production of OTC medications. Furthermore, rising demand for novel therapeutics—driven by the known side effects of existing treatments—points to an increased need for innovative API-based products in gastroenterology.

These trends highlight the importance of ongoing research and development to meet the growing demand for safer and more effective GI treatments.

Chart 30: Global Market size for Gastroenterology APIs



Source: Grand View Research, Active Pharmaceutical Ingredient Market Analysis Report from EMIS Professional Database; P: Projected, CareEdge Research

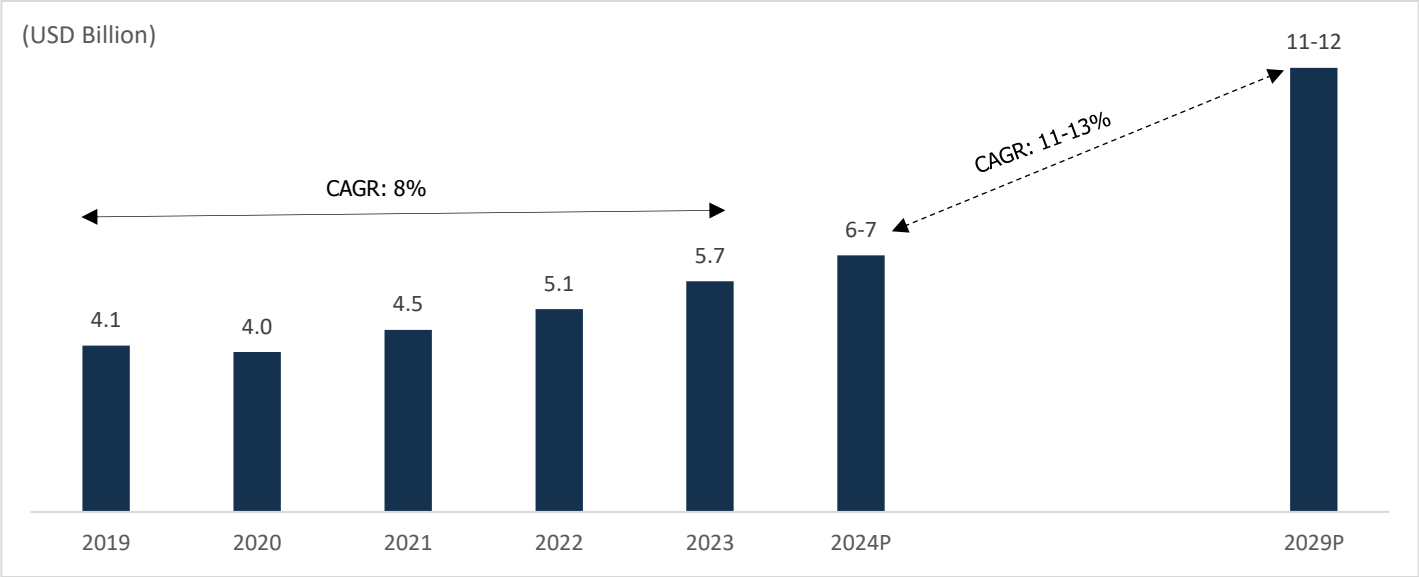
7 Domestic API Intermediates market

7.1 Overview and market size of the API Intermediates market

API Intermediates are crucial components in pharmaceutical value chain. Intermediates, as semi-finished products, play a vital role in producing finished drugs. The intermediates segment is experiencing growth driven by the need for industry-specific chemicals and innovations. Advancements in various industries demand dynamic changes in product development through different stages of intermediates.

The market size was estimated to have remained at ~$6 billion in CY2023 and is projected to grow at a CAGR of 11-13% from CY2024 to CY2029, driven by several key factors. One significant driver is India's position as a major global supplier of API intermediates due to its strong capabilities in cost-effective manufacturing, availability of skilled labor, and established chemical infrastructure. The country's efforts to enhance self-reliance in pharmaceutical production, particularly through the Production Linked Incentive (PLI) schemes and government initiatives aimed at reducing dependency on imports, also contribute to this growth. Moreover, rising global demand for generic drugs and contract manufacturing, alongside increasing investment in R&D and innovation in India's chemical and pharmaceutical industries, further propels the market.

Chart 31: Domestic Market size for API Intermediates market



Source: CareEdge Research & Estimates; P: Projected, Years refer to Calendar Year

7.2 Trade scenario

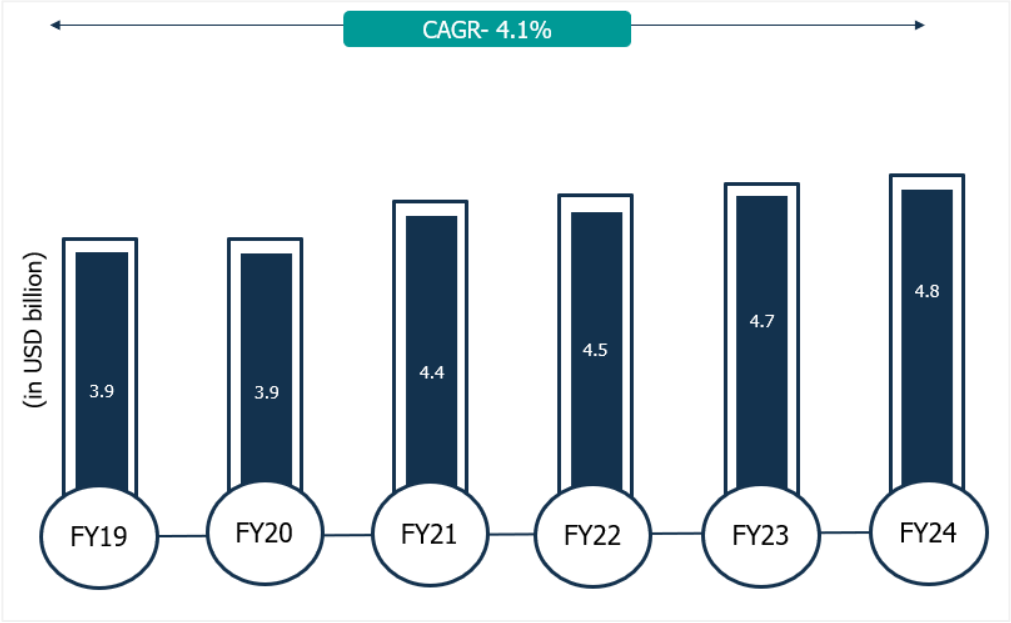
India's exports of API intermediates have been growing steadily, driven by the country's robust manufacturing capabilities and increasing global demand for affordable and quality pharmaceutical ingredients. India is a significant supplier of intermediates required for Active Pharmaceutical Ingredients (APIs) to many global markets, especially in regions like the U.S., Europe, and Southeast Asia. These exports play a key role in the global supply chain of essential drugs, especially in the generic medicine segment.

Government initiatives like the Production Linked Incentive (PLI) scheme are further boosting local production of intermediates, ensuring that India remains competitive in the global pharmaceutical market. The scheme focuses on reducing import dependence on key raw materials from countries like China, thereby strengthening India's position as a global supplier of high-quality intermediates.

7.2.1 India's Exports for API and API Intermediates:

India's growth in API and API intermediates exports has grown steadily over the recent years. India's exports grew at 4.1% CAGR from FY19 to FY24 reaching $4.8 billion compared in FY24. This growth is driven by India's rising capabilities in chemical synthesis, government initiatives like the PLI scheme, reduced dependency on China, cost-efficiency, and advanced R&D infrastructure.

Chart 32: API and API Intermediates Exports from India

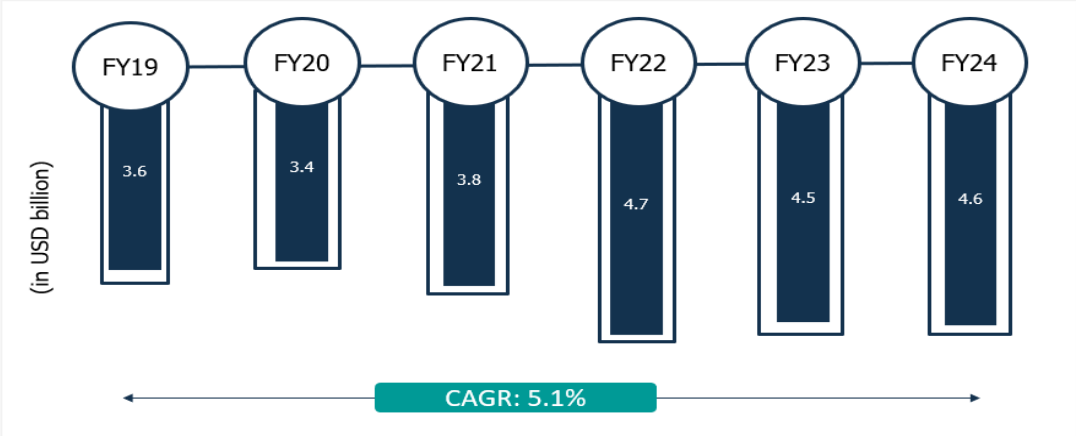


Source: CMIE, CareEdge Research

7.2.2 India's Imports for API and API Intermediates

Imports grew at a CAGR of 5.1% between FY19 and FY24. While the gradual growth in imports still indicates dependency on China for our imports, the modest figure also emphasizes the country's rising domestic production restricted greater rise in imports to meet the domestic needs.

Chart 33: API and API Intermediates Imports from India



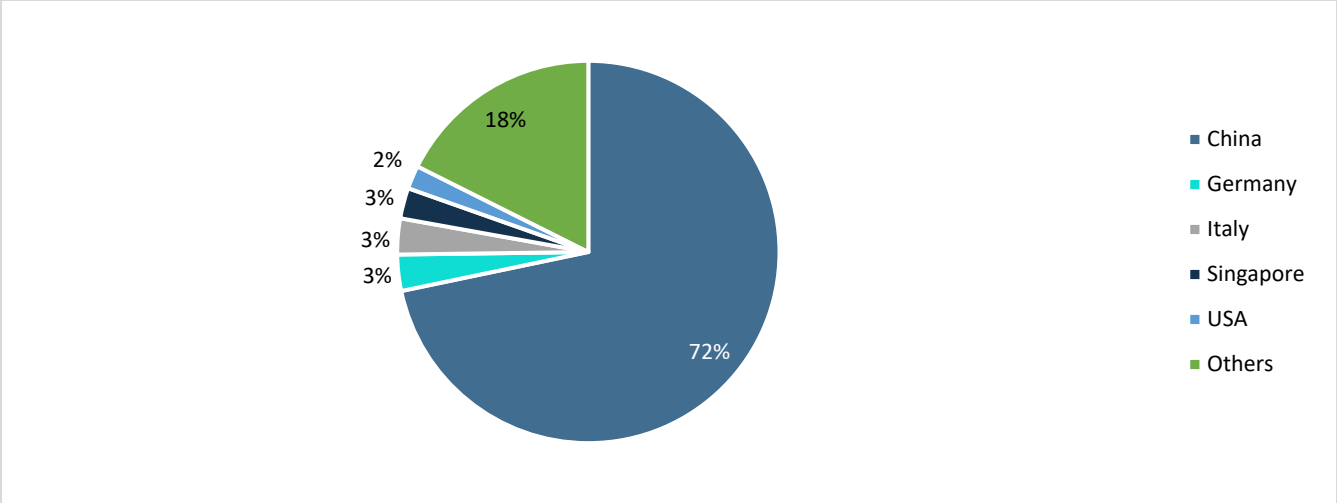
Source: CMIE, CareEdge Research

7.2.3 India's reliance on China for Imports and way forward

Substantial Dependence on China

India's dependence on China for key starting materials (KSMs) and active pharmaceutical ingredients (APIs), particularly for antibiotics and vitamins, has long been a pressing issue. More than 70% of these materials come from China, with cheaper imports driving the reliance. In response, India has ramped up efforts to reduce import reliance and develop self-sufficiency in API and KSM production.

Chart 34: Top Importing countries for API and API Intermediates (value terms)



Source: CMIE, CareEdge Research

Government PLI schemes to drive production

The Indian government has introduced multiple initiatives to strengthen domestic pharmaceutical manufacturing, particularly through the Production Linked Incentive (PLI) scheme under the Self-Reliant India initiative. With a financial outlay of ₹15,000 crore, the scheme runs from 2020-2029 and aims to enhance India's manufacturing capabilities and diversify the pharmaceutical product portfolio. It focuses on three categories:

- Biopharmaceuticals and patented drugs (Category 1),
- APIs and drug intermediates (Category 2), and therapeutic drugs and
- In-vitro diagnostic devices (Category 3)

Incentives are based on incremental sales, with rates for Categories 1 and 2 at 10% for FY 2022-23 to FY 2025-26, 8% for FY 2026-27, and 6% for FY 2027-28. Category 3 incentives are lower, starting at 5% and decreasing over time to 3% by FY 2027-28. SIDBI (Small Industries Development Bank of India) manages this scheme, designed to stimulate innovation, R&D, and investment in MSMEs, benefiting small and medium-sized enterprises through anchor investments by larger players.

Furthermore, the PLI scheme for Bulk Drugs and Medical Devices has already made significant progress in its first year. These schemes focus on reducing reliance on imports and securing the domestic production of 41 critical Key Starting Materials (KSMs) and Active Pharmaceutical Ingredients (APIs). A substantial financial package of ₹9,940 crore was announced, with ₹6,940 crore allocated to the PLI scheme and ₹3,000 crore for establishing three bulk drug parks across India.

India strategically poised to reduce dependency on China for APIs and API Intermediates through robust domestic initiatives

The initiative's overall aim is to secure India's pharmaceutical supply chain and reduce dependency on foreign imports, particularly from China. The scheme ensures that India is better prepared for external shocks, such as supply chain disruptions, and helps make India a global leader in API and KSM production, targeting a **USD 120 billion** industry over the next decade. These efforts are designed to reduce the cost of production, advance continuous flow synthesis, and optimize chemical processes to make India more self-reliant in pharmaceuticals.

Research efforts, particularly from institutes like the Council of Scientific and Industrial Research (CSIR)- National Chemical Laboratory (NCL), are geared toward developing local intermediates, with the goal of reducing dependency on imports for essential pharmaceutical ingredients. NCL's work on developing simple chemical building blocks for various drugs plays a crucial role in this shift. The government's vision is to turn India into a $120 billion pharmaceutical hub in the next decade, with a stronger local supply chain, lower production costs, and reduced reliance on imports.

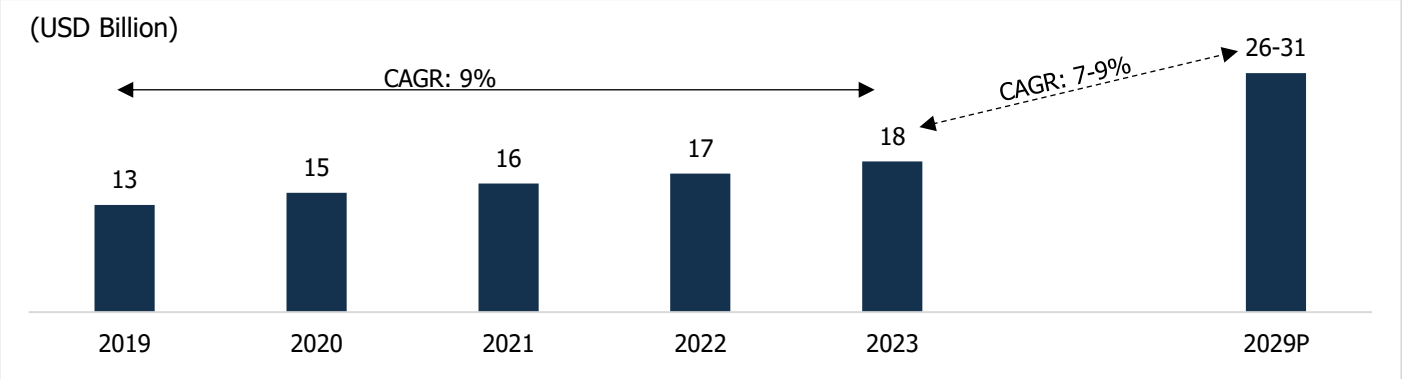
Technological advancements such as process optimization, continuous flow synthesis, and innovative drug synthesis methods will further enhance India's ability to meet its pharmaceutical demands independently. These changes, along with the PLI scheme's focus on reducing costs and streamlining production, represent a significant shift in India's pharmaceutical landscape, allowing the country to establish itself as a global leader in API and drug intermediate manufacturing.

