AXIS CAPITAL

India's capex engine has restarted

Strategy | 17 Sep 2024

The major drivers of India's investment cycle are real estate, energy and infrastructure. Weakness in real estate and power generation drove the prolonged decline in India's investment-to-GDP ratio from 2012 to 2021. With the revival in housing construction and power generation, and the emergence of new sectors, we believe India's capex engine is restarting, and should run for several years.

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India Strategy

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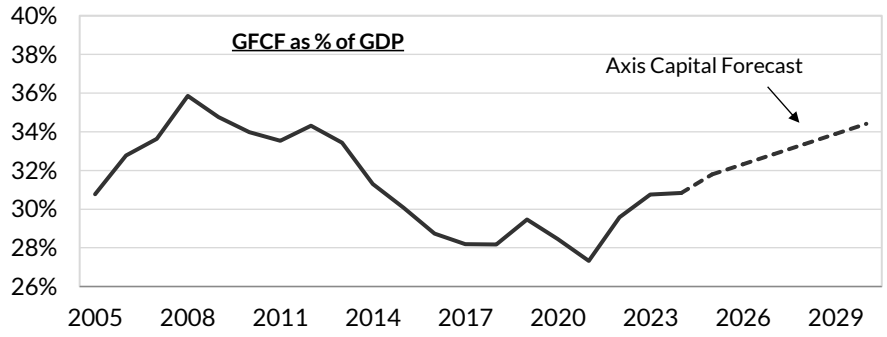
Strategy Report | September 17, 2024

The importance of real estate in India's economic cycles is not fully appreciated: it drove 5pp of the 7pp decline in investment-to-GDP ratio over 2012-21. This was aggravated by a 3pp+ fall in capex on machinery, mostly due to over-capacity in power generation, and slower demand for inputs to real estate (like steel, cement and machinery). Going forward, we expect growth to be investment-led, with the investment ratio rebounding to 34% by FY30 (+3.6pp above FY24), led by house construction, power and new investment areas. We remain overweight Industrials and construction inputs, as the near-term slowdown is due to unintended policy tightening and should reverse by 4Q.

Exhibit 1: GFCF as a share of GDP can rise to 34% in FY30E, up 3.6pp vs FY24



Source: MOSPI, Axis Capital Estimates

2012-21 investment slowdown was driven by real estate and power generation

Our deep dive reveals that real estate and power generation were the main drivers of the slowdown in investment activity between 2012 and 2021. Of the 7pp drop in investment-to-GDP, 5pp came from household spend on real estate and 3pp+ from corporate capex on machinery for utilities and manufacturing, offset by higher corporate capex on dwellings and IP/software. Much of the fall in manufacturing capex as % of GDP came from inputs to real estate: metals, construction materials and machinery. Urban real estate, which accounts for two-thirds of the value of construction, is prone to inventory cycles. Excessive power capacity addition between 2012 and 2016 necessitated a subsequent drop in capex.

Bottom-up sectoral trends support a pick-up in capital formation

Real estate has structural demand drivers: growing population, smaller household size, urbanization, more built-up area per capita and improving construction quality. Cyclically, too, lesser construction over 2012-21 means low inventories, implying strong growth in dwelling construction (commercial real estate should grow as well). This should boost demand for construction materials, and thus capex in steel, cement, machinery and others. We also forecast strong capex growth in power generation (Rs 19 tn over FY24-30E, including Rs 10 tn in renewables, ex. hydro), and in transmission and distribution capacity. We estimate that new investment areas like green hydrogen, defense, solar modules, robotics, data centers, and energy storage can add 60-80 bps to India's investment ratio.

Challenges to further growth acceleration can limit upside to capex

As firms invest based on future growth expectations, the overall pace of growth affects the investment-to-GDP ratio as well. While India's GDP growth forecasts have been upgraded meaningfully over the past few quarters, we do not think trend growth may rise beyond 7-7.5% (link). However, that should be strong enough to push the investment ratio to 34%, 3.6pp above FY24, driven by 1.8 pp improvement each for households and corporates. The near-term slowdown is driven by unintended fiscal and monetary tightening, and thus temporary. We are OW industrials where EPS upgrades can continue to justify elevated P/E. EPS upgrades likely in Utilities, Cement as well, but Metals face global headwinds.

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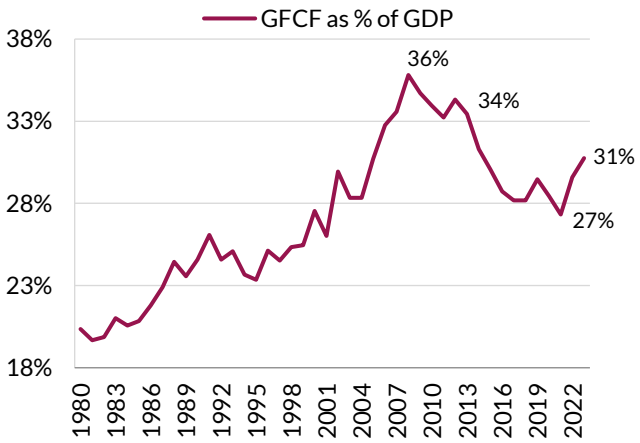
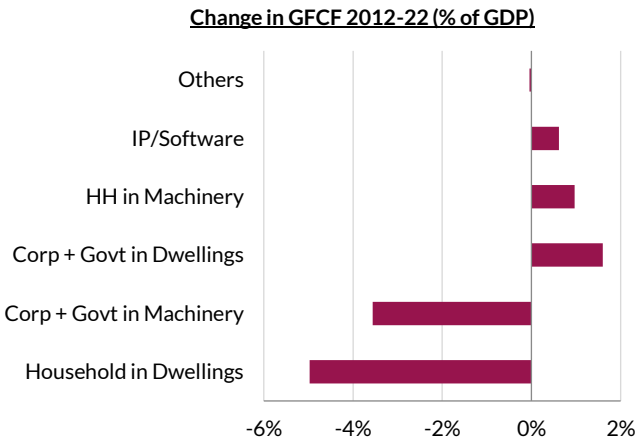
Key Exhibits

Exhibit 2: Capital formation slowed sharply over 2012-2022, falling 6pp of GDP



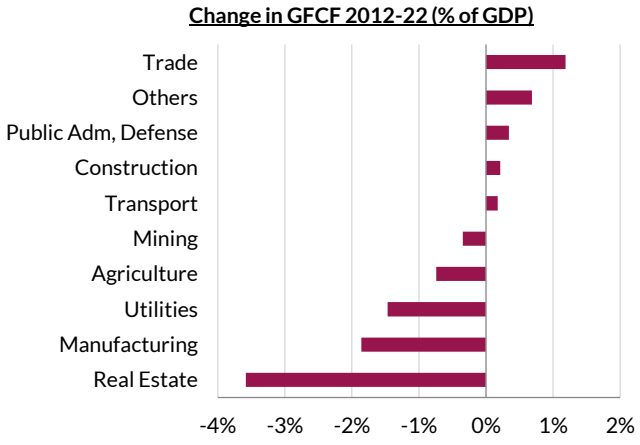
Source: MOSPI, Axis Capital

Exhibit 3: Prime Drivers of the slowdown: households' investment in dwellings; Corporates in Machinery



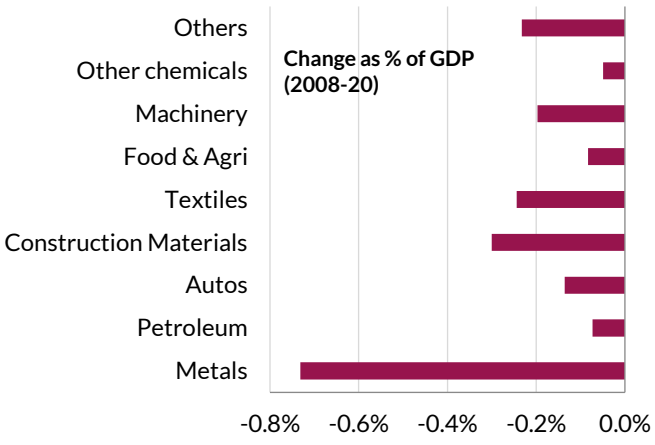
Source: MOSPI, Axis Capital

Exhibit 4: When seen by sector, the fall was steepest in real estate, utilities and manufacturing



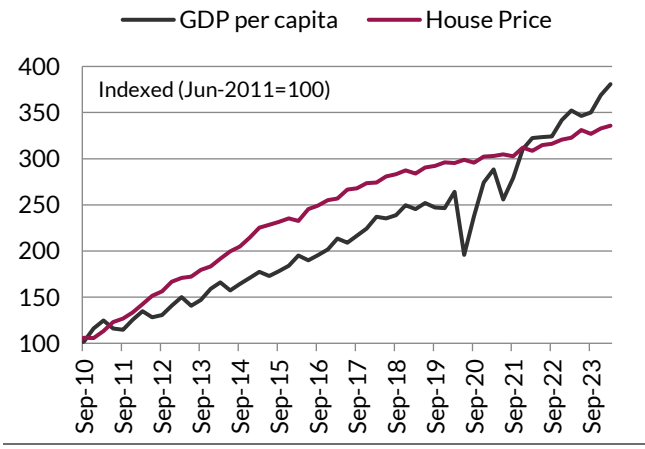
Source: MOSPI, Axis Capital

Exhibit 5: The fall in manufacturing capex as % of GDP was also in construction-linked sectors