7.3 Key Growth Drivers for the API Intermediates industry:

7.3.1 Rising growth of API Industry

India's Active Pharmaceutical Ingredient (API) market is a significant driver to the API intermediates industry. India is among the top producers of APIs, with a strong presence in both domestic and international markets. APIs account for around 35% of the Indian pharmaceutical market, and the country is home to approximately 500 API manufacturers, contributing about 8% to the global API supply. The domestic API market grew at a CAGR of 9% from 2019-2023 reaching $18 billion as of 2023. Furthermore, with strategic investments along with increased government support like Production Linked Incentives (PLI) schemes, the API industry is expected to grow further at a CAGR of 7-9% until 2029.

Chart 35: Domestic API market size and forecast



Source: Grand View Research, Active Pharmaceutical Ingredient Market Analysis Report from EMIS Professional Database, CareEdge Research

7.3.2 Lower cost of production

The Indian pharmaceutical industry holds a strong position in terms of production volumes in the global pharma market as the country contributes around 10% of the world production volumes and in terms of value, India holds a share of around 2.4% globally. Lower cost of production coupled by efficient scientific and technical skills of human resources are the prime reasons for India's strong position. The cost of drugs manufactured in India is one of the lowest in the world.

Table 5: Relative cost comparison in India

Costs in developed countries	100%
Production cost in India	50%
R&D cost in India	12.5%
Clinical trial cost in India	10%

Source: Pharmexcil
Note: Costs in India as % of costs in developed countries

It can be understood from the relative cost comparison table that the production cost in India is almost half than that in the developed countries. The R&D cost and clinical trial cost in India are cheaper as the costs of these activities are about 87% and 90% lower in India than that of the developed countries. Hence, the API industry in India benefits from lower costs and makes it an attractive destination for outsourcing by global pharmaceutical companies.

7.3.3 Patent cliff

Patent expiry allows the generic drugs to penetrate in the market and diversify product offerings. Over the next 3-4 years till 2026, patented products worth about USD 240 billion are expected to go off-patent. This provides a large opportunity to Indian generic formulation companies. Many of the Indian pharma companies are already working to develop the generic version of patented products to exploit the upcoming opportunity. It is expected that Indian pharma companies might get an opportunity worth around USD 5-6 billion due to patent expiry in next 4-5 years.

7.3.4 Transition in disease profile

Over the years, there has been a substantial change in the disease profile of Indians. As shown the table, the share of communicable, maternal, neonatal, and nutritional diseases for death decreased to 27.5% in 2016 from 53.6% in 1990 and that of non-communicable diseases increased to 61.8% in 2016 from 37.9% in 1990. This represents the transition or shift in the disease profile of population in India which provides an ample scope of opportunity for healthcare services and pharmaceutical industry in the country as the non-communicable diseases tend to be of long duration which, in turn, increases the need for pharmaceutical and healthcare services with respect to non-communicable diseases. This will further augur well for the API industry in India.

Table 6: Contribution of major disease group to total deaths in India

Diseases	1990	2016
Share of communicable, maternal, neonatal, and nutritional diseases	53.6%	27.5%
Share of non-communicable diseases	37.9%	61.8%
Share of injuries	8.5%	10.7%

Source: Health of the Nation's States 2017: India Council of Medical Research

Malaria, dengue fever, common colds, cholera etc. are referred to as communicable diseases and diseases like cancer, diabetes, cardiovascular diseases and stroke etc. are referred to as non-communicable diseases.

7.3.5 Skilled workforce

India has a skilled workforce of scientists, researchers, and engineers driving the growth of the API and API Intermediate sector. Government initiatives like Pharma Vision 2020 aim to position India as a global leader in drug production by enhancing workforce skills through programs such as Skill India Mission, Pradhan Mantri Kaushal Vikas Yojana (PMKVY), and BIRAC. The Make in India campaign also promotes domestic manufacturing and workforce development, fostering innovation and competitiveness. These efforts collectively support the pharmaceutical industry's growth and global competitiveness.

7.3.6 Increasing contract manufacturing and outsourcing activities

The rising demand for pharmaceuticals in global and emerging markets, combined with many economies lacking the infrastructure and skills to produce Active Pharmaceutical Ingredients (APIs), positions India as an ideal hub for contract manufacturing and outsourcing. The **China Plus One Strategy**, adopted by various countries to diversify supply chains, presents India with a unique opportunity to attract investments.

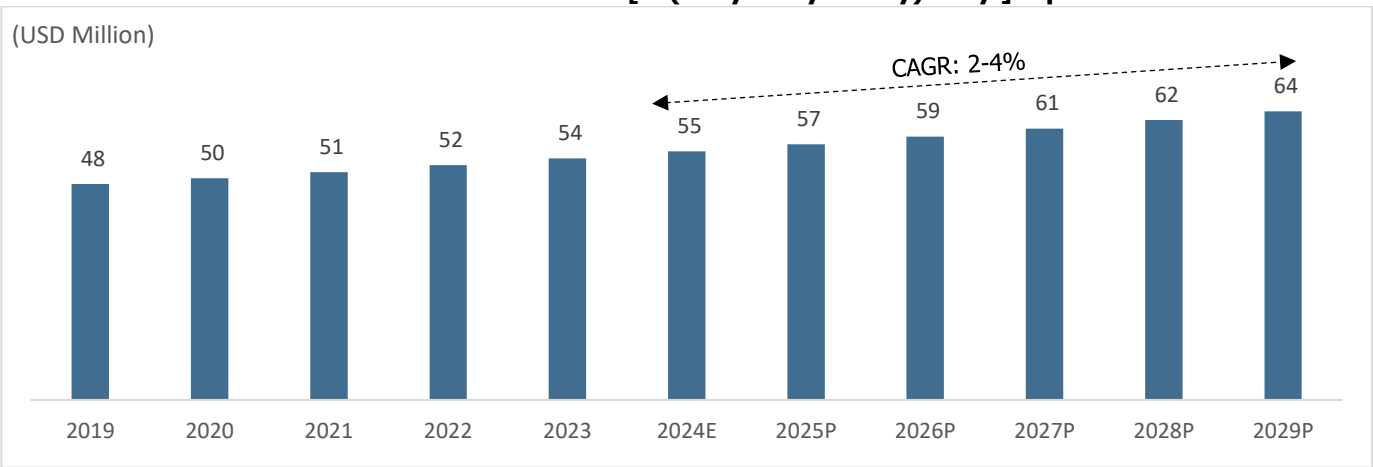
India's low production costs, skilled workforce, and robust regulatory framework make it a preferred alternative to China. By leveraging this strategy, Indian pharmaceutical companies can enhance their global presence, foster innovation through international partnerships, and benefit from increased foreign direct investment (FDI). This approach not only strengthens India's position in the global pharmaceutical landscape but also drives economic growth and job creation.

7.4 Key Intermediates Assessment

1. 1-[2-(2-Hydroxyethoxy) ethyl] Piperazine

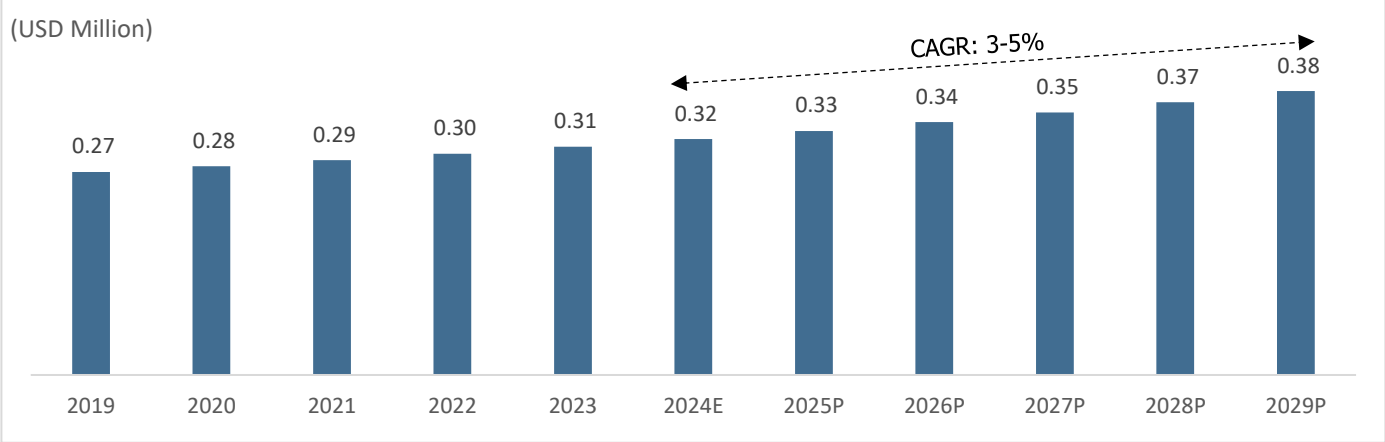
1-[2-(2-Hydroxyethoxy) ethyl] piperazine is an important chemical intermediate in the synthesis of various pharmaceutical compounds, especially drugs with psychoactive or central nervous system (CNS) activity. It plays a crucial role in the synthesis of quetiapine (Seroquel), a widely used atypical antipsychotic. However, this intermediate is also involved in the synthesis of other compounds with therapeutic effects. The global market for this product has been on a rising trend supported by its usage in different APIs. The global market for this product is expected to expand at a CAGR of 2-4% from CY24 to CY29 driven by its application in APIs while the domestic market is poised to expand at a CAGR of 3-5% over the same period.

Chart 36: Global market size and forecast of 1-[2-(2-Hydroxyethoxy) ethyl] Piperazine



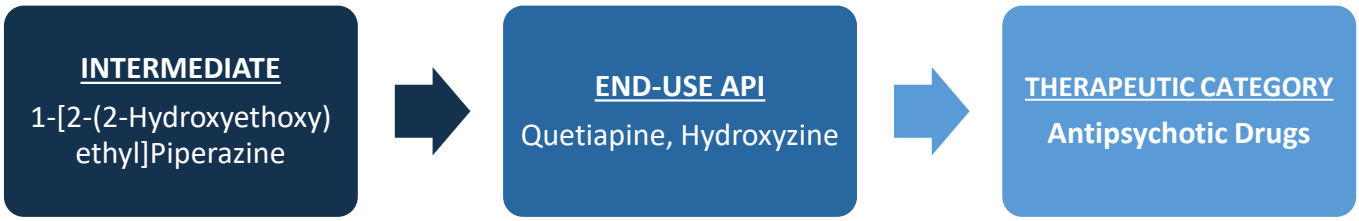
Source: Grand View Research, CareEdge Research

Chart 37: Domestic market size and forecast of 1-[2-(2-Hydroxyethoxy) ethyl] Piperazine



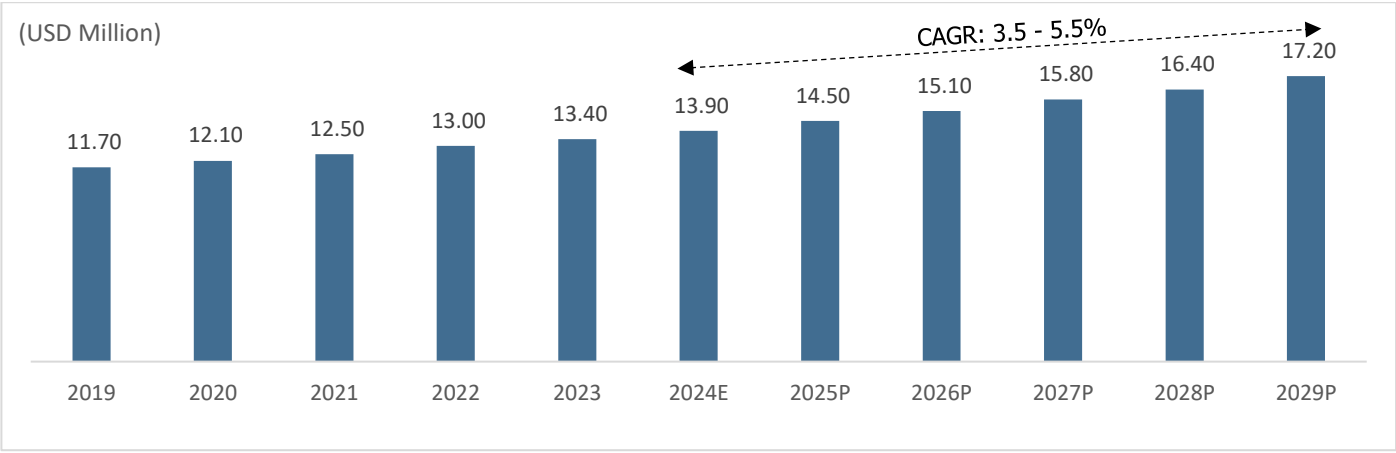
Source: Grand View Research, CareEdge Research

Intermediate value chain



The rising demand for 1-[2-(2-Hydroxyethoxy) ethyl] piperazine (HEEP) is closely linked to the increasing use of Quetiapine in treating various mental health disorders. As the market for antipsychotic drugs expands, driven by greater awareness and treatment of mental health issues, the demand for HEEP as a critical intermediate in the production of these medications is expected to continue its upward trajectory. Following this, the widely used application of this intermediate falls under the therapeutic category of Anti-Psychotic drugs. The global growth for this therapeutic category is likely to grow at a CAGR of 3.5-5.5% from CY24 to CY29 backed by its rising usage.

Chart 38: Global market size for Anti-Psychotic Drugs

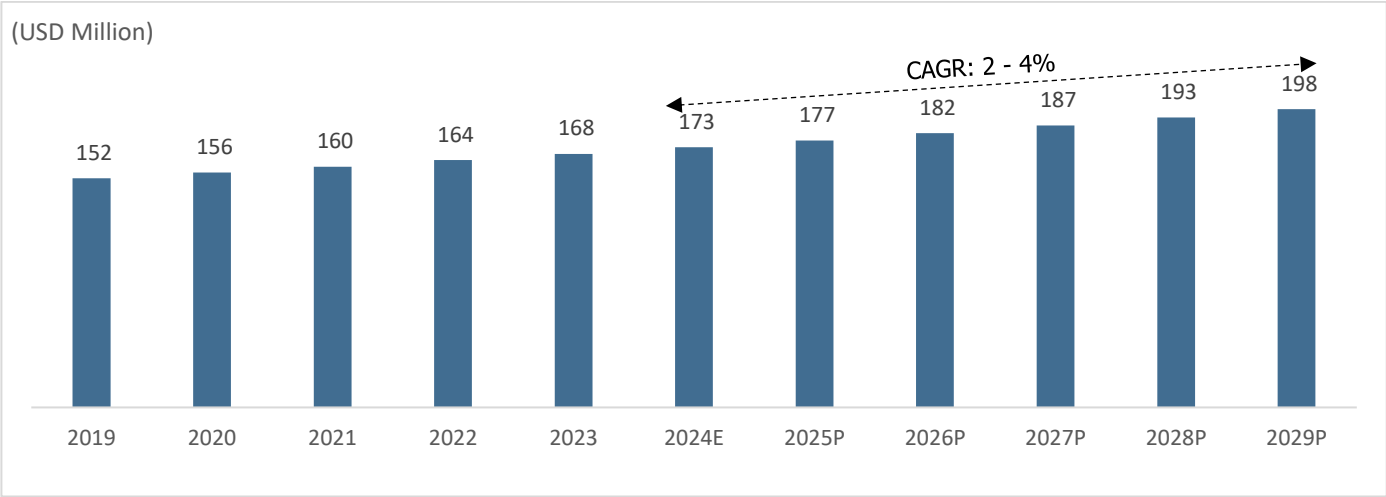


Source: Grand View Research, CareEdge Research

2. Dibenzo[b,f][1,4] thiazepin 11 (10 H)-one

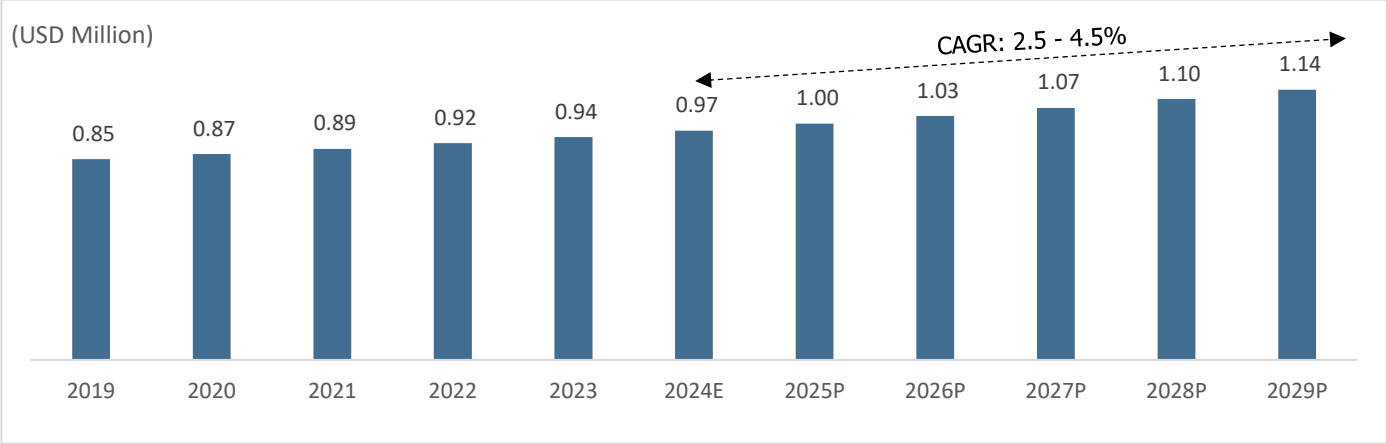
Dibenzo[b,f][1,4] thiazepin 11 (10 H)-one is integral to the chemical structure of both Quetiapine and Clozapine, which are classified as a typical antipsychotics. Quetiapine is widely used for treating conditions such as schizophrenia, bipolar disorder, and major depressive disorder The global market for this intermediate is expected to grow at a CAGR of 2-4% from CY24 to CY30 while the domestic market is expected to expand at a CAGR of 2.5-4.5%.