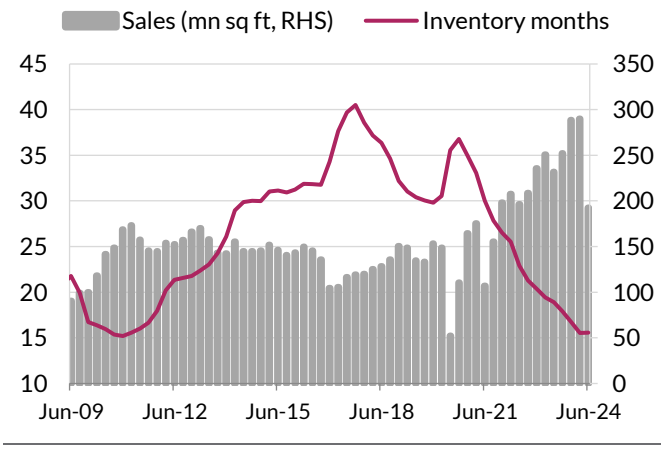
Source: MOSPI, Axis Capital

Exhibit 6: The real-estate cycle is turning: Income growth now faster than real-estate prices



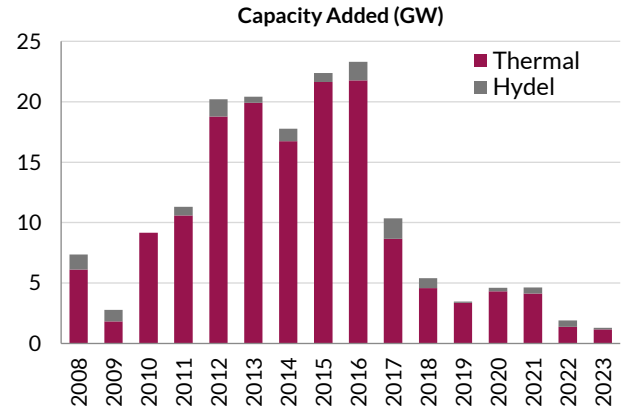
Source: RBI, CMIE, Axis Capital

Exhibit 7: Housing sales volumes up, and inventories now need to be rebuilt



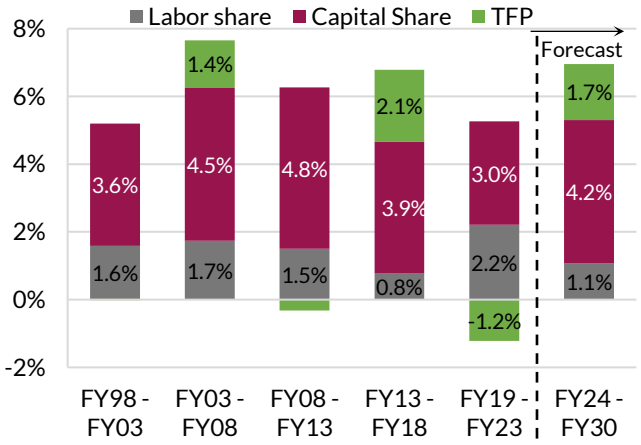
Source: Prop Equity, Axis Capital

Exhibit 8: There is now need for higher investment in power generation as well



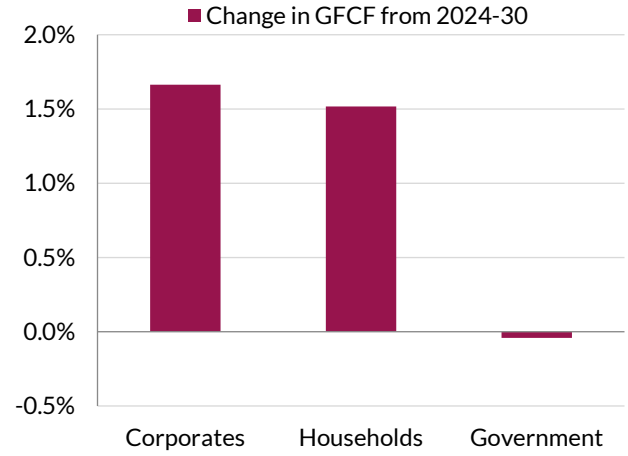
Source: CMIE, Axis Capital

Exhibit 9: FY24-30: 8% looks difficult; 7-7.5% more realistic



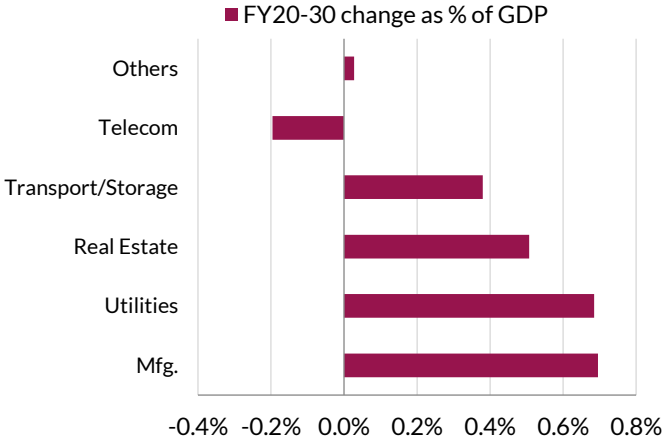
Source: KLEMS, Axis Capital

Exhibit 10: Investment to GDP can by rise 1.5pp of GDP for Households, and 1.7pp for Corporates (over 2024-30)



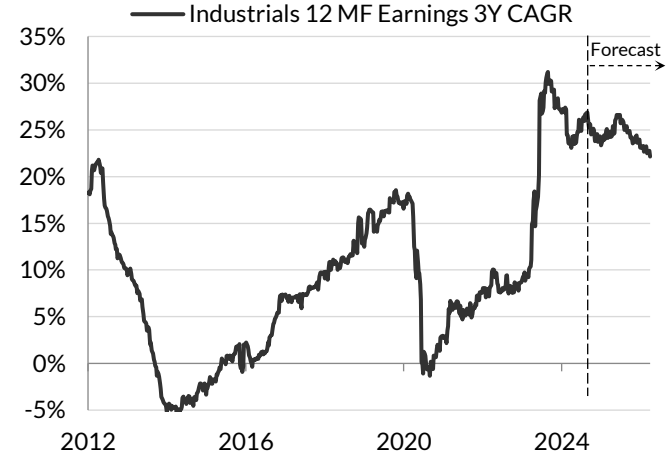
Source: MOSPI, Axis Capital

Exhibit 11: With Corporates, manufacturing and utilities are set to drive the pickup in investment



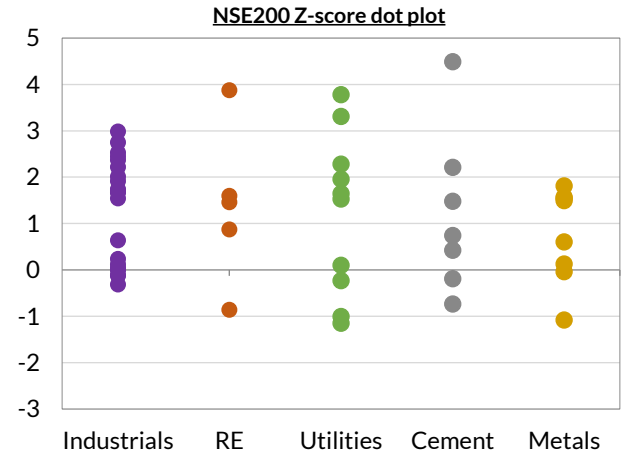
Source: MOSPI, Axis Capital

Exhibit 12: 3Y CAGR of Industrials EPS much higher than historical trends; sector has high EPS growth and upgrades



Source: MOSPI, Axis Capital

Exhibit 13: Higher earnings momentum can justify higher valuations for industrials



Source: MOSPI, Axis Capital

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India's capex engine has restarted

2012-21 investment slowdown was driven by real estate and power generation

India's investment-to-GDP ratio fell sharply from 34% in 2012 to 27% in 2021. Drilling along the three axes of spenders (corporates, households, government), investment-type (dwellings, machinery, IP), and purpose (e.g., transport, utilities) narrows the main drivers of the slowdown to: households' spending on real estate, and corporate capex on machinery for utilities and manufacturing. Corporate capex in dwellings and IP/software went up during this period.

Urban real estate is only a third of the total by volume, but it accounts for two-thirds of the value of construction, and is prone to inventory cycles, given the lumpy nature of supply, and investor activity exacerbating up and down moves. Manufacturing capex by corporates as a share of GDP fell across sectors but the most in metals, construction materials, and textiles. In utilities, excessive capacity additions between 2012 and 2016 necessitated a drop in capex thereafter.