Chart 39: Global market size and forecast of Dibenzo[b,f][1,4] thiazepin 11 (10 H)-one



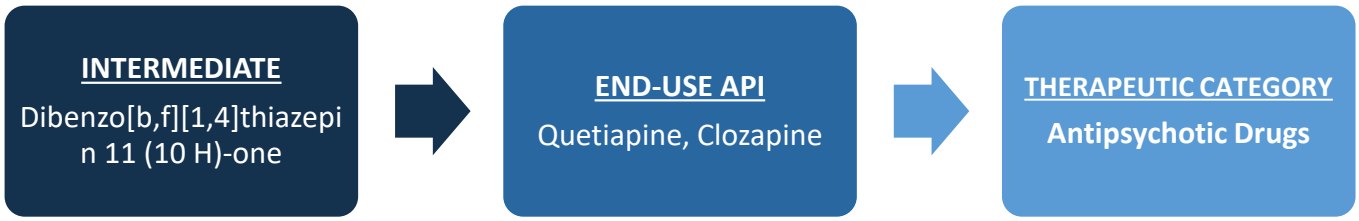
Source: Grand View Research, CareEdge Research

Chart 40: Domestic market size and forecast of Dibenzo[b,f][1,4]thiazepin 11 (10 H)-one



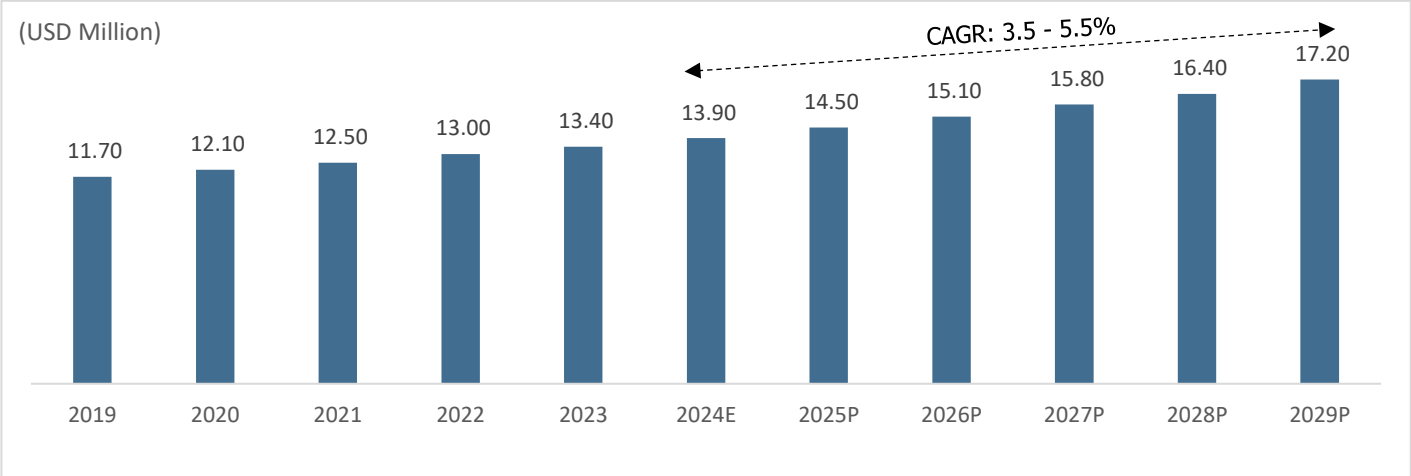
Source: Grand View Research, CareEdge Research

Intermediate value chain



The effectiveness of these drugs in managing severe mental health conditions has led to their increased prescription, which directly correlates with the rising demand for the Dibenzo[b,f][1,4] thiazepin 11 (10 H)-one.

Chart 41: Global market size for Anti-Psychotic Drugs

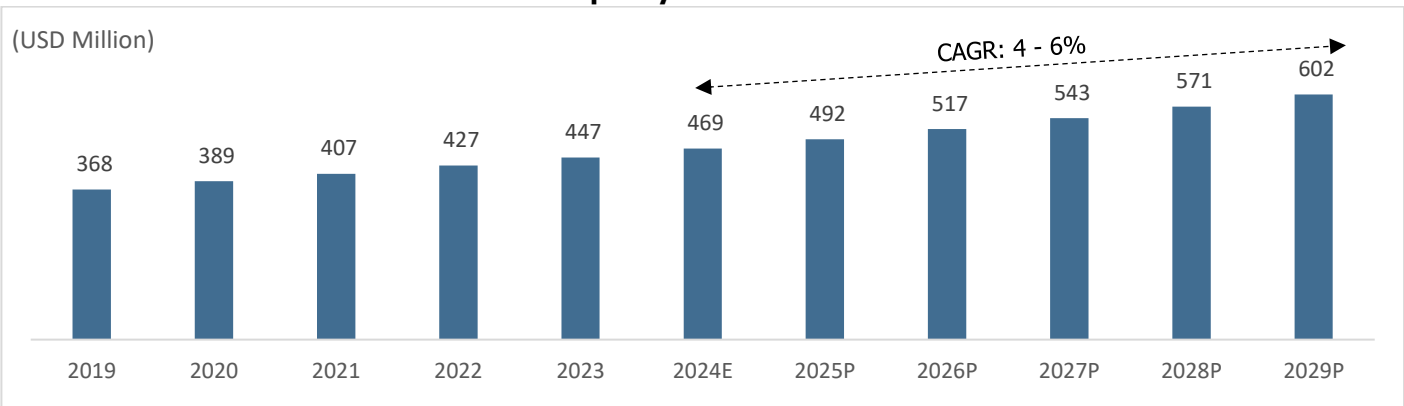


Source: Grand View Research, CareEdge Research

3. 2-Amino-4-phenylbutane

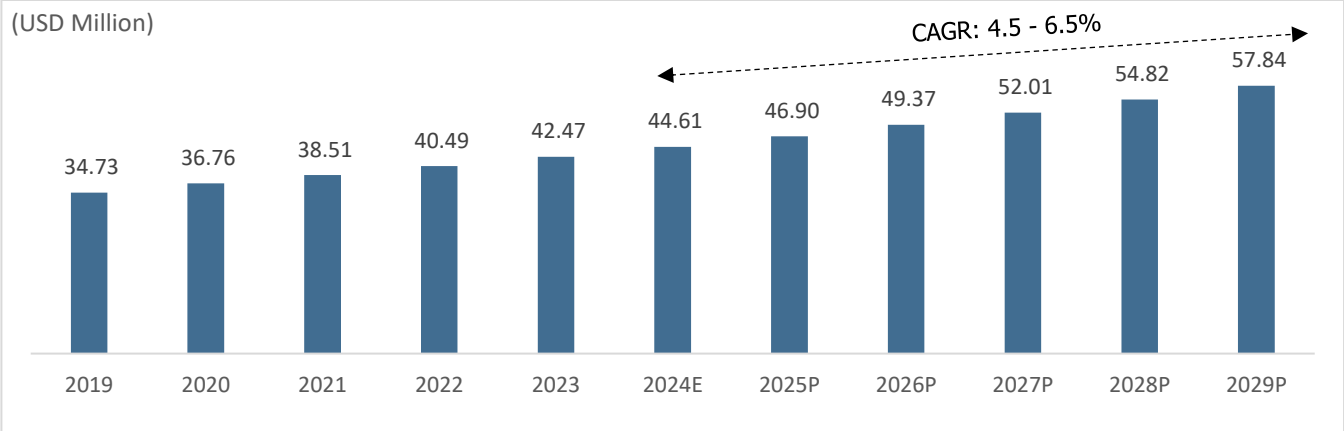
2-Amino-4-Phenylbutane is a key intermediate in the synthesis of pharmaceuticals, particularly Labetalol, which effectively treats high blood pressure and aids in angina management. The increasing prevalence of hypertension and related cardiovascular diseases is driving demand for Labetalol, thus elevating the importance of 2-Amino-4-Phenylbutane in the pharmaceutical industry. The global market for this intermediate is expected to grow at a CAGR of 4-6% from CY24 to CY29 whereas the domestic market is expected to expand at a CAGR of 4.5-6.5% over the same period.

Chart 42: Global market size for 2-Amino-4-phenylbutane



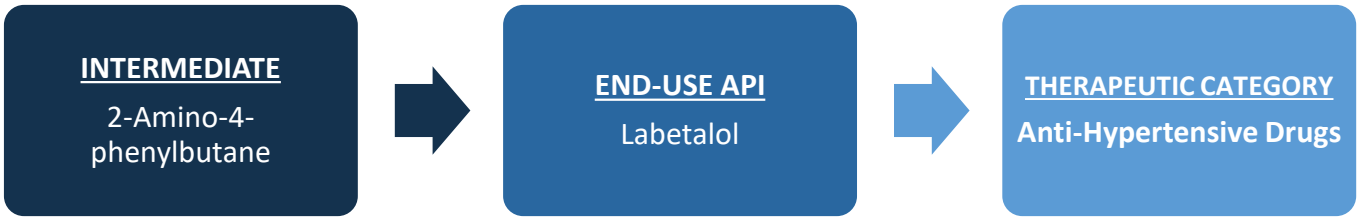
Source: Grand View Research, CareEdge Research

Chart 43: Domestic market size and forecast of 2-Amino-4-phenylbutane



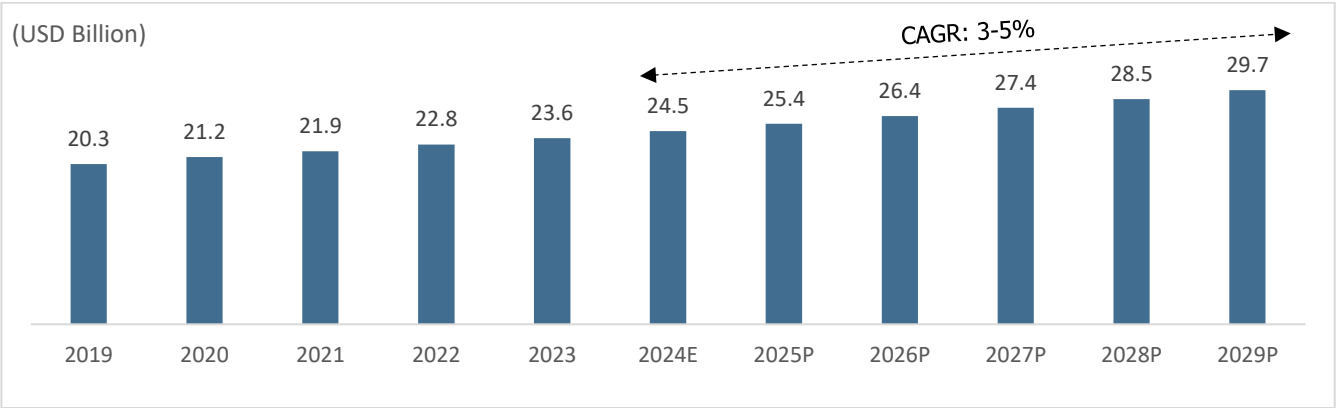
Source: Grand View Research, CareEdge Research

Intermediate value chain



Additionally, this intermediate is used in synthesizing other compounds, including N-substituted derivatives of (1-methyl-3-phenylpropyl) amine. Overall, there is a growing need for this compound in response to the rise in cardiovascular health issues. With the growing prevalence of cardiovascular diseases, the global Anti-Hypertensive therapeutic category is expected to be supported with a CAGR of 3-5% from CY24 to CY29.

Chart 44: Global market size for Anti-Hypertensive Drugs

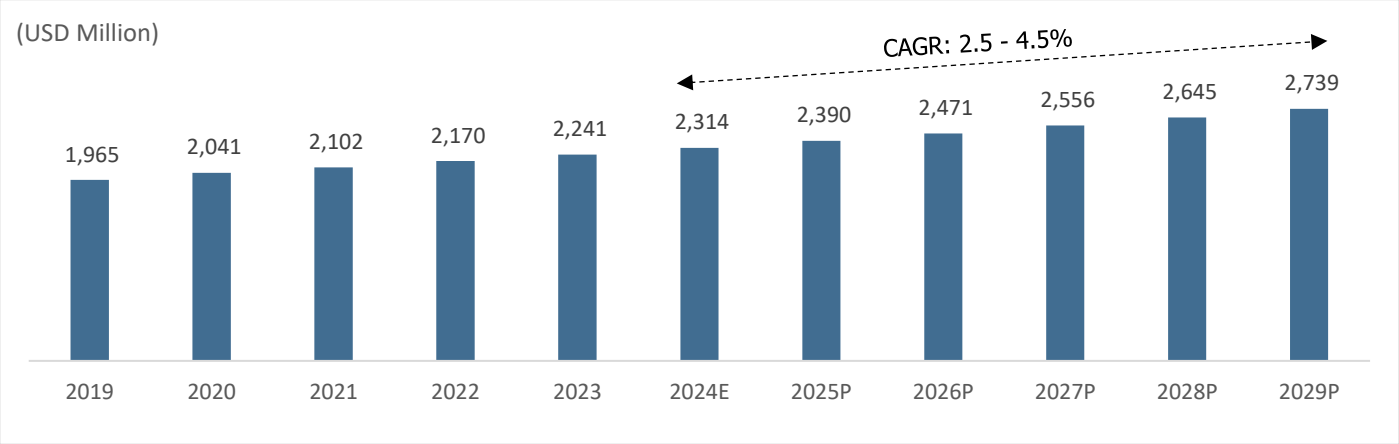


Source: Grand View Research, CareEdge Research

4. 2-(1-Piperazinyl) pyrimidine

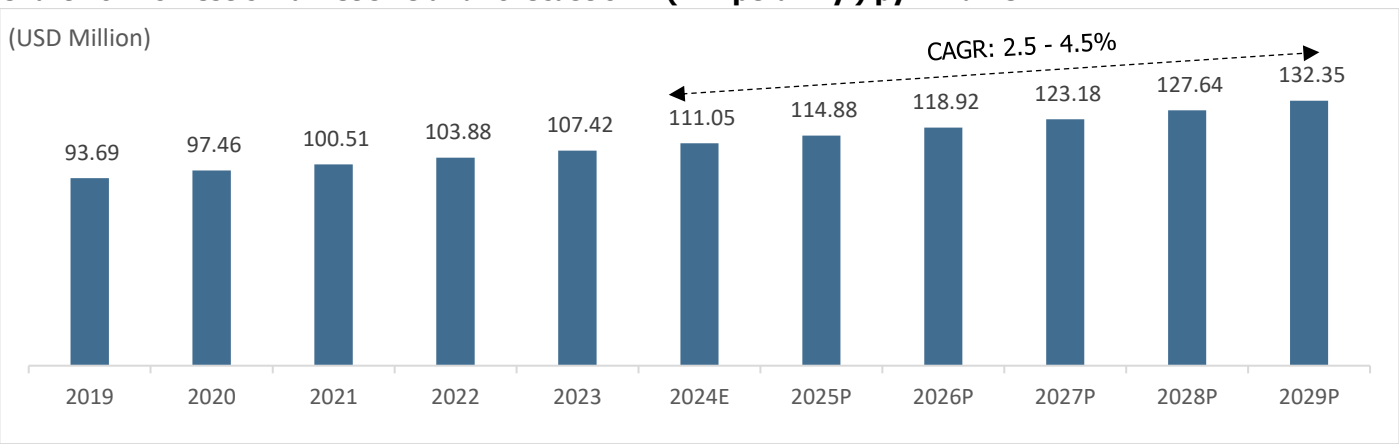
2-(1-Piperazinyl) pyrimidine serves as an important intermediate in the synthesis of two notable active pharmaceutical ingredients (APIs): Buspirone and Piribedil. Buspirone is recognized for its role as an anxiolytic medication, effectively addressing anxiety disorders by selectively engaging serotonin receptors. This offers patients relief while minimizing the sedative effects often associated with benzodiazepines. Additionally, Piribedil acts as a dopamine agonist, supporting the management of symptoms associated with Parkinson's disease. The market is expected to be supported by these factors contributing to global and domestic growth with a CAGR of 2.5-4.5% from CY24 to CY29.