Bottom-up sectoral trends support a pick-up in capital formation

We forecast capex for FY30 separately for households, corporates, and government. Sectoral trends need not be aligned to the macroeconomic cycle in India, either due to specific issues with the sector, e.g., generational change in standards for telecom, or demand-supply imbalances for power generation. Hence, we use a bottom-up approach for the major sectors.

Real estate has structural demand drivers: growing population, shrinking household size, rising urbanization, higher built-up area per capita, and improving construction quality. Cyclically, under-construction over 2012-19 means low housing inventories. Dwelling construction should thus see strong growth, supported by continuing steady expansion of commercial real estate.

This will also boost demand for construction materials, implying strong corporate capex in steel and cement – in prior real estate up cycles, their demand growth was 4-5 pp faster annually than in down cycles. This is visible in the expansion plans of major steel and cement companies.

We expect strong corporate capex in the energy ecosystem as well, with Rs 19 tn of power generation capex over FY24-30E, including Rs 10 tn on renewables (ex. hydro). If power demand growth is faster than the 6% annual growth we have estimated (based on a 7% GDP growth), capacity growth is likely to be faster. Power transmission capex should also grow, given the 5% CAGR expansion in the transmission line network and 10% CAGR growth in substation capacity.

New investment areas like green hydrogen, defense, solar modules, robotics, data centers, and energy storage are likely to add 60-80 bps to India's investment ratio. With strong growth in manufacturing and falling import dependency, demand for capital goods should grow as well.

Challenges to further growth acceleration can limit upside to capex

Sector-specific considerations matter, but the pace of growth affects the investment-to-GDP ratio as well, given that firms invest based on future growth expectations. Despite meaningful upgrades to India's growth forecasts since Jan-2023, we do not think trend-growth expectations are likely to rise beyond 7-7.5%. Versus FY03-08 (the only time five-year growth CAGR neared 8%), while faster productivity growth can offset weaker growth in labor, capital formation may be slower, given weaker global demand, China's over-capacity, and slower foreign capital inflow.

At the same time, the near-term slowdown is due to unintended monetary and fiscal (due to election-related slowdown in central and state government spending) tightening. We expect the investment ratio to rise 3.6pp to 34% FY24-30, with the ratios for households and corporates rising to 14.6% and 15.8%, respectively, with the government share unchanged.

We expect earnings upgrades to industrials to resume (3Y CAGR already strongest since FY12), and cuts for construction inputs like cement to reverse. Improving visibility on utilities' EPS should keep valuation supported. Earnings in real estate should be supported, but multiples are stretched. On the other hand, sustained global headwinds for metals keep us cautious.

Financial Summary

Exhibit 14: Financial summary of the covered stocks within sectors that are impacted by rebound in capex activities

Company	Mcap (INR bn)	Rating	TP	Upside	z-score	Earnings change (3M)		Earnings change (1Y)		Earnings growth	
						FY25	FY26	FY25	FY26	FY25	FY26
Industrials											
Larsen & Toubro	4,968	BUY	4,390	22%	1.9	-2%	-2%	-4%	2%	20%	24%
Adani Ports	3,137	BUY	1,690	16%	2.4	3%	2%	11%	8%	24%	16%
A B B	1,628	BUY	9,340	22%	1.7	5%	5%	41%	49%	18%	21%
Container Corpn.	586	BUY	1,184	23%	1.7	-7%	-7%	-9%	-5%	13%	21%
Craftsman Auto	151	BUY	6,300	-1%		0%	9%	-23%	-12%	8%	38%
Siemens	2,390	ADD	7,335	9%	2.4	2%	0%	21%	12%	16%	22%
Polycab India	1,016	ADD	7,000	4%	1.6	-2%	4%	7%	13%	20%	25%
Voltas	636	ADD	1,650	-14%	2.2	12%	9%	15%	19%	126%	27%
KEI Industries	401	ADD	5,100	15%		0%	2%	-1%	-3%	24%	24%
Blue Star	388	ADD	1,720	-9%		8%	6%	27%	33%	52%	25%
Delhivery	306	ADD	450	9%	0.0	1109%	36%	-198%	62%	-193%	101%
V-Guard	200	ADD	490	6%		6%	6%	-1%	8%	38%	27%
R Kabel	187	ADD	1,950	18%		-9%	-6%			23%	38%
PNC Infratech	118	ADD	558	22%		0%	-10%	12%	-3%	30%	-9%
H.G. Infra Engg.	102	ADD	1,770	13%		2%	7%	-3%	15%	12%	21%
KNR Construct.	99	ADD	375	6%		0%	-3%	-10%	0%	3%	11%
Prince Pipes	64	ADD	675	17%		-11%	-6%	-33%	-19%	15%	34%
Havells India	1,246	REDUCE	1,850	-7%	1.7	2%	1%	-9%	-1%	37%	23%
Ashok Leyland	721	REDUCE	225	-8%	0.1	4%	8%	9%	26%	27%	12%
Astral	520	REDUCE	1,978	2%	-0.1	-8%	-5%	-17%	-10%	19%	29%
Kajaria Ceramics	231	REDUCE	1,342	-8%		-2%	0%	-21%	-18%	10%	23%
G R Infraproject	157	REDUCE	1,600	-1%		5%	3%	-24%	-15%	8%	19%
Bharat Electron	2,119	SELL	230	-21%		5%	6%	19%	30%	27%	18%
B H E L	920	SELL	133	-49%	2.0	13%	-2%	-14%	25%	206%	131%
Utilities											
CESC	262	BUY	221	12%		-7%	-5%	-2%	7%	11%	11%
NTPC	3,892	ADD	412	3%	3.3	1%	2%	2%	3%	14%	9%
Tata Power Co.	1,412	ADD	500	13%	2.3	-4%	-4%	13%	25%	14%	17%
JSW Energy	1,340	ADD	750	-2%	2.0	0%	4%	26%	34%	54%	28%
Power Grid Corpn	3,137	REDUCE	268	-21%	-1.2	1%	2%	2%	4%	5%	6%
Torrent Power	847	SELL	1,130	-36%	1.5	0%	2%	2%	24%	20%	12%
Metals											
Hindalco Inds.	1,506	BUY	770	14%	1.6	-1%	-1%	12%	15%	33%	7%
Jindal Steel	1,043	REDUCE	900	-13%	0.0	-6%	-2%	-14%	-2%	13%	42%
JSW Steel	2,326	SELL	750	-21%	1.8	-14%	-6%	-26%	-6%	17%	39%
Tata Steel	1,916	SELL	135	-12%	0.6	-12%	-4%	-30%	-7%	78%	53%
S A I L	546	SELL	105	-21%	0.1	-10%	-4%	-23%	-4%	67%	28%
Cement											
UltraTech Cem.	3,377	ADD	12,400	6%	1.5	-6%	-5%	-11%	-1%	16%	28%
Ambuja Cements	1,551	ADD	725	15%	0.7	-11%	-2%	1%	28%	14%	41%
ACC	473	ADD	2,750	9%	-0.7	-8%	-3%	1%	6%	7%	23%
J K Cements	368	ADD	4,800	1%		-9%	-5%	-5%	-2%	6%	27%
Dalmia Bharat	357	ADD	2,000	5%	-0.2	-5%	-6%	-28%	-30%	14%	27%
Shree Cement	934	REDUCE	24,600	-5%	0.4	-27%	-16%	-23%	-14%	-10%	28%
The Ramco Cement	201	REDUCE	775	-9%	2.2	-18%	-9%	-41%	-27%	-1%	44%

Source: Refinitiv, Bloomberg, Axis Capital; Priced as on 16, Sep 2024

Investment slowdown was driven by real estate and power generation

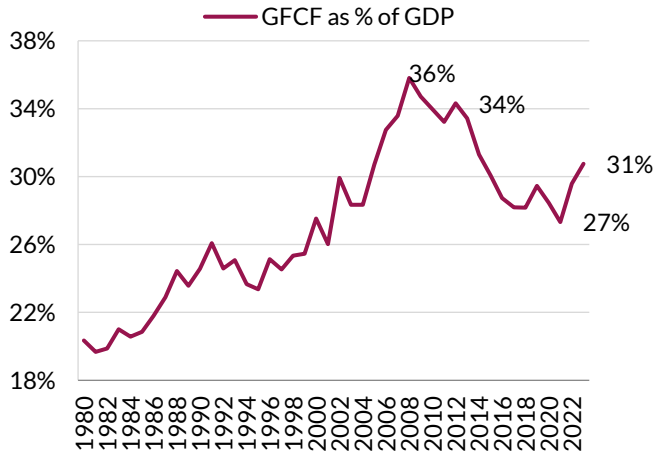
Investment share of GDP fell 5pp between 2008 and 2023

Nearly all the decline in GFCF from 2008 to 2023 came from corporate capex which declined from 20% of GDP in 2008 to 14% in 2023.

India's gross fixed capital formation (GFCF – a measure of investment) as a share of GDP, rose 16 pp between 1980 and 2008 but has fallen 5 pp thereafter (Exhibit 15:). To better understand the underlying trends, we have analyzed trends in the three major categories: corporates, government, and households. Public sector data is split into government and public sector corporations – the latter are clubbed with private corporate data to form the subset 'corporate'. 'Household' is normally the residual and includes not just households but also informal sector (in these, the balance sheets of the household and the business are often not separable).