Chart 45: Global market size and forecast of 2-(1-Piperazinyl) pyrimidine



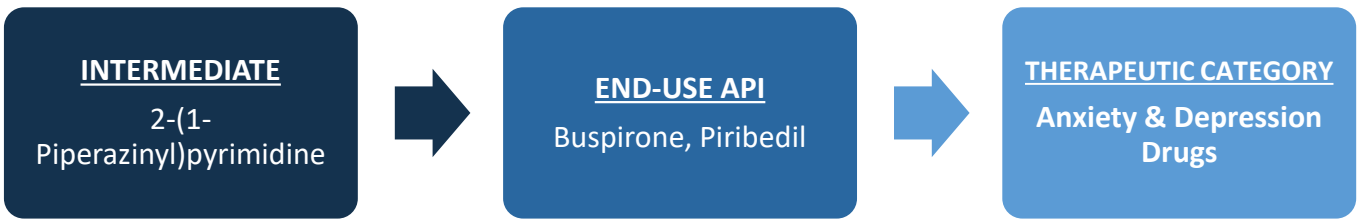
Source: Grand View Research, CareEdge Research

Chart 46: Domestic market size and forecast of 2-(1-Piperazinyl) pyrimidine



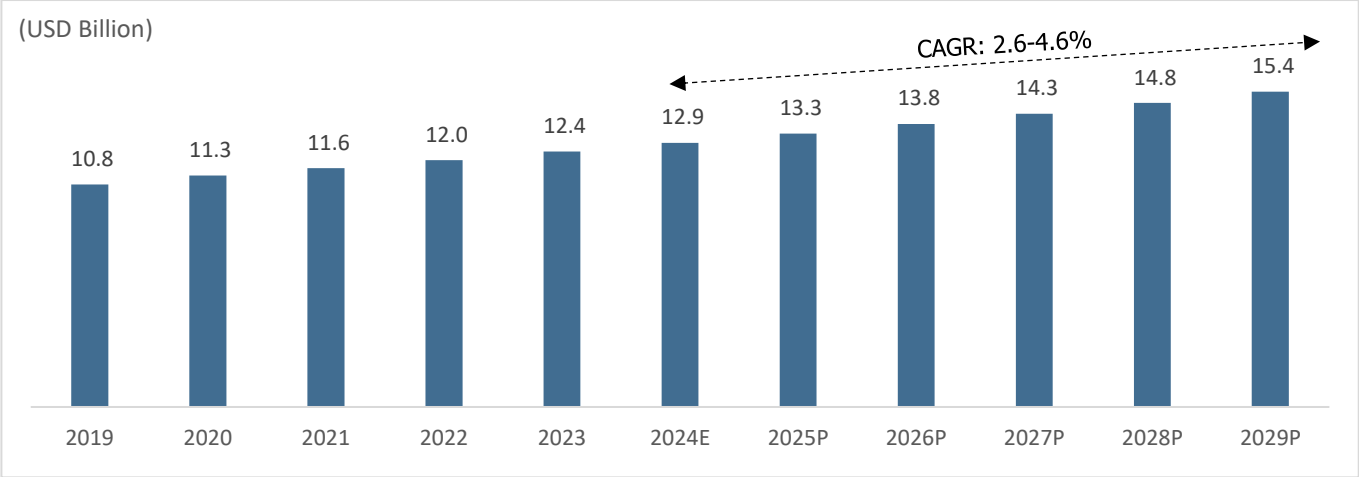
Source: Grand View Research, CareEdge Research

Intermediate value chain



The rising prevalence of anxiety disorders and Parkinson's disease globally is expected to drive the global market for therapeutic category at a CAGR of 2.6-4.6% from CY24 to CY29.

Chart 47: Global market size for Anxiety & Depression Drugs



Source: Grand View Research, CareEdge Research

7.5 High entry barriers in Indian API Intermediates industry

1. Stringent Regulatory Approvals

API intermediates must comply with multiple regulatory requirements based on their end-use in pharmaceuticals. Some key regulatory bodies include:

- **Central Drugs Standard Control Organization (CDSCO)** – Regulates drug manufacturing and quality in India.
- **US FDA, European Medicines Agency (EMA), and PMDA (Japan)** – Required for exporting to regulated markets.
- **WHO-GMP and ICH Guidelines** – Compliance with Good Manufacturing Practices (GMP) and quality standards for intermediates used in global pharmaceutical formulations.

Approval processes for API intermediates are lengthy and require documentation such as Drug Master Files (DMFs) and Certificates of Suitability (CEP), creating a major entry barrier for new players.

2. High Capital Investment in Manufacturing Facilities

- The companies are required to set up a cGMP-compliant API intermediates plant based on the product complexity.
- Advanced facilities need high-purity reactors, distillation columns, and controlled environments to prevent contamination.
- Infrastructure for solvent recovery and effluent treatment is mandatory due to environmental regulations.

3. Stringent Quality and Process Validation Requirements

- API intermediates must maintain high purity levels (often >99%) as any impurity can impact the final drug formulation.

- Compliance with ICH Q7 guidelines (Good Manufacturing Practice for APIs) is mandatory for exports.
- Quality control processes, such as HPLC, GC-MS, and stability studies, are required.
- Any deviation in quality can lead to product rejections and bans by regulatory authorities.

Failures in maintaining consistent quality have resulted in import bans on several Indian API facilities by US FDA and EMA in the past.

4. Dependence on Imported Raw Materials and Supply Chain Risks

- China supplies 60–70% of key raw materials (KSMs) and intermediates used in API production in India.
- Price fluctuations and trade restrictions on Chinese imports create uncertainties for manufacturers.
- Government initiatives like the Production-Linked Incentive (PLI) scheme aim to reduce dependence, but setting up new KSM manufacturing units takes years.

6. Environmental and Compliance Challenges

- API intermediate production generates hazardous waste and effluents, requiring strict environmental controls.
- Compliance with India's Pollution Control Board (PCB) norms and international environmental regulations is mandatory.
- Several API plants have faced temporary shutdowns due to non-compliance with effluent discharge norms.
- Setting up zero-liquid discharge (ZLD) systems and effluent treatment plants (ETPs) adds to operational costs for new entrants.

7. Price Pressure and Competition from China

- Chinese manufacturers offer API intermediates at lower prices, making it difficult for Indian firms to compete, especially in unregulated markets.
- Price volatility in raw materials affects profit margins, especially for new entrants without economies of scale.

8 Specialty Chemicals and Custom Synthesis

8.1 Specialty Chemicals

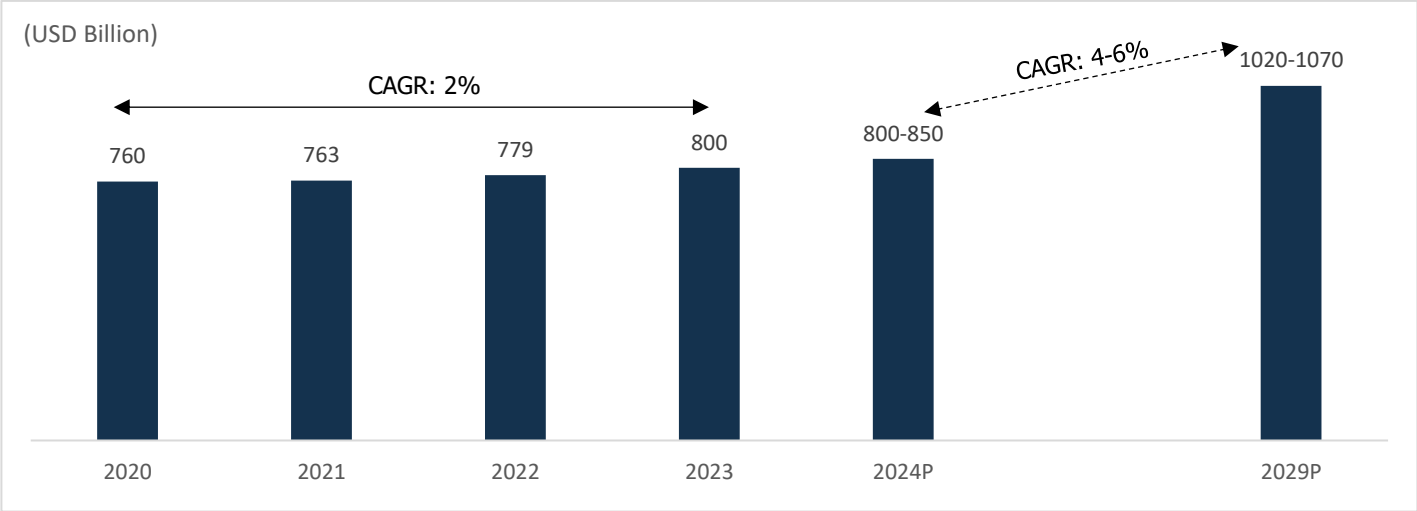
8.1.1 Overview and Global Market size

Specialty chemicals, also known as performance chemicals, are specifically formulated substances designed for functions and applications. Unlike commodity chemicals, which are mass-produced, specialty chemicals are manufactured in smaller quantities, with a strong emphasis on quality, performance, and customization to meet the unique demands of various industries. The quality of these chemicals is crucial, as it directly impacts on the performance and safety of the end products.

In the pharmaceutical industry, specialty chemicals, such as catalysts, play a vital role in commercial processes like the synthesis of paracetamol, vitamin K, and erythromycin. Advanced catalysts, including Nano catalysts, are being developed to make drug production more environmentally friendly and efficient, addressing the increasing concerns about climate change. Research in this area is advancing rapidly, particularly with Nano-asymmetric catalysts, which simplify drug development by requiring only a single step. Additionally, ongoing research on catalysts helps professionals optimize their application, tailoring them to specific industrial requirements for more efficient processes.

The global specialty chemicals were estimated to have been valued at $800 billion in CY23. The continued growth support from the downstream industries is expected to support the growth trajectory for the global market. Furthermore, the specialty market is expected to grow at a CAGR of 4-6%, reaching $1020-1070 billion until CY29.

Chart 48: Global market size for Specialty Chemicals



Source: Arizton Advisory, Global Specialty Chemicals Market Analysis Report from EMIS Professional Database, CareEdge Research; P: Projected

8.1.2 Functions of Specialty Chemicals

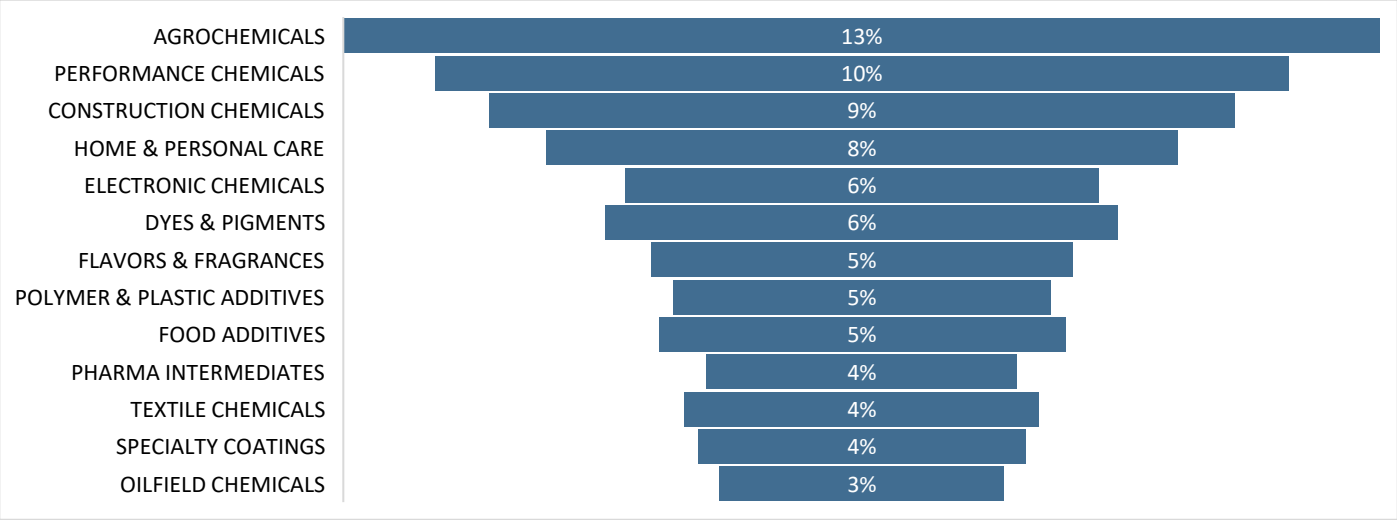
Specialty chemicals serve diverse functions across industries, enhancing product performance and enabling specific applications. They improve adhesion in coatings, adhesives, and sealants, while acting as catalysts to accelerate chemical reactions in industrial processes. These chemicals stabilize products by preventing degradation through antioxidants and UV stabilizers and offer protection against microbial growth, corrosion, and fire hazards. They also enhance performance in formulations, such as lubricants and surfactants, and modify material properties like flexibility or strength in plastics and rubbers. Specialty chemicals add special effects, such as colors and textures, in paints, cosmetics, and textiles. Additionally, they play a vital role in water treatment by purifying and conditioning water, support agriculture through

crop protection products like pesticides and fertilizers, and act as active ingredients in personal care products, including emulsifiers and fragrances.

8.1.3 Key applications in the specialty chemicals industry

The specialty chemicals industry is characterized by diverse applications across various sectors, each contributing uniquely to market dynamics. Key applications include pharmaceuticals, agriculture, food and beverage, personal care, and automotive industries. The market share for these applications reflects the evolving needs for advanced materials and sustainable solutions. Factors such as increased consumer awareness, stringent regulations, and technological innovations drive growth in specific segments, highlighting the importance of adaptability and innovation in the specialty chemicals market. The below-listed market share caters to more than 80% of the specialty chemicals industry and has been the major driving factor for the industry.

Chart 49: Global market share of key applications (value terms)



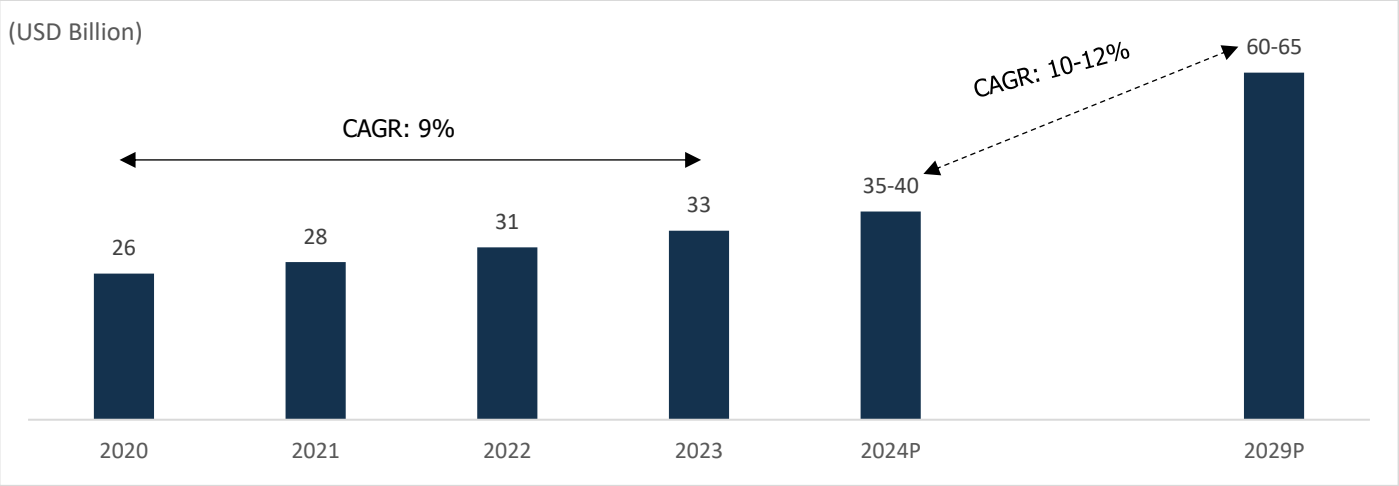
Source: Arizton Advisory, Global Specialty Chemicals Market Analysis Report from EMIS Professional Database, CareEdge Research; Data as of CY2023, remaining of the share includes others

8.1.4 Domestic Overview

India's specialty chemicals industry has experienced significant growth in recent years, contributing 22% to the country's overall chemicals and petrochemicals market, and is currently valued at $32 billion. This market is projected to double to $64 billion by 2025, growing at a CAGR of 12.4%.

The specialty chemicals segment stands out as one of the fastest-growing areas in Indian manufacturing, driven by rising demand from various end-user sectors, supportive government policies, an expanding domestic customer base, and shifts in consumer lifestyles. It also plays a crucial role in exports, accounting for over 50% of the chemical exports. Key sub-segments, including dyes, pigments, and pharmaceutical active pharmaceutical ingredients (APIs), continue to lead in driving export growth. Previously, a decade ago lack of domestic production coupled with supply chain disruptions and regulatory restrictions such as anti-dumping duties in China had restricted its availability in the Indian market. However, rising domestic capabilities has now led to improvement in the availability of these chemicals in the domestic market.

Chart 50: Domestic market size for Specialty Chemicals



Source: Arizton Advisory, Global Specialty Chemicals Market Analysis Report from EMIS Professional Database, CareEdge Research; P: Projected

8.1.5 High entry barriers in Indian specialty chemicals industry

- **Complex manufacturing process**

The production of specialty chemicals involves intricate chemical synthesis, purification, and formulation techniques. Additionally, high R&D costs for developing new products and maintaining compliance with evolving regulations make it difficult for new entrants. Indian specialty chemical manufacturers that invest heavily in R&D, such as Aarti Industries and PI Industries, have an edge over smaller players.

- **Stringent vendor approval process**

Many specialty chemicals are used in regulated industries such as pharmaceuticals, agrochemicals, and electronics. The approval process for suppliers is stringent and can take months to years, depending on the industry and regulatory requirements. For instance, securing a vendor position with global pharmaceutical companies requires compliance with Good Manufacturing Practices (GMP) and regulatory approvals from agencies like the US FDA, making it difficult for new entrants.

- **Supplier customer relationship**

Long-term contracts and established relationships are common in this industry, as customers prefer reliable and consistent suppliers. The switching cost for customers is high due to the need for product validation and regulatory approvals. Established players like SRF and Navin Fluorine benefit from these strong relationships.

- **Stringent quality requirement**

Specialty chemicals must meet high standards of purity, performance, and environmental safety. Compliance with regulations such as India's EIA (Environmental Impact Assessment), REACH (for exports to Europe), and US EPA standards further increases entry barriers. Any new entrant must set up advanced testing and quality control systems, adding to the initial investment burden.

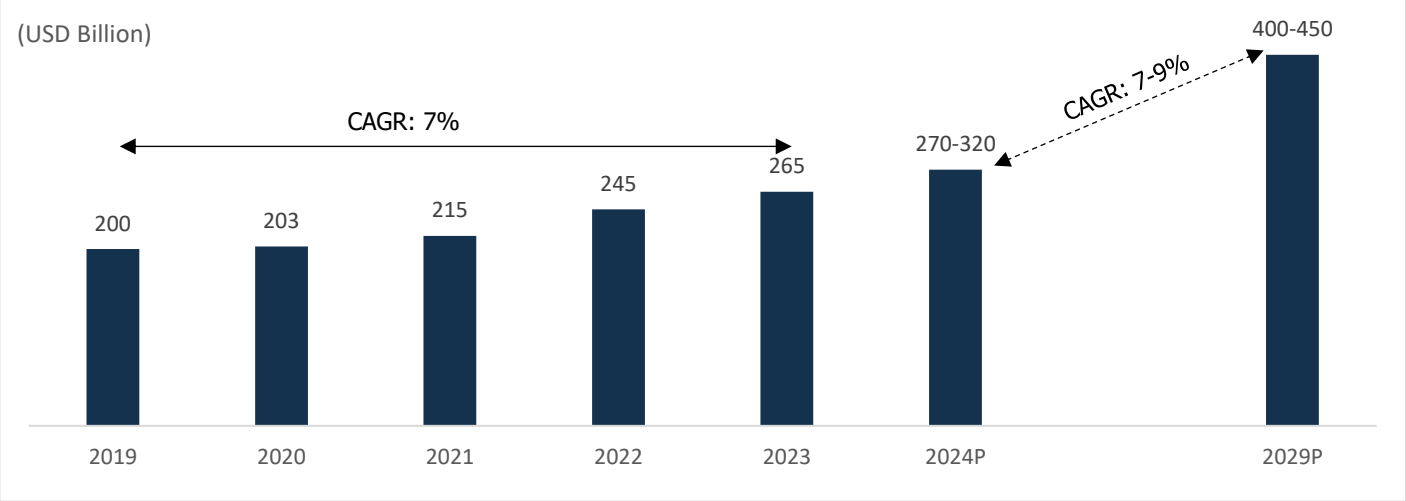
8.2 Custom Synthesis Manufacturing (CSM)

8.2.1 Global Overview

The global custom synthesis market is witnessing substantial growth, primarily driven by the rising demand for custom-synthesized chemicals and API intermediates. Custom synthesis refers to the process of designing and manufacturing molecules tailored to specific customer requirements, which includes developing new compounds, modifying existing ones, and scaling up production. The pharmaceutical and biotechnology sectors are the largest end-users of these services, significantly influencing market dynamics.

Key factors contributing to the market's growth include the increasing prevalence of chronic diseases, which amplifies the need for innovative and personalized medicines, and the ongoing expansion of the pharmaceutical and biotech industries. As these sectors grow, the demand for custom synthesis services is expected to rise accordingly. Moreover, many pharmaceutical companies are opting to outsource their research and development activities to contract research organizations (CROs), further propelling the need for custom synthesis.

Chart 51: Global market size for Custom Synthesis Manufacturing market



Source: CareEdge Research & Estimates; P: Projected

8.2.2 Indian Overview

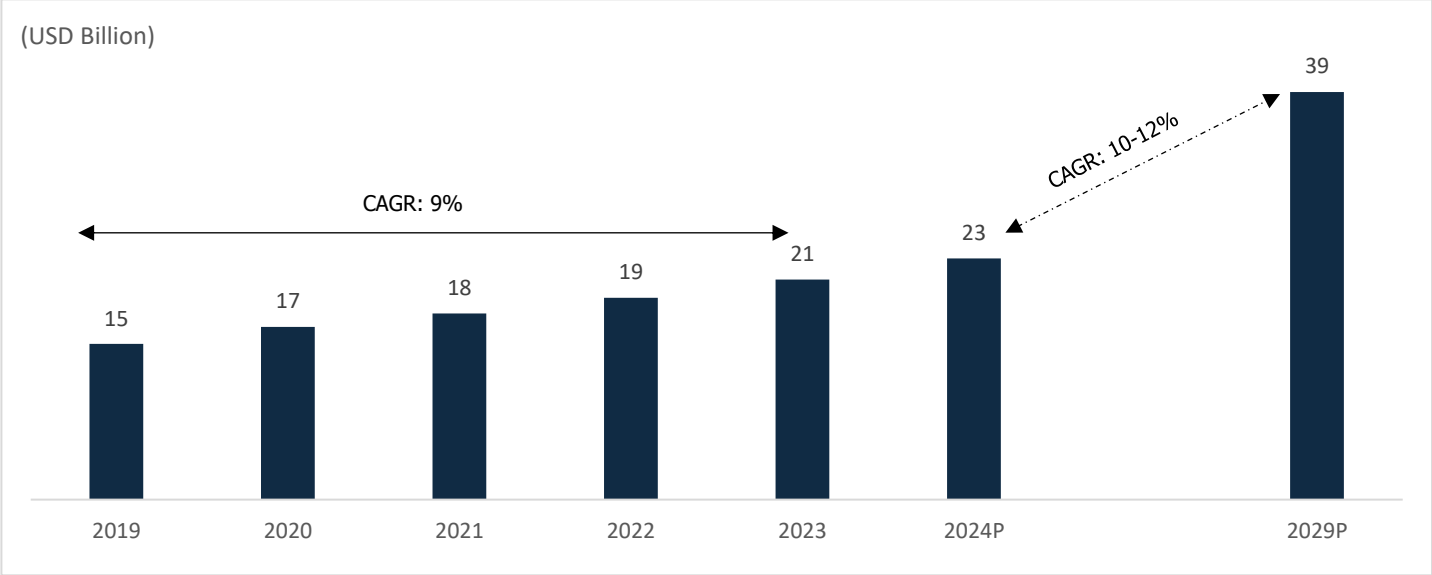
The Custom Synthesis Manufacturing (CSM) market in India has witnessed significant growth, driven by its skilled workforce, cost-effective services, and strong chemistry capabilities. India's robust scientific talent and research institutions have positioned it as a hub for innovation, attracting multinational pharmaceutical companies seeking to expedite product pipelines and optimize costs.

The favorable regulatory environment, with stringent quality standards and intellectual property protection, has bolstered international confidence in Indian CSM providers. Rising outsourcing trends in drug discovery, development, and manufacturing further fuel market demand as pharmaceutical companies focus on core competencies.

The COVID-19 pandemic highlighted the resilience of India's CSM market, with companies adapting swiftly to support vaccine and therapeutic production. This agility reinforced India's reputation as a reliable partner in the global pharmaceutical ecosystem.

Looking ahead, growing complexities in drug development and increased R&D investments are expected to drive sustained growth in India's CSM market, aligning with the evolving needs of global pharmaceutical and biotechnology sectors.

Chart 52: Domestic market size for Custom Synthesis Manufacturing (CSM) market

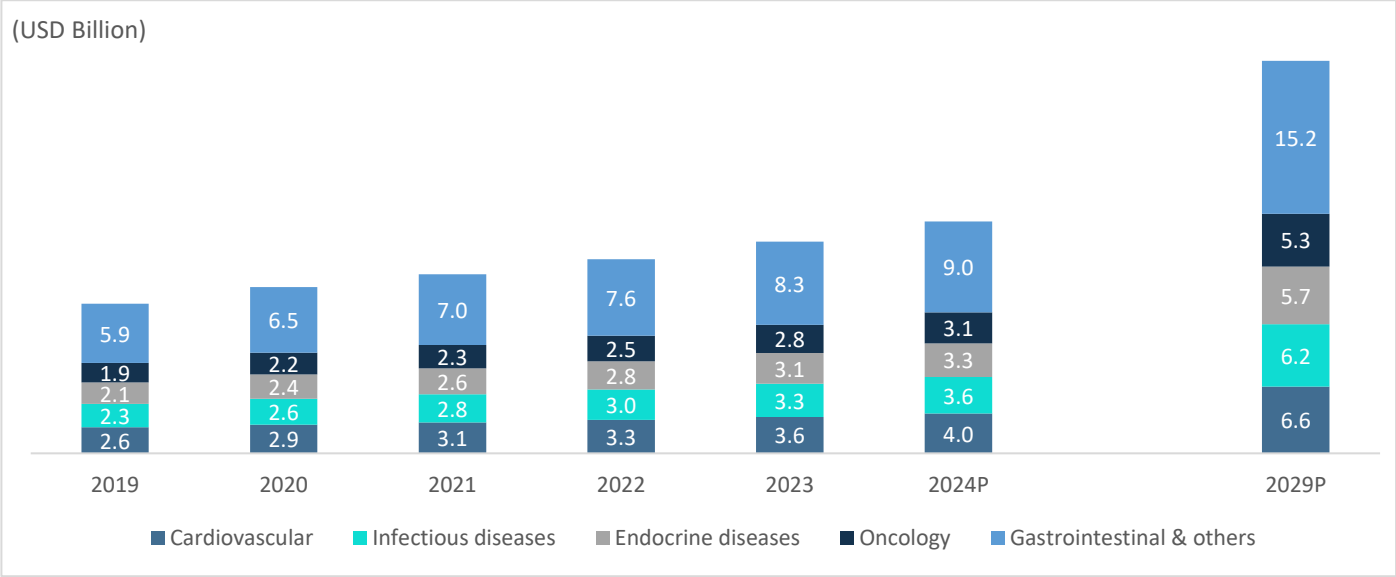


Source: Technavio Research, CSM Market Report from EMIS Professional Database, CareEdge Research; P: Projected

Custom Synthesis Manufacturing (CSM) market by Therapeutic categories

There is a consistent upward trend across key therapeutic segments in the healthcare industry from 2019 to 2029, reflecting growing global healthcare needs and advancements in medical treatments.

Chart 53: Domestic market size by Therapeutic segment



Source: Technavio Research, Global CSM Market Report from EMIS Professional Database, CareEdge Research; P: Projected

In the cardiovascular segment, the market size is expected to rise from $2.6 billion in 2019 to $6.6 billion in 2029. This growth is driven by an increasing prevalence of cardiovascular diseases, linked to ageing populations and lifestyle factors like poor diet and physical inactivity. The demand for treatments for heart-related ailments is set to expand as healthcare systems focus on managing chronic conditions.

Similarly, the market for infectious diseases is projected to increase from $2.3 billion to $6.2 billion over the same period. The heightened awareness and demand for antiviral and antibiotic drugs, especially after the COVID-19 pandemic, is a significant contributor to this growth. Vaccination programs and the ongoing battle against emerging infectious threats further drive the need for innovation in this sector.

The endocrine diseases segment, which includes conditions like diabetes, is set to grow from $2.1 billion in 2019 to $5.7 billion by 2029. With the rise of metabolic disorders, largely driven by lifestyle changes and the growing global burden of obesity and diabetes, this sector is expected to see substantial growth.

In the oncology segment, the market is projected to rise from $1.9 billion in 2019 to $5.3 billion by 2029. Innovations in cancer therapies, including targeted treatments and immunotherapies, are expected to push growth in this field, as cancer continues to be one of the leading causes of death globally.

Lastly, the gastrointestinal and other disorders segment, which was valued at $5.9 billion in 2019, is expected to see a substantial rise, reaching $15.2 billion by 2029. This reflects a growing demand for treatments addressing a wide array of digestive and related diseases, fueled by changes in diet, lifestyle, and environmental factors.

Overall, the total market across these therapeutic areas is expected to grow from $15 billion in 2019 to $39 billion by 2029, indicating a strong and sustained expansion driven by technological advancements, increasing disease prevalence, and healthcare innovations across the globe.

9 Regulatory Framework

9.1 API & Intermediates

Central Drugs Standard Control Organization (CDSCO)

CDSCO under Directorate General of Health Services, Ministry of Health & Family Welfare, Government of India is the National Regulatory Authority (NRA) of India. The headquarters are located in New Delhi and it also has six zonal offices, four sub zonal offices, thirteen Port offices and seven laboratories spread across the country.

The Drugs & Cosmetics Act,1940 and rules 1945 have entrusted various responsibilities to central & state regulators for regulation of drugs & cosmetics. It envisages uniform implementation of the provisions of the Act & Rules made there under for ensuring the safety, rights and well-being of the patients by regulating the drugs and cosmetics. CDSCO is constantly thriving upon bringing out transparency, accountability and uniformity in its services in order to ensure safety, efficacy and quality of the medical product manufactured, imported and distributed in the country.

Under the Drugs and Cosmetics Act, CDSCO is responsible for approval of drugs, conduct of clinical trials, laying down the standards for drugs, control over the quality of imported drugs in the country. Also, it is responsible for co-ordination of the activities of State Drug Control Organizations by providing expert advice with a view of bring about uniformity in the enforcement of the Drugs and Cosmetics Act. Further CDSCO along with state regulators, is jointly responsible for grant of licenses of certain specialized categories of critical drugs such as blood and blood products, I. V. Fluids, Vaccine and Sera.