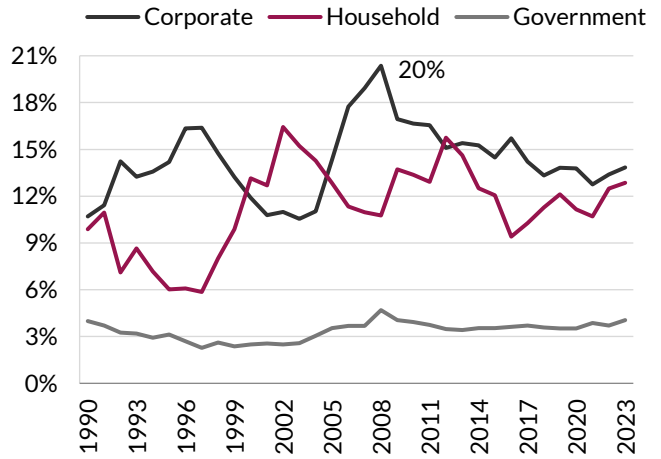
Compared to 2008, nearly all the decline occurred in the corporate capex share of GDP, which fell 6 pp to 14% of GDP by 2023 (Exhibit 16:): Of this, 5 pp occurred between 2008 and 2012, and 1 pp thereafter. The household capex as 13% of GDP in 2022 was at the same level as in 2008 but down from the 16% peak seen in 2012. The government capex ratio tends to be less volatile and has remained in the 3-5% of GDP range for the past two decades.

Exhibit 15: Capital formation share of GDP is at 2005 levels



Source: MOSPI, Axis Capital

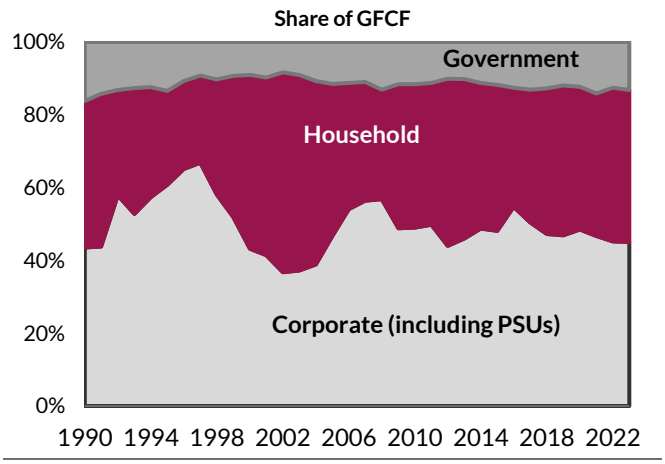
Exhibit 16: Corporate capex as % of GDP fell 5 pp 2008-12



Source: MOSPI, Axis Capital

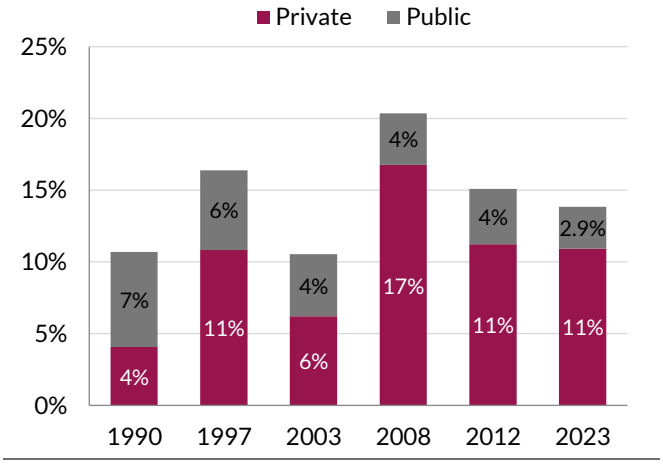
Direct government share in any given year is only ~10% of the overall GFCF, whereas ~90% of the capex is by corporates and households (Exhibit 17:). Further, over the past three decades, the relative shares of private and public sectors within corporates have interchanged: the capex of public sector undertakings (PSUs) was 7% of GDP in 1990 and has now shrunk to 2.9%, while the share of private corporations has increased from 4% of GDP to 11% (Exhibit 17:).

Exhibit 17: Govt share of GFCF is generally less than 10%



Source: MOSPI, Axis Capital

Exhibit 18: Private firms now dominate corporate capex

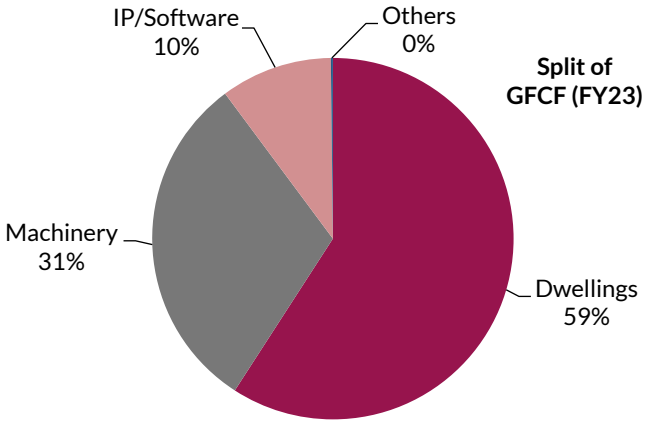


Source: MOSPI, Axis Capital

Investments in both dwellings and machinery slowed down in 2012-22

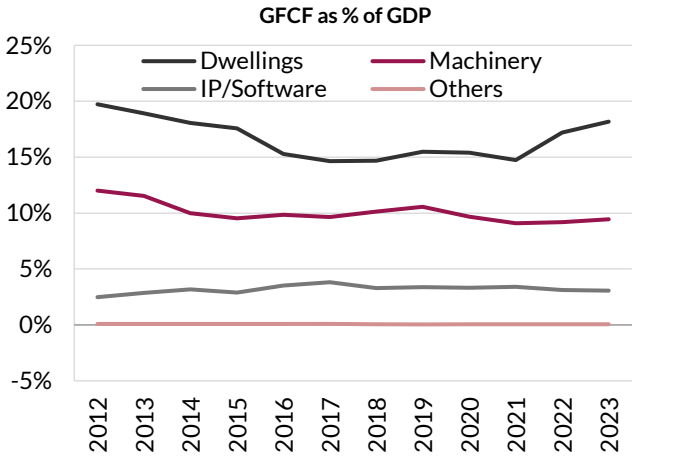
GFCF has three main parts: (1) dwellings – investments in construction of new buildings and infrastructure, (2) machinery – investments in machines and equipment, and (3) IP/software – investments in intellectual property. As of FY23, 59% of India's GFCF was in dwellings (Exhibit 19:) and 31% in machinery. GFCF in both fell ~2-3 pp of GDP over 2012-23, partially offset by a 1 pp increase in investments in IP/software (Exhibit 20:). Dwellings started to pick up in 2022 and 2023, but investments in machinery have not seen any meaningful improvement.

Exhibit 19: Dwellings and machinery are ~90% of India's GFCF



Source: MOSPI, Axis Capital

Exhibit 20: Dwellings & machinery fell as % of GDP 2012-22



Source: MOSPI, Axis Capital

Within corporates, the steepest declines were in manufacturing and utilities, offset by telecom and real estate.

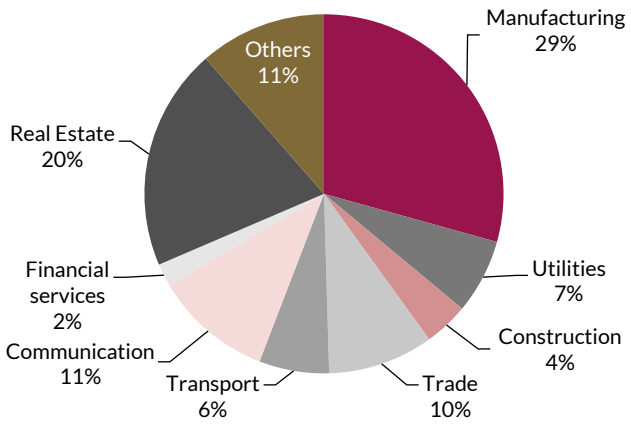
Private corporates: Manufacturing and utilities led the slowdown after 2012

Manufacturing and real estate (commercial real estate as well as residential housing constructed but not sold) accounted for nearly half of the private corporate GFCF in 2022 (Exhibit 21:). The sectoral split of GFCF is not available for the period between 2008 and 2012 in the CSO data.

Between 2012 and 2022, when private corporate capex as a % of GDP declined 1.1 pp (Exhibit 22:), the steepest declines were in manufacturing (-1.6 pp), utilities (-1.0 pp), and construction (-0.4 pp), offset by an increase in telecom (4G/5G investments) and real estate.