National Pharmaceutical Pricing Authority (NPPA)

NPPA is an organization of the Government of India, which was established, inter alia, to fix/revise the prices of controlled bulk drugs[5] and formulations and to enforce prices and availability of the medicines in the country, under the Drugs (Prices Control) Order, 1995. The organization is also entrusted with the task of recovering amounts overcharged by manufacturers for the controlled drugs from the consumers. It also monitors the prices of decontrolled drugs to keep them at reasonable levels.

Functions of NPPA

- To implement and enforce the provisions of the Drugs (Prices Control) Order in accordance with the powers delegated to it.
- To deal with all legal matters arising out of the decisions of the authority.
- To monitor the availability of drugs, identify shortages, if any, and to take remedial steps.
- To collect/ maintain data on production, exports and imports, market share of individual companies, profitability of companies etc., for bulk drugs and formulations.
- To undertake and/ or sponsor relevant studies in respect of pricing of drugs/ pharmaceuticals.
- To recruit/ appoint the officers and other staff members of the authority, as per rules and procedures laid down by the government.
- To render advice to the central government on changes/ revisions in the drug policy.
- To render assistance to the central government in parliamentary matters relating to the drug pricing.

[5] Controlled bulk drugs are active pharmaceutical ingredients (APIs) regulated for their pricing, availability, or potential misuse, such as Paracetamol, Morphine, and Codeine.

10 Threats and Challenges

10.1 API & Intermediates Industry

The API & Intermediates industry faces several threats and challenges:

Chart 54: Threats and Challenges for API & Intermediates Industry

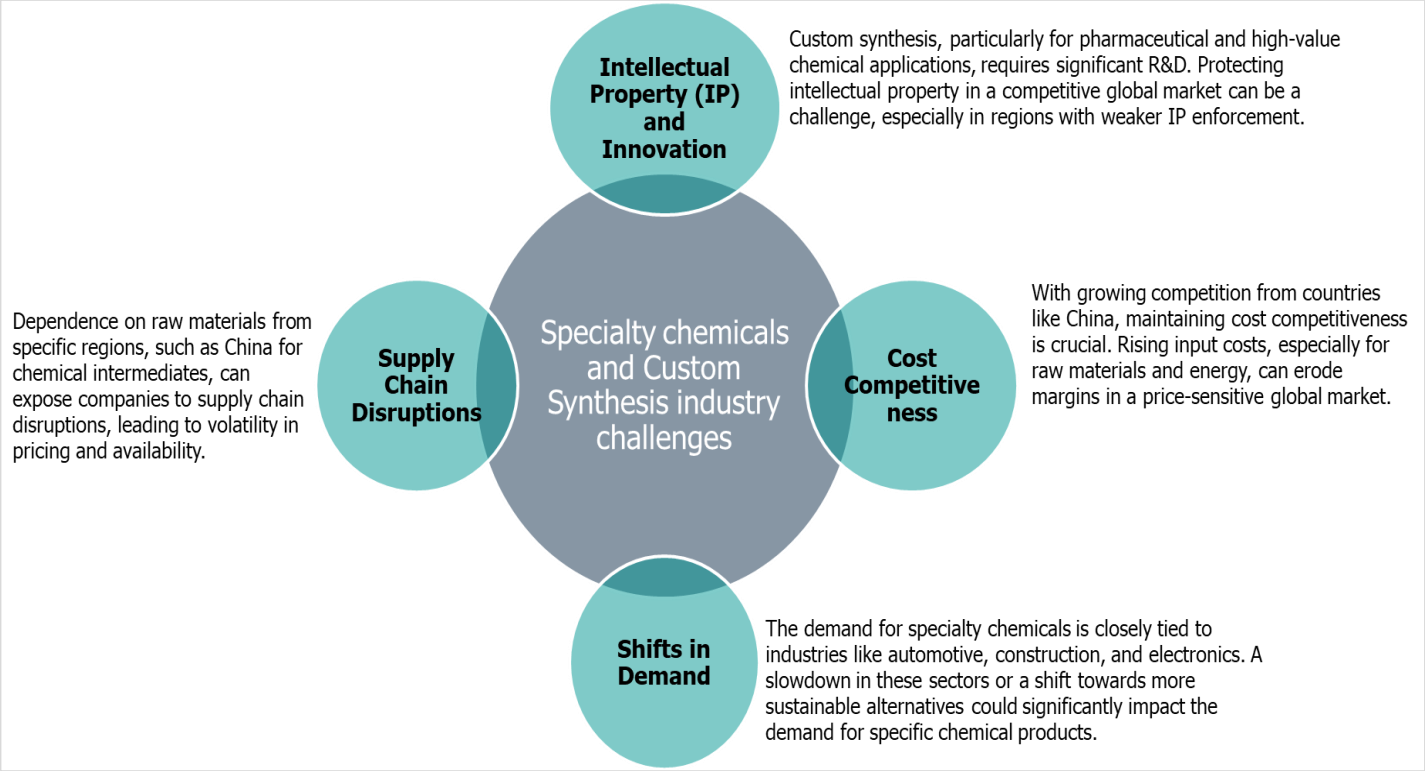
Dependence on Imports	A significant reliance on imports, particularly from China, for key starting materials (KSMs) and intermediates poses supply chain risks, especially in times of geopolitical tensions or disruptions.
Price Volatility	Fluctuations in raw material prices and API costs, driven by global market conditions and currency exchange rates, affect profitability.
Regulatory Hurdles	Complying with stringent international regulatory standards, such as those from the U.S. FDA and European agencies, can be challenging for manufacturers, especially smaller players, leading to delays or rejections.
Environmental Regulations	Increasing environmental regulations and pollution control mandates can raise operating costs and create compliance challenges, especially for older manufacturing facilities.
Competition	Intense competition, particularly from low-cost producers in China and other emerging markets, puts pressure on pricing and margins.
High Entry Barrier	API Intermediates manufacture products are subjected to exacting high-quality standards and stringent compliance in terms of obtaining licenses and filing forms under Drug Master File (DMF).

Source: CareEdge Research

10.2 Specialty Chemicals and Custom Synthesis

The specialty chemicals and custom synthesis industry faces several threats and challenges:

Chart 55: Threats and Challenges for specialty chemicals and custom synthesis industry



Source: CareEdge Research

11 Competitive Landscape

1. Allchem Lifesciences Limited

Overview:
Allchem Lifescience Ltd is an Indian manufacturer specializing in Active Pharmaceutical Ingredients (API) intermediates (Generic API, Advanced intermediates and Key Starting Materials), Specialty chemicals, Custom synthesis & Contract Manufacturing (CDMO) aiming to cater various industries like Pharmaceuticals, Specialty chemicals, Electrochemical, Agrochemicals & Biotechnology. The company is involved in manufacturing of Aliphatic & Aromatic Piperazine Derivatives, Cyclopropane/Cyclobutane Derivatives, Cyclopentane/Cyclohexane Derivatives, Aliphatic/Aliphatic aryl/Aryl amine Derivatives, Aldehyde & Ketone Derivatives, Nitrile Derivatives, Carboxylic acid and their derivatives, Heterocyclic compound/Alcohol/Ether Speciality chemicals, Halide/Acid Chloride Derivatives Alcohol/Ether Speciality chemicals etc.

The company operates at a production facility spanning 65304 Sq. Meter in Vadodara, Gujarat, India and has been steadily expanding its capabilities. It has a global presence and serves clients in diverse therapeutic categories, including Antihypertensive, Antidepressant, Antipsychotic, Antihistaminic, Anticonvulsant, Anti ulcerative, Antineoplastic, Antiparkinsonian, Antiarrhythmic, Anticoagulant, Antipsychotic, Antiemetic, Anesthetic, Cardiotonic, Antihistaminic, Anxiolytic, Antiallergic & Vasodilator.

The company is one of the key players in manufacturing piperazine derivatives in India based on its wide piperazine derivative offerings, which account for more than 40% of its total revenue as of FY24. Piperazine derivatives are critical raw materials for producing APIs like Quetiapine, Buspirone, Labetalol.

The company has obtained environmental clearance for 263 products and holds legal production permission for up to 180 MT per month. It has a reaction volume of 1,134 KL as of December 2024. Further, the company has a hydrogenation capacity of 60 KL, making it one of the largest in India. The infrastructure includes seven production blocks, a high vacuum distillation block with 40 distillation reactors, a pilot plant, a research and development block, and three utility blocks. It also operates an effluent treatment plant with zero liquid discharge. Allchem is certified under ISO 9001:2015, ISO 14001:2015, and ISO 45001:2018, along with third-party GMP certification. Its production facilities were audited by the US FDA in May 2024.

The varied product portfolio is manufactured using different processes such as Dieckmann Cyclization, hydrogenation, and high vacuum distillation, enabling the production of complex compounds. The Company's manufacturing Facility also houses a pilot plant where they test and refine production processes on a small scale to better understand the chemistries. The pilot plant also enables company to test the efficacy of the chemistries wherein company seeking to develop in small batches. This ensures that chemistries and the efficacy is established before the company scales up production which also helps in optimising costs.

Since Allchem's products are used in the pharmaceutical industry, customers regularly inspect and audit the manufacturing facilities to ensure compliance with their internal approval standards. These inspections provide valuable feedback on industry expectations and evolving global best practices, helping to strengthen processes and systems.

The supply chain in this industry operates with high entry barriers, stringent quality standards, and strict compliance requirements, including licensing and Drug Master File (DMF) filings. Additionally, the end-use of various products is formally recognized in regulatory filings. To qualify as an `approved supplier, the company undergoes rigorous customer audits and, in some cases, compliance reviews by international regulatory bodies like the USFDA after product sampling. These factors create significant entry barriers for new competitors offering similar products.

Representative Product Portfolio:

Intermediate	API	Therapeutic Category
1-[2-(2-Hydroxyethoxy) ethyl] Piperazine	Quetiapine / Etodroxizine / Dixyrazine / Hydroxyzine	CNS - Psychiatry
Dibenzo[b,f][1,4]thiazepin 11 (10 H)-one	Quetiapine / Etodroxizine / Dixyrazine / Hydroxyzine	CNS - Psychiatry
2-Amino-4-phenylbutane	Labetalol / Buphenine	Cardiovascular Drugs
2-(1-Piperazinyl) pyrimidine	Buspirone / Binospirone / Itriglumide / Piribedil /Tandospirone	Gastrointestinal / CNS-Psychiatry / CNS- Neurology
3,3-Tetramethyleneglutarimide	Buspirone / Binospirone / Itriglumide / Piribedil /Tandospirone	Gastrointestinal / Oncology / CNS-Psychiatry
N, N-Diethyl ethylenediamine	Metoclopramide/Sunitinib/Tiapride	Gastrointestinal / Oncology / CNS-Psychiatry

Source: Company disclosures, CareEdge Research

Representative Specialty Chemicals Product portfolio

Specialty Chemical	Common Uses/Industries
N, N-Dimethylethylenediamine	Used in pharmaceuticals as a reagent; in agrochemicals and polymer industries.
N-Benzyl aniline	Used in dye manufacturing and as a chemical intermediate in pharmaceuticals.
1-Methyl-4-piperidone	Utilized in the synthesis of pharmaceuticals and agrochemicals.
4-Methoxybenzylamine	Applied in pharmaceutical synthesis and in the production of various organic chemicals.
1-Hydroxyethyl piperazine	Used in pharmaceuticals, particularly in the synthesis of piperazine-based drugs and as a chelating agent in industrial applications.
2-Chlorobenzimidazole	Employed in the synthesis of pharmaceuticals, particularly as an intermediate in the production of benzimidazole derivatives used in antifungal and anti-inflammatory drugs.

Source: Company disclosures, CareEdge Research

Financial Performance

Allchem Lifescience Ltd.[6]				
Financial indicators	**FY22**	**FY23**	**FY24**	**H1 FY25**
Net Sales (Rs. Million)	1097.8	1090.7	1,326.9	784.5
Operating profit (EBITDA) (Rs. Million)	250.3	319.2	490.1	321.6

[6] Calculations done based on audited financials

Allchem Lifescience Ltd.[6]				
Financial indicators	**FY22**	**FY23**	**FY24**	**H1 FY25**
Operating margin (in %)	22.80%	29.26%	36.94%	40.99%
Net profit (Rs. Million)	151.4	203.4	210.3	108.9
Net profit margin (in %)	13.79%	18.65%	15.85%	13.88%
Total debt (Rs. Million)	495.3	971.7	1049.7	1069.0
Debt -to- Equity[7]	1.43	1.62	1.30	1.18
Return on Capital Employed (ROCE)[8] (in %)	31.30%	21.26%	20.90%	12.02%
Interest coverage[9] (in times)	9.20	20.30	5.90	4.32
Return on Equity (ROE)[10] (in %)	43.80%	33.91%	25.96%	12.00%
Asset Turnover Ratio[11] (in times)	0.88	0.58	0.60	0.32

Source: Company disclosures, CareEdge Research

2. Ami Organics Limited

Overview: Ami Organics is a leading manufacturer of specialty chemicals and pharmaceutical intermediates based in Surat, Gujarat. Established in 2004, it primarily focuses on the development of advanced pharmaceutical intermediates and specialty chemicals.

Representative Product Portfolio:

Molecule	Disease/Condition	Broader Category
1-(4-iodo-phenyl)-piperidin-2-one	Loperamide, Fentanyl	CNS Drugs (Analgesics, Antidiarrheals)
3-nitro phthalic acid	Alprostadil	Cardiovascular Drugs (Vasodilators)
N,n-diisopropylethylene diamine	Dipyridamole	Cardiovascular Drugs (Antiplatelets)
1-(2,3-Dichloro Phenyl) Piperazine hcl	Trazodone, Buspirone	CNS Drugs (Psychiatry - Antidepressants, Anxiolytics)
2-(bromomethyl)benzonitrile	Benznidazole	Anti-Infective Drugs (Antiparasitics)

Financial Performance

Ami Organics Ltd.				
Financial indicators	**FY22**	**FY23**	**FY24**	**H1 FY25**
Net Sales (Rs. Million)	5201.4	6167.3	7,174.75	2467.34
Operating profit (EBITDA) (Rs. Million)	1051.8	1226.1	1284.89	489.32
Operating margin (in %)	20.22%	19.88%	17.91%	19.83%
Net profit (Rs. Million)	719.5	832.9	487.08	375.67
Net profit margin (in %)	13.83%	13.50%	6.79%	15.23%

[7] Debt to Equity: Total Debt / Total Equity
[8] Return on Capital Employed (ROCE): EBIT / (Total Assets – Current Liabilities)
[9] Return on Equity: PAT/ Shareholder's Equity [Total Equity excluding minority interest]
[10] Interest coverage ratio: EBIT / Finance Costs
[11] Asset Turnover Ratio: Revenue from operations / Total Assets

Total debt (Rs. Million)	8.40	36.00	2166.46	61.68
Debt -to- Equity	0.00	0.01	0.30	0.01
Return on Capital Employed (ROCE) (in %)	18.48%	18.97%	10.83%	4.11%
Interest coverage (in times)	15.30	47.50	14.80	100.54
Return on Equity (ROE) (in %)	13.78%	14.02%	7.13%	3.10%
Asset Turnover Ratio (in times)	0.79	0.80	0.65	0.17

Source: Company disclosures, CareEdge Research

3. Aether Industries Ltd.

Overview: Aether Industries Ltd. was established in 2013 in Surat, India. Ather Industries is a leading Indian manufacturer in the specialty chemicals sector. The company focuses on manufacturing advanced intermediates used in industries such as pharmaceuticals, agrochemicals, and coatings as well as a provider of Contract Research and Manufacturing Services (CRAMS).