Exhibit 21: Manufacturing/real estate dominate corp. GFCF

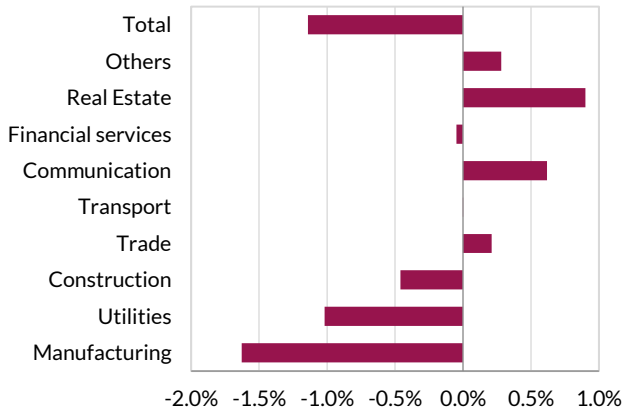
Private corporate investment 2022 (% of Total, Rs24tn)



Source: MOSPI, Axis Capital

Exhibit 22: Manufacturing and utilities saw the steepest fall

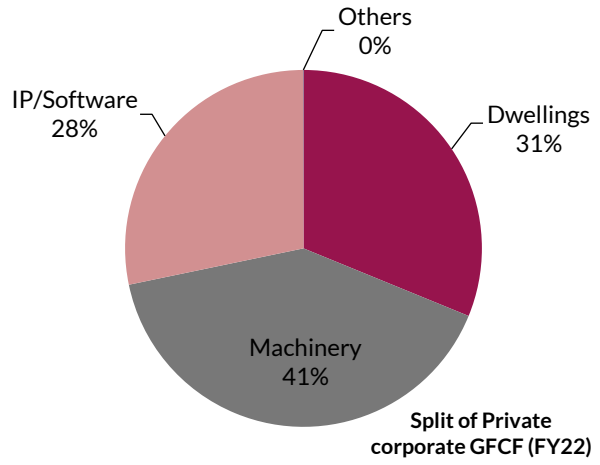
Change in private corporate investment 2012-22 (% of GDP)



Source: MOSPI, Axis Capital

For private corporates, 41% of GFCF is in machinery and 28% in IP/software (Exhibit 23:). Most of the decline in the private corporate capex share of GDP occurred through machinery, especially in manufacturing (Exhibit 24:) investments in IP/software and dwellings increased as a % of GDP. Corporate investment in machinery fell nearly 2.3 pp of GDP between 2012 and 2022.

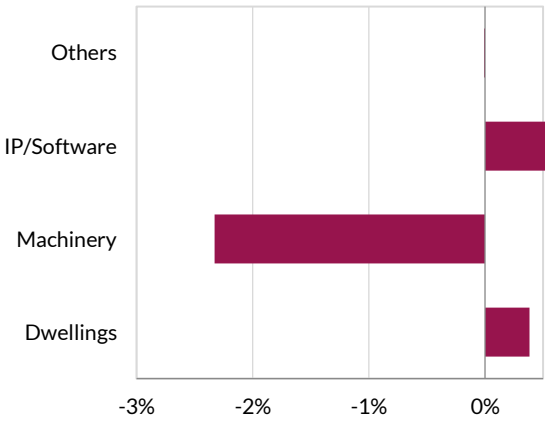
Exhibit 23: Corporate capex split relatively evenly



Source: MOSPI, Axis Capital

Exhibit 24: Decline in private corporate capex in machinery

Change in Pvt corporate GFCF 2012-22 (% of GDP)

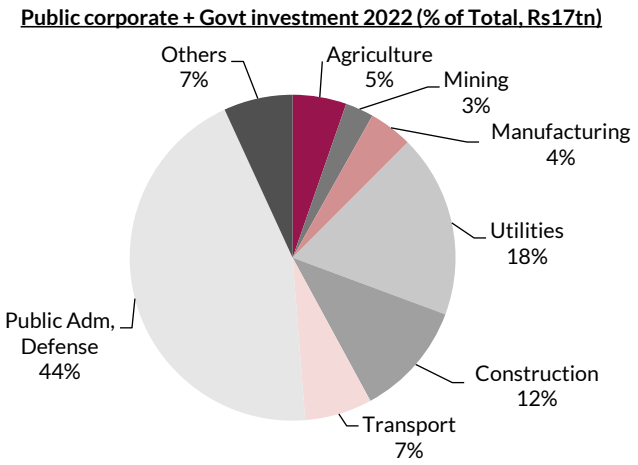


Source: MOSPI, Axis Capital

Public sector: Utilities, mining, and manufacturing drove the slowdown

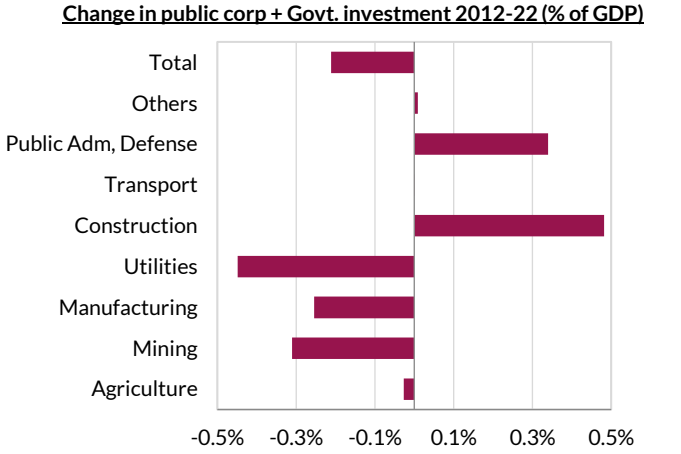
CSO's data combines public sector corporate data with that from the government, providing public sector aggregates. These are dominated by public administration and defense, utilities, and construction, which together account for 75% of the total investment by the public sector (Exhibit 25:). Between 2012 and 2022, stronger construction, public administration, and defense were offset by weakness in utilities, mining, and manufacturing (Exhibit 26:). Of these, the most impactful was the sharp slowdown in power generation capacity expansion.

Exhibit 25: Public GFCF dominated by defence/utilities



Source: MOSPI, Axis Capital

Exhibit 26: High defense + construction offset lower mfg.

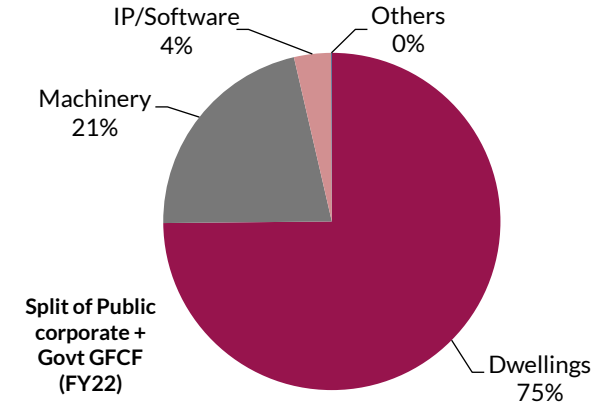


Source: MOSPI, Axis Capital

Three-fourths of public sector capex is in dwellings, buildings, and structures (construction of offices, schools, roads, rail tracks and hospitals, among others) and only 21% goes towards machinery (Exhibit 27:). Investments in dwellings and structures continued to grow, evident from the 1.1 pp of GDP expansion between 2012 and 2022.

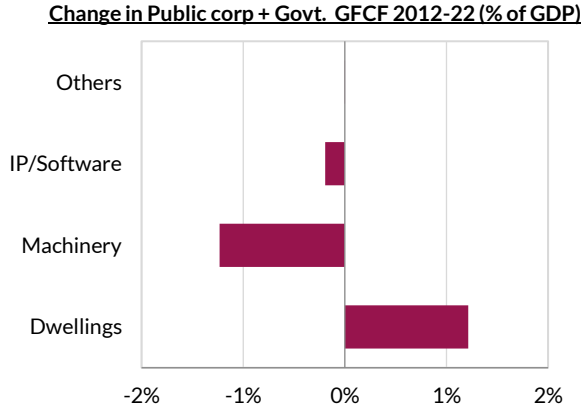
On the other hand, public sector spending on machinery declined 100 bp of GDP between 2012-2022 (Exhibit 28:). The Rs 3.6tn in public sector investment in machinery in FY22 was split between general government and public corporations in a 40-60 ratio. Much of the decline between 2012 and 2022, as per our analysis, was in power generation and in metals and mining, as PSUs responded to low plant-load factors by cutting capex, and overcapacity in steel and delayed capex by steel players obviated new projects.