Representative Product Portfolio:

Intermediate	API	Broader Category
4-Phenoxy-2,6-Diisopropyl Phenyl Isothiocyanate	Imidazoline-based drugs	Cardiovascular Drugs (Antihypertensives)
Tert-Butyl Chloroacetate	Ciprofloxacin	Anti-Infective Drugs (Antibiotics)
2-Chloro-1,4-Naphthoquinone	Menadione	Nutritional Supplements (Vitamins)
4-Tert-Butoxystyrene	Tamoxifen	Oncology Drugs (Anticancer)

Financial Performance

Aether Industries Ltd.				
Financial indicators	**FY22**	**FY23**	**FY24**	**H1 FY25**
Net Sales (Rs. Million)	5900.5	6510.7	5981.7	1987.97
Operating profit (EBITDA) (Rs. Million)	1681.1	1862.5	1322.5	536.33
Operating margin (in %)	28.49%	28.61%	22.11%	26.98%
Net profit (Rs. Million)	1089.3	1304.2	824.9	347.99
Net profit margin (in %)	18.46%	20.03%	13.79%	17.50%
Total debt (Rs. Million)	2850.8	1.1	1686.2	2022.06
Debt -to- Equity	0.74	0	0.08	0.09
Return on Capital Employed (ROCE) (in %)	30.25%	13.96%	5.59%	1.40%
Interest coverage (in times)	12.2	35.3	13.9	15.59
Return on Equity (ROE) (in %)	28.16%	10.48%	4%	1.63%
Asset Turnover Ratio (in times)	0.77	0.47	0.25	0.08

Source: Company disclosures, CareEdge Research

4. Shree Ganesh Remedies Limited

Overview: Shree Ganesh Remedies is a Gujarat-based company, part of the Ganesh Group of Industries. It specializes in manufacturing pharmaceutical intermediates, fine chemicals, and specialty chemicals. It also has its foray in custom synthesis

Representative Product Portfolio:

Intermediate	API	Therapeutic Segment
Cyclopropylmethanol	Efavirenz	Anti-retroviral
(3,4-Diaminophenyl) (4-fluorophenyl) methanone	Gefitinib	Anti-cancer
(4-Chloro-3-nitrophenyl) (4-fluorophenyl) methanone	Erlotinib	Anti-cancer
N-acylpiperazines /Monofluoro benzenes / Phthalazine	Olaparib	Anti-cancer

Financial Performance

Shree Ganesh Remedies Ltd.				
Financial indicators	**FY22**	**FY23**	**FY24**	**H1 FY25**
Net Sales (Rs. Million)	712.9	902.20	1,259.0	323.32
Operating profit (EBITDA) (Rs. Million)	179.2	232.60	418.10	113.10
Operating margin (in %)	25.14%	25.78%	33.21%	34.98%
Net profit (Rs. Million)	134.0	170.20	281.08	64.16
Net profit margin (in %)	18.80%	18.87%	22.33%	19.84%
Total debt (Rs. Million)	0.00	335.07	363.11	336.96
Debt -to- Equity	0.00	0.38	0.30	0.25
Return on Capital Employed (ROCE) (in %)	29.29%	18.90%	25.46%	5.64%
Interest coverage (in times)	124.49	196.03	63.85	21.19
Return on Equity (ROE) (in %)	21.76%	19.14%	23.02%	4.82%
Asset Turnover Ratio (in times)	0.93	0.63	0.74	0.18

Source: Company disclosures, CareEdge Research

5. Concord Biotech Limited

Concord Biotech is an India-based biopharmaceutical company specializing in the development and manufacturing of fermentation-based APIs and formulations. The company supplies immunosuppressants, oncology, and anti-infective products to global markets. It operates manufacturing facilities compliant with international regulatory standards, including USFDA and EU-GMP. Concord Biotech serves both domestic and international pharmaceutical companies through contract manufacturing and direct sales.

Representative Product Portfolio:

API	Therapeutic Segment
Mycophenolate Mofetil	Immunosuppressant

Mupirocin	Anti-bacterials
Micafungin Sodium	Anti-fungals
Mitomycin	Oncology Drugs

Financial Performance

Concord Biotech Ltd.				
Financial indicators	**FY22**	**FY23**	**FY24**	**H1 FY25**
Net Sales (Rs. Million)	7129.34	8531.68	10169.39	3101.81
Operating profit (EBITDA) (Rs. Million)	2732.75	3432.88	4315.57	1366.78
Operating margin (in %)	38.33%	40.24%	42.44%	44.06%
Net profit (Rs. Million)	1749.30	2400.86	3081.03	957.41
Net profit margin (in %)	24.54%	28.14%	30.30%	30.87%
Total debt (Rs. Million)	605.86	312.36	62.30	0.00
Debt -to- Equity	0.05	0.02	0.00	0.00
Return on Capital Employed (ROCE) (in %)	20.99%	24.70%	26.63%	8.04%
Interest coverage (in times)	44.31	72.40	162.67	1364.34
Return on Equity (ROE) (in %)	15.86%	18.61%	20.18%	6.02%
Asset Turnover Ratio (in times)	0.54	0.56	0.60	0.18

Source: Company disclosures, CareEdge Research

6. Kronox Lab Sciences

Overview: Kronox is a pharmaceutical company that specializes in the development and manufacturing of active pharmaceutical ingredients (APIs), specialty chemicals and pharmaceutical excipients.

Representative Product Portfolio:

Specialty Chemical	Uses
Aluminum Ammonium Sulfate	Used in water purification, as a coagulant in wastewater treatment
Aluminium Sulfate	Used as a coagulant in water treatment, paper manufacturing, and as a food additive.
Benzoic Acid	Used as a preservative in food and beverages
Butylated Hydroxytoluene	Antioxidant in food products, cosmetics, and industrial applications
Phosphates	Used in a wide range of applications, including fertilizers, detergents, and food additives
Calcium Carbonate	Used in construction, pharmaceuticals (as a calcium supplement), and food (as a color retainer)

Financial Performance

Kronox Lab Sciences				
Financial indicators	**FY22**	**FY23**	**FY24**	**H1 FY25**
Net Sales (Rs. Million)	822.5	955.8	898.62	248.59
Operating profit (EBITDA) (Rs. Million)	196.3	217.1	283.19	88.04
Operating margin (in %)	23.87%	22.72%	31.51%	35.42%
Net profit (Rs. Million)	136.1	164.0	213.513	64.731

Kronox Lab Sciences				
Financial indicators	**FY22**	**FY23**	**FY24**	**H1 FY25**
Net profit margin (in %)	16.55%	17.16%	23.76%	26.04%
Total debt (Rs. Million)	6.40	0.00	0.00	0.00
Debt -to- Equity	0.02	0.00	0.00	0.00
Return on Capital Employed (ROCE) (in %)	43.16%	34.00%	30.52%	11.43%
Interest coverage (in times)	52.9	237.5	NA	NA
Return on Equity (ROE) (in %)	33.49%	36.65%	32.20%	8.39%
Asset Turnover Ratio (in times)	1.44	1.29	0.90	0.29

Source: Company disclosures, CareEdge Research

7. Blue Jet Healthcare Ltd.

Overview: Blue Jet Healthcare Ltd. was incorporated in 1968 as Jet Chemicals Pvt. Ltd. The company is currently headquartered in Mumbai, Maharashtra. It is an Indian pharmaceutical company specializing in the development and manufacturing of active pharmaceutical ingredients (APIs) and intermediates. The company focuses on delivering products that cater to various therapeutic areas, including antibiotics, antifungals, and analgesics. It has a wider presence in contrast media[12] intermediates.

Representative Product Portfolio:

Contrast Media Intermediate	Usage
Diatrizoic Acid	X-ray
Iothalamic Acid	
Iohexol	
Gadoterate	MRI
Gadodiamide	
Gadobenate	

Financial Performance

Blue Jet Healthcare Ltd.				
Financial indicators	**FY22**	**FY23**	**FY24**	**H1 FY25**
Net Sales (Rs. Million)	6834.7	7209.8	7116	2082.6
Operating profit (EBITDA) (Rs. Million)	2492.6	2190.9	2292.3	694.9
Operating margin (in %)	36.47%	30.39%	32.21%	33.37%
Net profit (Rs. Million)	1815.9	1600.3	1637.5	583.49
Net profit margin (in %)	26.57%	22.20%	23.01%	28.02%
Total debt (Rs. Million)	0	0	0	0.0
Debt -to- Equity	-	-	-	-

[12] Contrast mediate intermediate is a substance used to enhance the contrast of structures or fluids within the body in medical imaging

Blue Jet Healthcare Ltd.				
Financial indicators	**FY22**	**FY23**	**FY24**	**H1 FY25**
Return on Capital Employed (ROCE) (in %)	45.77%	31.67%	25.82%	8.23%
Interest coverage (in times)	74.7	160.4	1368	3664.0
Return on Equity (ROE) (in %)	34.82%	23.48%	19.37%	6.31%
Asset Turnover Ratio (in times)	0.96	0.84	0.67	0.18

Source: Company disclosures, CareEdge Research

8. Vasudha Pharma Chem Ltd.

Overview: Vashuda Pharma Chem Ltd. was incorporated in 1994-95 in Hyderabad, India. Vasudha Pharmachem is a Indian company specializing in the manufacture of pharmaceutical intermediates and fine chemicals. It caters to the pharmaceutical industry by supplying essential intermediates used in the production of Active Pharmaceutical Ingredients (APIs).

Representative Product Portfolio:

Intermediate	API	Therapeutic Category
7-Hydroxy-3,4-dihydro-2(1H)	Fluoxetine, Sertraline	CNS- Psychiatry (Antidepressants)
7-(4-Bromobutoxy)-3,4-dihydro-2(1H)-quinolinone	Quetiapine, Trazodone	CNS Drugs (Psychiatry - Antipsychotics)
1-(2,3-Dichlorophenyl) piperazine hydrochloride	Trazodone, Buspirone	CNS Drugs (Psychiatry - Antidepressants, Anxiolytics)
1-Methyl-4-(piperidin-4-yl) piperazine	Fluoxetine, Sertraline	CNS Drugs (Psychiatry - Antidepressants)
n-Boc-4-hydroxypiperidine	Fentanyl, Pyridostigmine	CNS Drugs (Anesthetics, Neurology - Muscle Relaxants)

Financial Performance

Vasudha Pharma Chem Ltd.			
Financial indicators	**FY22**	**FY23**	**FY24**
Net Sales (Rs. Million)	10870.9	11622.2	11541.9
Operating profit (EBITDA) (Rs. Million)	3743.6	3002.9	3575.3
Operating margin (in %)	34.44%	25.84%	30.98%
Net profit (Rs. Million)	1236.1	954.2	1146.7
Net profit margin (in %)	11.37%	8.21%	9.94%
Total debt (Rs. Million)	1589.7	2050.6	532.5
Debt -to- Equity	0.17	0.19	0.05
Return on Capital Employed (ROCE) (in %)	17.85%	12.54%	13.61%
Interest coverage (in times)	15.6	10.9	19.0
Return on Equity (ROE) (in %)	12.88%	9.04%	9.81%
Asset Turnover Ratio (in times)	0.82	0.82	0.87

Source: Company disclosures, CareEdge Research; H1 FY25 financials not available yet

9. Chandak Laboratories Pvt. Ltd.

Overview: Chandak Laboratories is a manufacturer of pharmaceutical intermediates and active ingredients based in India. The company focuses on producing essential chemicals used in the pharmaceutical industry. Chandak Laboratories serves both the domestic and international markets by providing intermediates that are crucial for drug formulation and production processes.

Representative Product Portfolio:

Intermediate	API	Therapeutic Category
Azacyclonol	Azacyclonol	CNS Drugs (Psychiatry - Anxiolytics, Sedatives)
N-Benzyl-4-Piperidine Carboxyaldehyde	Fentanyl, Carfentanil	CNS Drugs (Anesthetics - Opioids)
Alpha-Dimethyl	Methamphetamine, Amphetamine	CNS Drugs (Psychiatry - Stimulants)
Isonipecotic Acid Ethyl	Baclofen	CNS Drugs (Neurology - Muscle Relaxants)

Financial Performance

Chandak Laboratories Pvt. Ltd.		
Financial indicators	**FY22**	**FY23**
Net Sales (Rs. Million)	1901.7	2397.5
Operating profit (EBITDA) (Rs. Million)	260.4	405.3
Operating margin (in %)	13.69%	16.91%
Net profit (Rs. Million)	194	302.2
Net profit margin (in %)	10.20%	12.61%
Total debt (Rs. Million)	124.4	106
Debt -to- Equity	0.24	0.13
Return on Capital Employed (ROCE) (in %)	41.19%	44.23%
Interest coverage (in times)	25.7	38.1
Return on Equity (ROE) (in %)	36.74%	36.40%
Asset Turnover Ratio (in times)	1.65	1.74

Source: Company disclosures, CareEdge Research, Financials for FY24 & H1 FY25 not available yet

10. Catapharma Chemicals Pvt. Ltd.

Overview: The Catapharma Group was formed in 1986. The company is a player in the Indian chemical industry, primarily involved in the manufacturing and supply of fine chemicals and pharmaceutical intermediates. The company specializes in producing intermediates for Active Pharmaceutical Ingredients (APIs) across various therapeutic segments, serving both domestic and international markets.

Representative Product Portfolio:

Intermediate	API	Therapeutic Category
Methyl piperazine	Flunarizine	CNS - Neurology
Ethyl piperazine	Norfloxacin, Ciprofloxacin	Anti-Infective Drugs
(Hydroxyethyl) piperazine	Imatinib, Voriconazole	Oncology / Anti-Infective Drugs
(3-methoxyphenyl) Piperazine	Aripiprazole, Trazodone	CNS – Antipsychotics / Antidepressants

Amino-4-methyl piperazine	Sitagliptin	Endocrine drugs (Antidiabetic)

Financial Performance

Catapharma Chemicals Pvt. Ltd.			
Financial indicators	**FY22**	**FY23**	**FY24**
Net Sales (Rs. Million)	847.5	1118.3	1092.0
Operating profit (EBITDA) (Rs. Million)	269.3	361.4	927.8
Operating margin (in %)	31.78%	32.32%	40.00%
Net profit (Rs. Million)	197.8	267.4	371.1
Net profit margin (in %)	23.35%	23.91%	33.98%
Total debt (Rs. Million)	0.00	0.00	0.00
Debt -to- Equity	0.00	0.00	0.00
Return on Capital Employed (ROCE) (in %)	29.42%	30.60%	31.65%
Interest coverage (in times)	2101.5	393.8	1201.6
Return on Equity (ROE) (in %)	21.70%	22.68%	23.94%
Asset Turnover Ratio (in times)	0.87	0.89	0.68

Source: Company disclosures, CareEdge Research; H1 FY25 financials not available yet

11. SPC Lifesciences

Overview: SPC Life Sciences, based in Gujarat, India, is involved in the development and manufacture of intermediates and APIs. The company focuses on pharmaceutical intermediates and bulk drugs across therapeutic segments, such as antidiabetic and cardiovascular. The company serves international and domestic operations both.

Representative Product Portfolio:

Intermediate	API	Therapeutic Category
2-(Diethylamino)ethyl Chloride Hydrochloride	Procaine, Pramocaine	CNS Drugs (Anesthetics - Local)
2-(2-Chloroethoxy) ethanol	Ertapenem	Anti-Infective Drugs (Antibiotics)
4-(2-Chloroethyl) piperidine	Piperazine derivatives	CNS Drugs (Psychiatry - Antipsychotics, Research)
4-(2-Chloroethyl) morpholine hydrochloride	Pyridostigmine	CNS Drugs (Neurology - Muscle Relaxants)
3-(Dimethylamino)propyl chloride hydrochloride	Pramipexole	CNS Drugs (Neurology - Parkinson's Disease)

Financial Performance

SPC Life Sciences Ltd.			
Financial indicators	**FY22**	**FY23**	**FY24**
Net Sales (Rs. Million)	1456.4	1548.8	1553.0

SPC Life Sciences Ltd.			
Financial indicators	**FY22**	**FY23**	**FY24**
Operating profit (EBITDA) (Rs. Million)	300.3	252.9	169.1
Operating margin (in %)	20.62%	16.33%	10.89%
Net profit (Rs. Million)	192.3	150.0	-18.3
Net profit margin (in %)	13.20%	9.68%	-1.18%
Total debt (Rs. Million)	419.3	937.7	1035.4
Debt -to- Equity	0.61	1.12	1.26
Return on Capital Employed (ROCE) (in %)	31.52%	16.99%	5.94%
Interest coverage (in times)	11.50	8.20	1.00
Return on Equity (ROE) (in %)	27.99%	17.91%	-2.23%
Asset Turnover Ratio (in times)	1.05	0.72	0.67

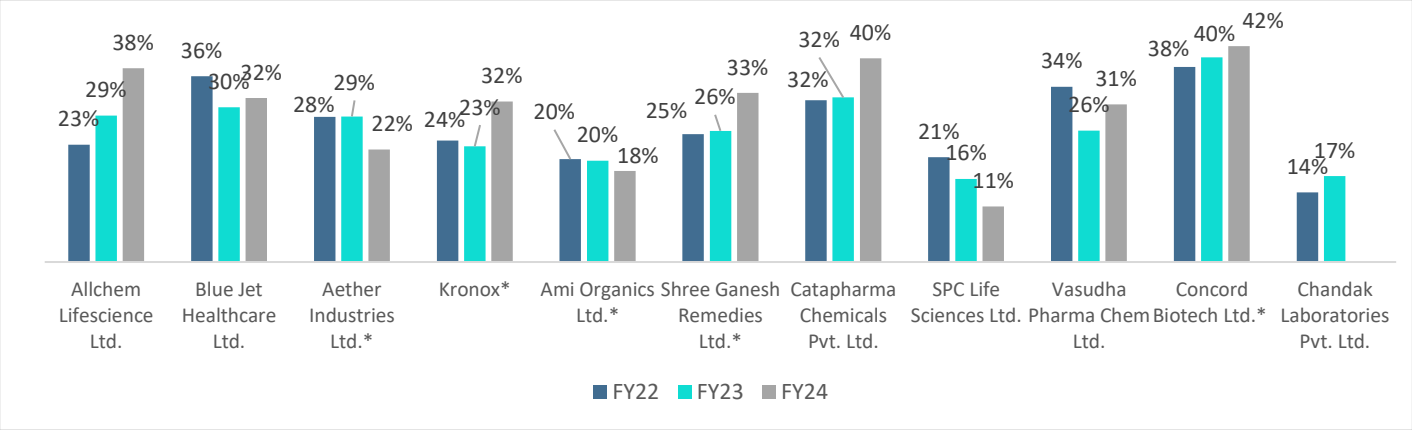
Source: Company disclosures, CareEdge Research; H1 FY25 financials not available yet

Benchmarking based on Financial Parameters

1. EBITDA Margin

The EBITDA margin tends to fluctuate across companies in the industry. While companies like Blue Jet Healthcare and Aether Industries have experienced notable fluctuations and reductions in margins, Allchem Lifesciences has shown consistent improvement from FY22 to FY24. The company posted a robust margin of 37% in FY24, continuing its upward trend. This margin growth is attributed to operational efficiencies and cost management initiatives.

Chart 56: Comparison of EBITDA Margin



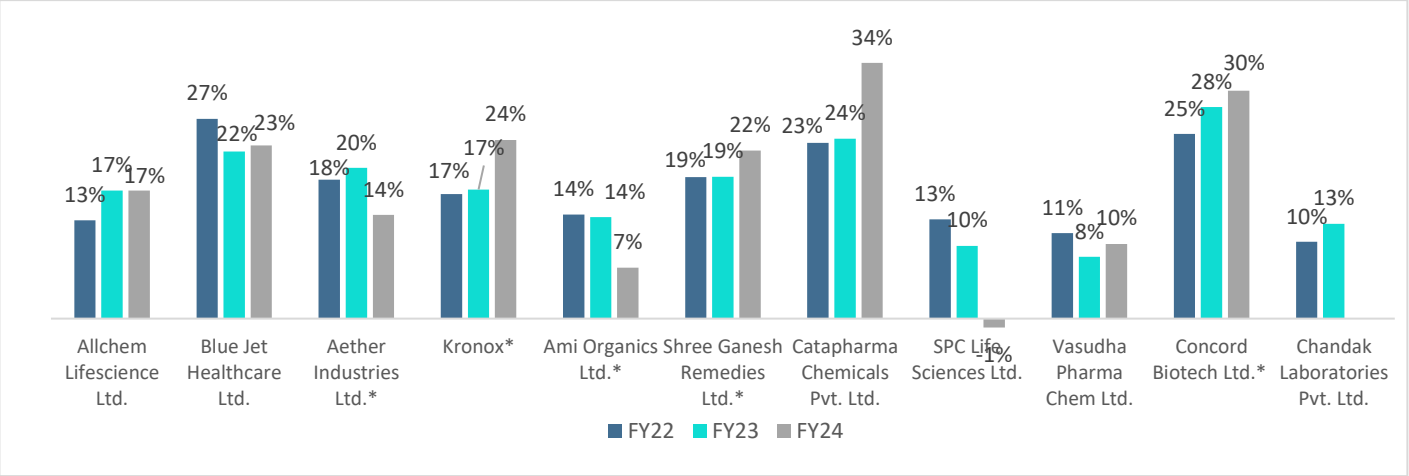
Source: Company disclosures, CareEdge Research

Note: * denotes consolidated financials considered; Financials for FY24 not available yet for Chandak Laboratories Pvt. Ltd.

2. Net Profit Margin

The overall performance across companies in terms of net profit margins reveals a mixed picture. While majority companies posted a decline in net profit margins in FY23, Aether Industries and Allchem Lifesciences posted growth in margins despite competitive environment. Although margins suppressed for these players in FY24 yet remains competitive.

Chart 57: Comparison of Net Profit Margin



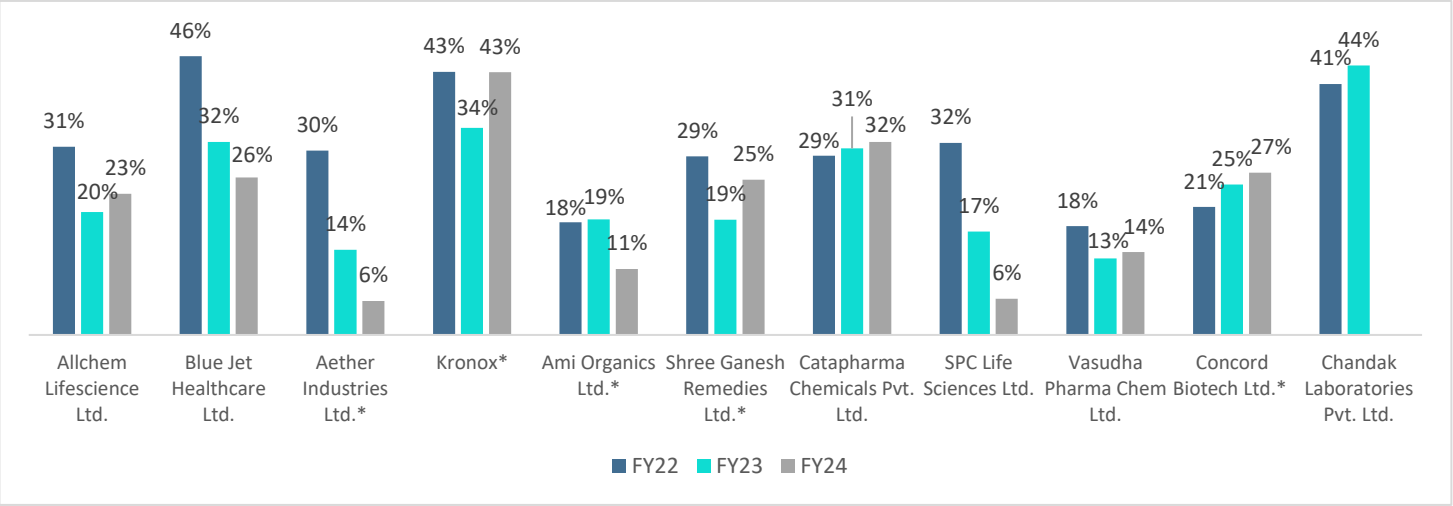
Source: Company disclosures, CareEdge Research

Note: * denotes consolidated financials; Financials for FY24 not available yet for Chandak Laboratories Pvt. Ltd.

3. Return on Capital Employed (ROCE)

Return on Capital Employed (ROCE) measures a company's efficiency at generating profits. The percentage for returns on capital employed remained higher for the majority of the companies in FY22. While companies such as Blue Jet Healthcare, Aether Industries and Kronox Lab Sciences have registered a steep decline in FY24, Allchem Lifesciences has maintained the consistency of posting decent returns. This highlights the company's effective capital management.

Chart 58: Comparison of Return of Capital Employed

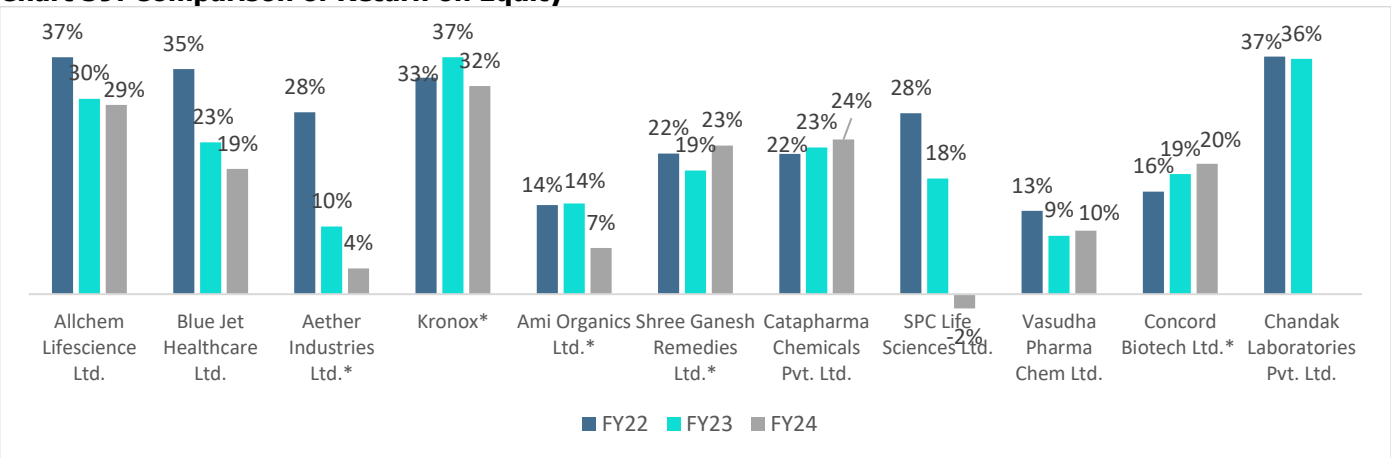


Source: Company disclosures, CareEdge Research; Note: * denotes consolidated financials; Financials for FY24 not available yet for Chandak Laboratories Pvt. Ltd.

4. Return on Equity

Return on Equity (ROE) assesses a company's efficiency in generating profits for its shareholders. Although ROE varies across companies due to differing capital structure, many industry players have experienced significant fluctuations. While Blue Jet Healthcare and Aether Industries have posted sharp decline; Kronox and Allchem Lifesciences have managed to post stable returns delivering moderate growth to its shareholders.

Chart 59: Comparison of Return on Equity

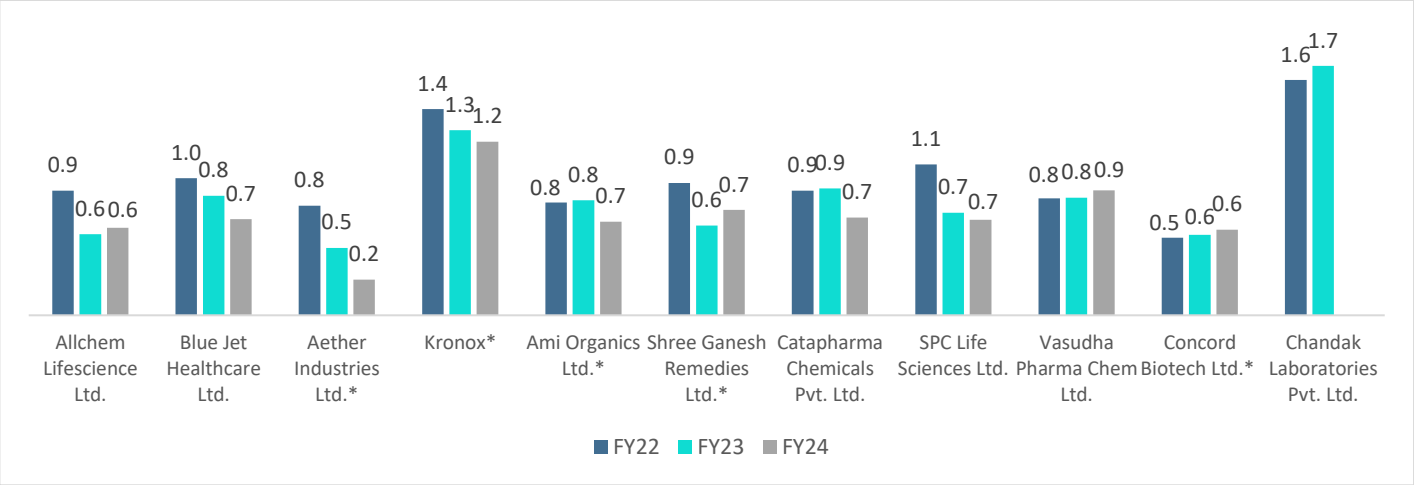


Source: Company disclosures, CareEdge Research; Note: * denotes consolidated financials; Financials for FY24 not available yet for Chandak Laboratories Pvt. Ltd.

5. Asset Turnover Ratio

The Asset Turnover Ratio reflects how efficiently a company utilizes its assets to generate revenue. While the ideal average for this ratio stands below 1 for the majority of the companies, multiple companies have posted a decline in asset turnover ratio over the past three years owing to the addition of a production block as per their expansion plans. While companies like Kronox Labsciences, Ather Industries posted decline in FY24, Allchem Lifesciences maintained consistency delivering steady performance.

Chart 60: Comparison of Asset Turnover Ratio (in times)

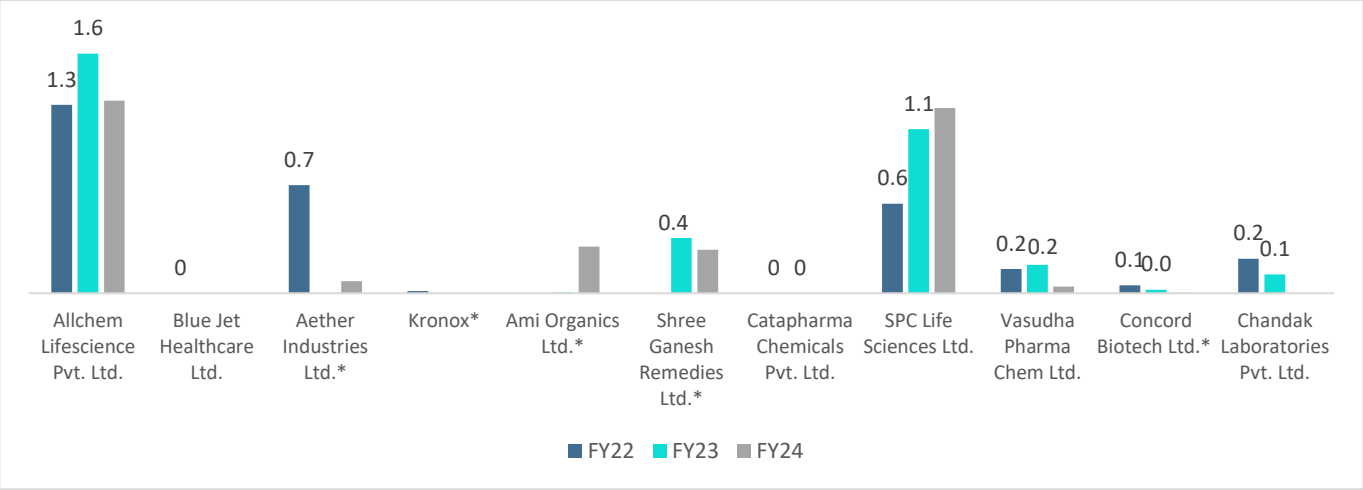


Source: Company disclosures, CareEdge Research
Note: * denotes consolidated financials; Financials for FY24 not available yet for Chandak Laboratories Pvt. Ltd.

6. Debt-Equity Ratio

This ratio measures the company's financial leverage. The companies have posted a wide range of D/E ratios owing to their respective Debt levels. While few companies do not own debt, companies such as SPC Lifesciences and Allchem Lifesciences have posted decent performance in its D/E ratio which implies the company's efficiency to manage its debt while maintaining growth.

Chart 61: Comparison of Debt-Equity Ratio



Source: Company disclosures, CareEdge Research
Note: * denotes consolidated financials; Financials for FY24 not available yet for Chandak Laboratories Pvt. Ltd

Contact

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About:

CareEdge is a knowledge-based analytical group offering services in Credit Ratings, Analytics, Consulting and Sustainability. Established in 1993, the parent company CARE Ratings Ltd (CareEdge Ratings) is India's second-largest rating agency, with a credible track record of rating companies across diverse sectors and holding leadership positions in high-growth sectors such as BFSI and Infra. The wholly owned subsidiaries of CareEdge Ratings are (I) CARE Analytics & Advisory Private Ltd previously known as CARE Risk Solutions Pvt Ltd, and (II) CARE ESG Ratings Ltd, previously known as CARE Advisory Research and Training Ltd. CareEdge Ratings' other international subsidiary entities include CARE Ratings Africa (Private) Limited in Mauritius, CARE Ratings South Africa (Pvt) Ltd, and CARE Ratings Nepal Limited.