Exhibit 27: Public sector GFCF dominated by dwellings



Source: MOSPI, Axis Capital

Exhibit 28: Rise in dwellings offset weak machinery in 2012-22



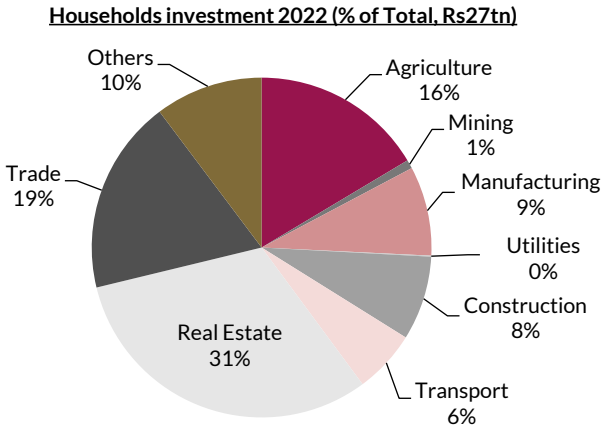
Source: MOSPI, Axis Capital

Household sector: Real estate was the primary catalyst for the slowdown

All the decline in household GFCF over 2012-22 came from real estate: as much as 4.2% of GDP.

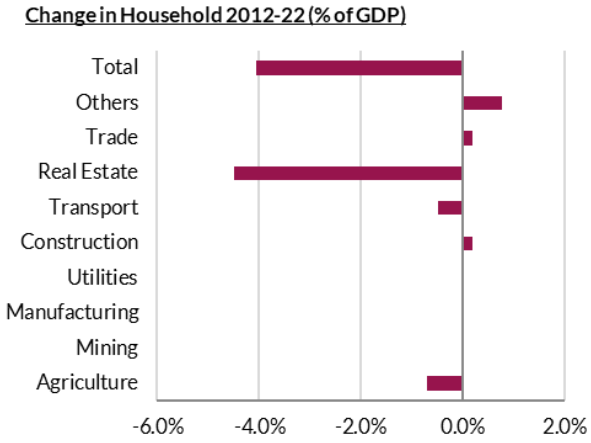
Household GFCF is concentrated mostly in real estate, trade, and agriculture, which together accounted for two-thirds of household investments (Exhibit 29:) in FY22. Almost all the decline in household GFCF in the 2012-22 period came from real estate: as much as 4.2% of GDP, with its share dropping from 52% of overall household investments in 2012 to just 31% in 2022 (Exhibit 30:). This has now started to reverse, helped by both structural drivers (growing number of households, increasing built-up area/capita, and rising construction costs per square foot) and cyclical factors (lower housing inventory and improvement in affordability).

Exhibit 29: HH GFCF dominated by real estate, trade, agri



Source: MOSPI, Axis Capital

Exhibit 30: All the drag in 2012-22 came from real estate

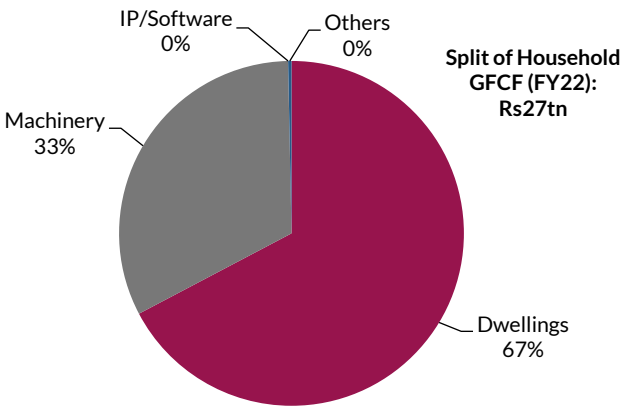


Source: MOSPI, Axis Capital

Interestingly, investments in agriculture as % of GDP also fell 0.7 pp, most of it in the form of dwellings – most agricultural enterprises are informal in nature and are accounted for in the household sector. So are small manufacturing units.

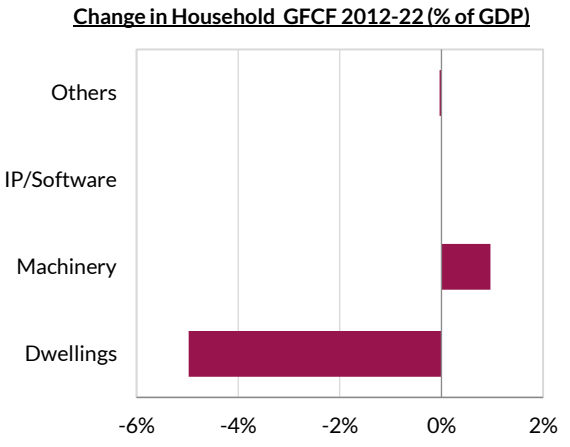
Two-thirds of household investments were in dwellings in 2022, but this ratio was 82% in 2012: these are investments in residential housing as well as shops/commercial spaces and factories for household enterprises (Exhibit 31:). In the 2012-22 period, household investment in dwellings as % of GDP fell 5 pp (Exhibit 32:). The drag came not only from the decline in residential housing construction, but also from weak investment in buildings, particularly in agriculture and manufacturing. Machinery investments by the informal sector as % of GDP increased nearly 1 pp, likely due to growing sales of autos, continuing farm automation, as well as investments by smaller manufacturers.

Exhibit 31: Public sector GFCF dominated by dwellings



Source: MOSPI, Axis Capital

Exhibit 32: Rise in dwellings offset weak machinery in 2012-22



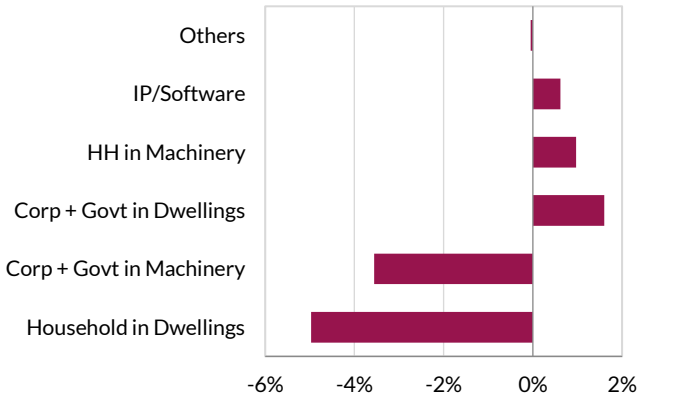
Source: MOSPI, Axis Capital

Summary: Main cuts in real estate & corporate capex in utilities/manufacturing

Thus we find that household sector spending on residential real estate and corporate spending on machinery for utilities and manufacturing were the main drivers of the slowdown between 2012 and 2022 (Exhibit 31:, Exhibit 32:): dwelling construction by corporates and machinery investments by households improved, as did the rise in investments in IP/software.

Exhibit 33: HH dwellings, corporate machinery main culprits

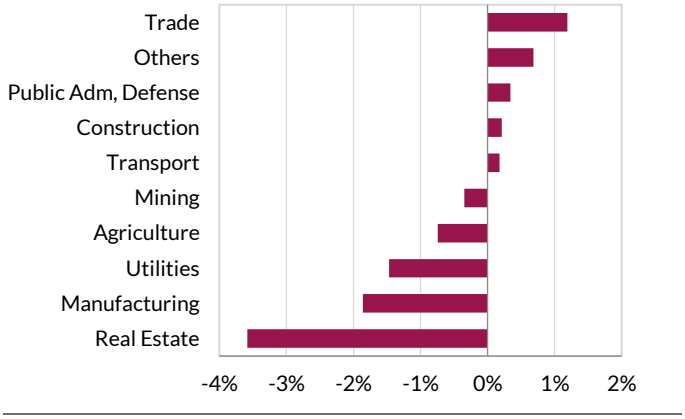
Change in GFCF 2012-22 (% of GDP)



Source: MOSPI, Axis Capital

Exhibit 34: Sectors: Real estate, utilities, and manufacturing

Change in GFCF 2012-22 (% of GDP)



Source: MOSPI, Axis Capital

2008-12: Manufacturing and communication capex drove the decline

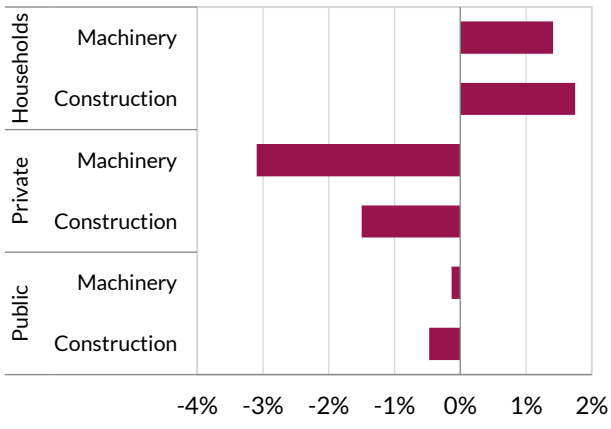
The new GDP series, which provides a granular breakdown enabling the above analysis, starts only in 2012. However, GFCF to GDP peaked in 2008 and already corrected by 2 pp by 2012 (Exhibit 15:), with a 4.6 pp fall in corporate GFCF (Exhibit 16:) offset by an increase in household investments (the real estate cycle was strong).

The older 2005-12 GDP series does not have the same granularity of data, so we first identify segments seeing large changes between 2008 and 2012. Investment fell primarily in private corporations (Exhibit 25:), with both machinery and construction (this likely stands for dwellings in the new series) falling meaningfully as a % of GDP. Household investments, on the other hand, picked up, for both construction and machinery. Public sector capex was unchanged.

Within private corporates, manufacturing and telecom saw the steepest declines (Exhibit 36:). For households (this includes the informal sector), increase in investments in retail/wholesale trade, real estate, other services, and agriculture offset the decline in manufacturing.

Exhibit 35: Private machinery capex led the decline in 2008-12

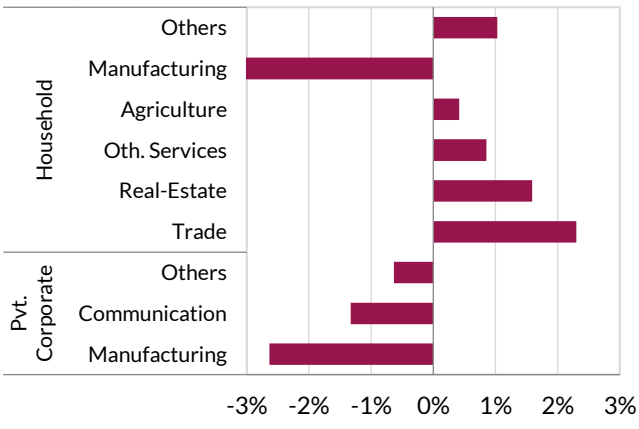
Change in GFCF (2008-12, a % of GDP)



Source: MOSPI, Axis Capital

Exhibit 36: Decline primarily in manufacturing/communication

Change in GFCF 2008-12(% of GDP)



Source: MOSPI, Axis Capital

Telecom capex declined due to excess competition between various licensees hurting cash flows, as also the investigations into the 3G spectrum allocation of 2008.

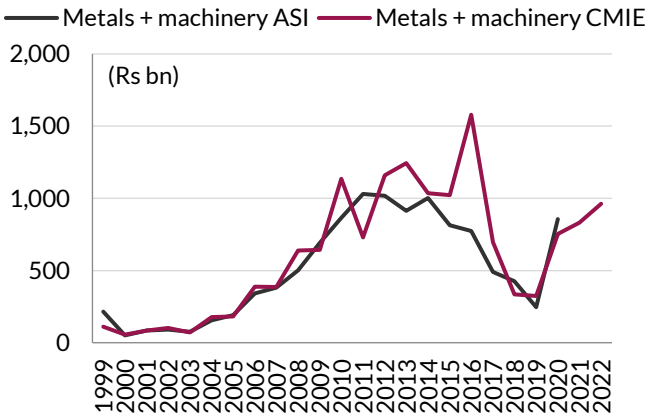
In the 2008-12 period, where GFCF declined by 2 pp of GDP, corporate GFCF fell 4.6 pp, but was offset by a stronger real estate cycle.

To understand the decline in manufacturing capex, we use CMIE's dataset of 26,000 companies. This series is not very consistent with the CSO data, and the total capex is only a part of that reported by CSO. It is also possible that this data suffers from some classification issues, especially when classifying capex by conglomerates. However, in the absence of better aggregates, the time series can provide insights through like-for-like comparisons.

Manufacturing: Metals, cement, textiles, and machinery saw sharp slowdown

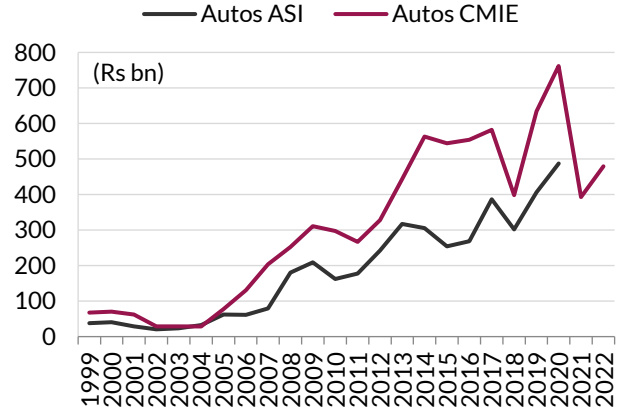
CMIE data permits deep-dive for the 2012-22 period too, as CSO does not publish data with such granularity. The public/private-split is not given, but as broad trends in both sectors tend to be similar, corporate aggregate can suffice. The CMIE data appears consistent with the Annual Survey of Industries for some sectors (e.g. metals: Exhibit 37:) but differ elsewhere (e.g. autos: Exhibit 38:).

Exhibit 37: Sectors like metals sync well for CMIE and ASI



Source: MOSPI, Axis Capital

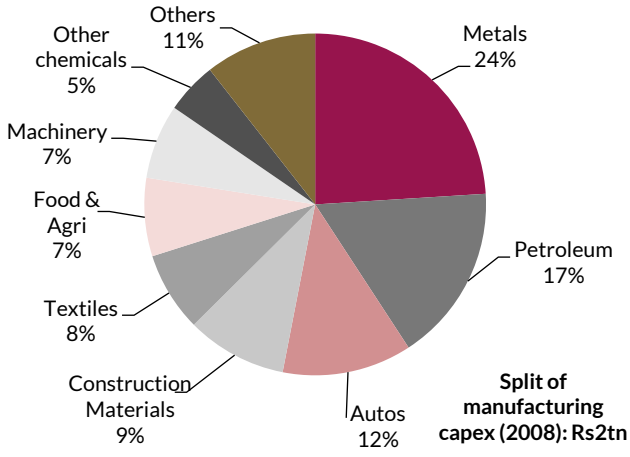
Exhibit 38: For autos, CMIE data is higher, but trend similar



Source: MOSPI, Axis Capital

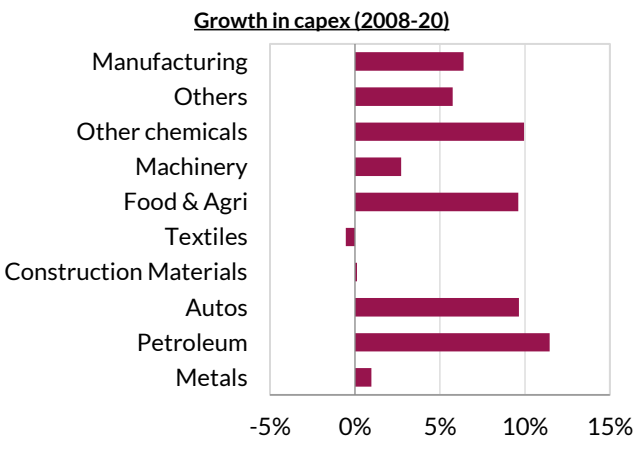
In 2008, metals, petroleum, autos, construction materials, and textiles together accounted for around 72% of manufacturing capex, as seen in the CMIE data set (Exhibit 38:, Exhibit 39:). In the 2008 to 2020 period, the annualized growth in capex was only 6.4% (Exhibit 40:), whereas nominal GDP grew 12.5% annually. The capex growth in metals, construction materials and textiles was nearly zero. Only petroleum saw capex growth in the double-digits, and 'other chemicals', food and agriculture, and autos saw annualized growth near 10%.

Exhibit 39: Sector-wise split of manufacturing capex in 2008



Source: CMIE, Axis Capital

Exhibit 40: Metals and textiles saw weakest capex growth



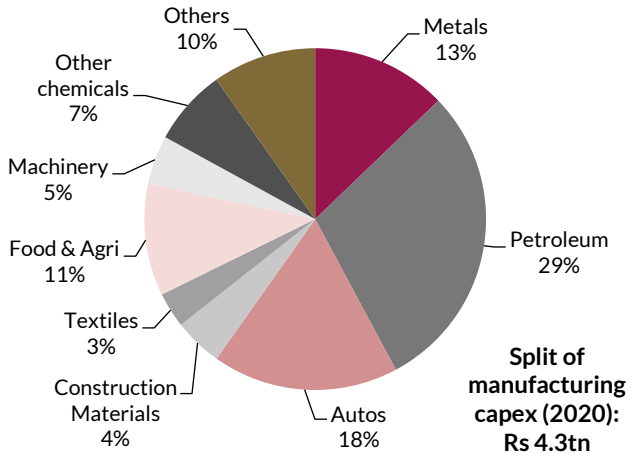
Source: CMIE, Axis Capital

Within manufacturing, metals, cement, textiles, and machinery saw sharp slowdowns in 2008-20.

The sector-wise split of manufacturing capex has therefore changed meaningfully: metals, construction materials, and textiles have become much less important, with their share halving from 40%-plus to less than 20% (Exhibit 31:). On the other hand, the share of petroleum and autos has risen significantly, from around 29% to nearly half of all manufacturing capex.

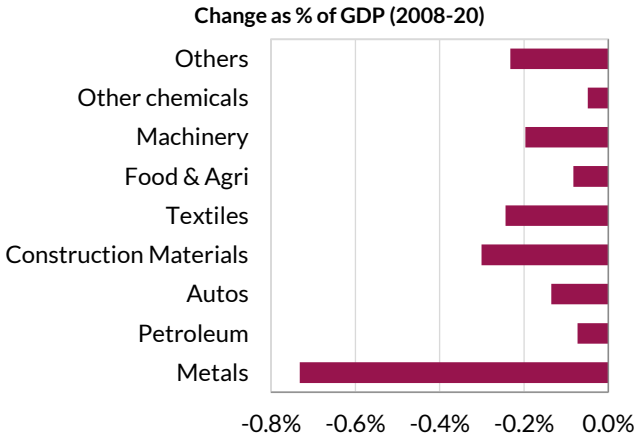
As capex lagged nominal GDP growth between 2008 and 2020, as a % of GDP, it fell 2 pp, from 4.2% to 2.2% (Exhibit 42:). The decline was broad-based across sectors, but metals, construction materials, textiles, and machinery had the most significant declines. Sector-specific drivers of this slowdown are discussed in detail in the second section of this report.

Exhibit 41: Sector-wise split of manufacturing capex in 2020



Source: CMIE, Axis Capital

Exhibit 42: Metals dominated manufacturing capex in 2012

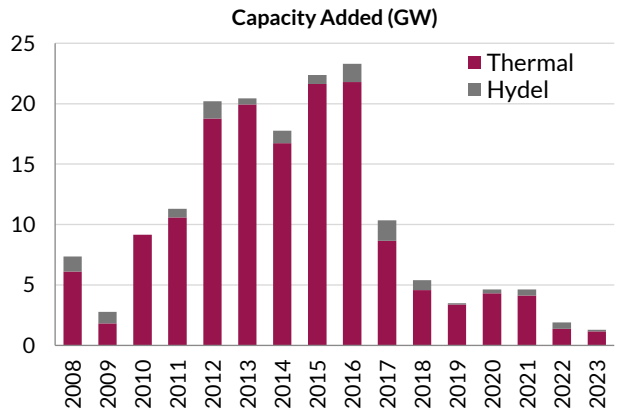


Source: CMIE, Axis Capital

Utilities: Excessive capacity addition necessitated a drop in capex

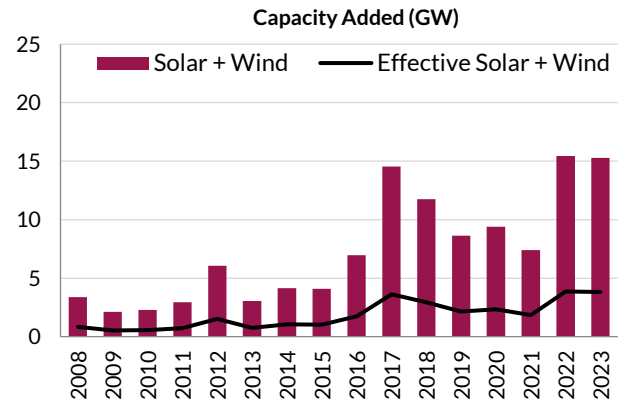
Between 2012 and 2016, India added 20-25 GW of power generation capacity every year, well more than the growth in demand. Of this, the majority was thermal, with a few GW of hydro power (Exhibit 32:). As power plants struggled for utilization and coal mining was disrupted due to legal issues, there has been a sharp slowdown in new capacity addition in recent years. The addition of renewable power generation capacity has picked up, but adjusted for effective utilization (nearly a fourth of thermal power capacity), the total capacity addition is a fraction of that seen in the 2012-16 period (Exhibit 43:).

Exhibit 43: Thermal power generation capacity addition fell



Source: NSSO, Axis Capital

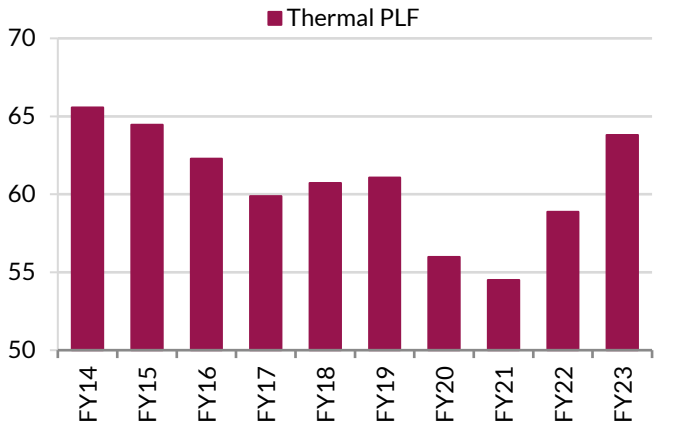
Exhibit 44: Renewable capacity addition low on adjusted PLF



Source: NSSO, Axis Capital

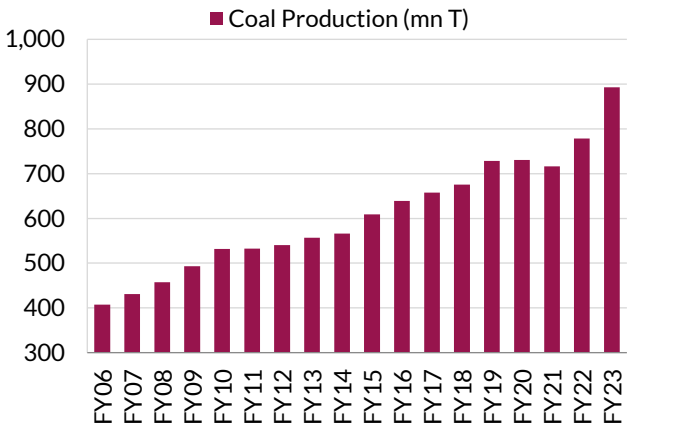
Over and above the drop in capacity utilization caused by excessive addition (Exhibit 45:), there were disruptions to the supply of coal as well, as coal mine allocations were cancelled, and supply of coal from captive mines was severely disrupted (Exhibit 46:).

Exhibit 45: Utilization dipped sharply



Source: NSSO, Axis Capital

Exhibit 46: Coal availability became a challenge temporarily



Source: NSSO, Axis Capital

Real estate: Cyclicality primarily due to over/under-construction in urban areas

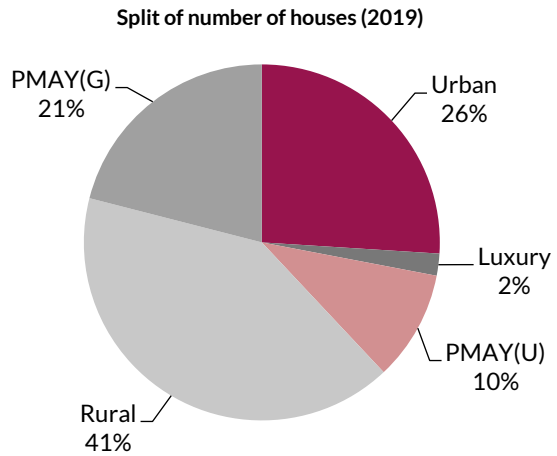
Cycles in urban real estate are caused due to lumpy supply addition leading to over/under-construction

Drilling down further into the housing slowdown, we believe that cycles are formed only in urban real estate. Land prices can be volatile even in rural areas, but there are no inventory cycles, given that most households own the piece of land on which their houses are built, and large-scale commercial development of residential real estate is primarily an urban phenomenon.

In urban areas, given the large size of projects, cycles of over/under-construction are common. Some projects can only be viable at the scale of hundreds of habitations, which then take time to sell. Supply is therefore lumpy and takes time, exacerbated by long approval periods. A pick-up in the pace of urbanization can trigger shortages, pushing up prices, driving second-order effects on launching and construction of new projects, till price-to-income ratios start hurting demand.

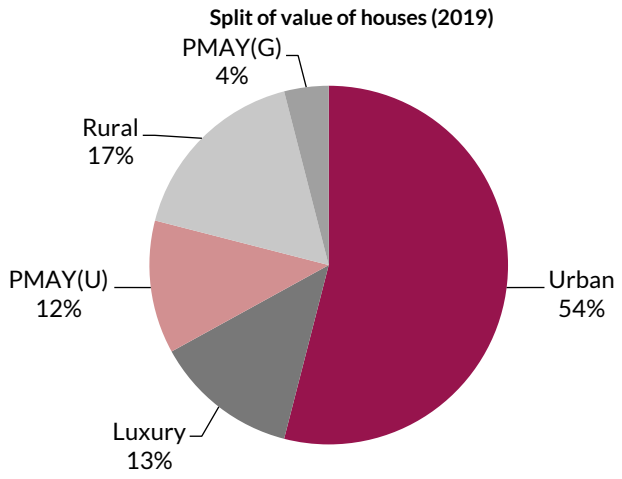
This cyclicality in urban real-estate construction can affect the country's output, as the cost of construction per unit area is much higher than in rural areas. The urban share of volume is only around a third (Exhibit 47:) but accounts for two-thirds of the value of construction (Exhibit 48:). For example, PMAY(G), or Pradhan Mantri Awas Yojana (Grameen), a central-government subsidy for rural housing, has a lower annual outlay than PMAY (urban) despite a larger number of dwellings supported. Excluding PMAY(G), rural housing accounts for 41% of volume but only 17% of the value of construction.

Exhibit 47: Urban habitations are only 38% of houses…



Source: NSSO, Axis Capital

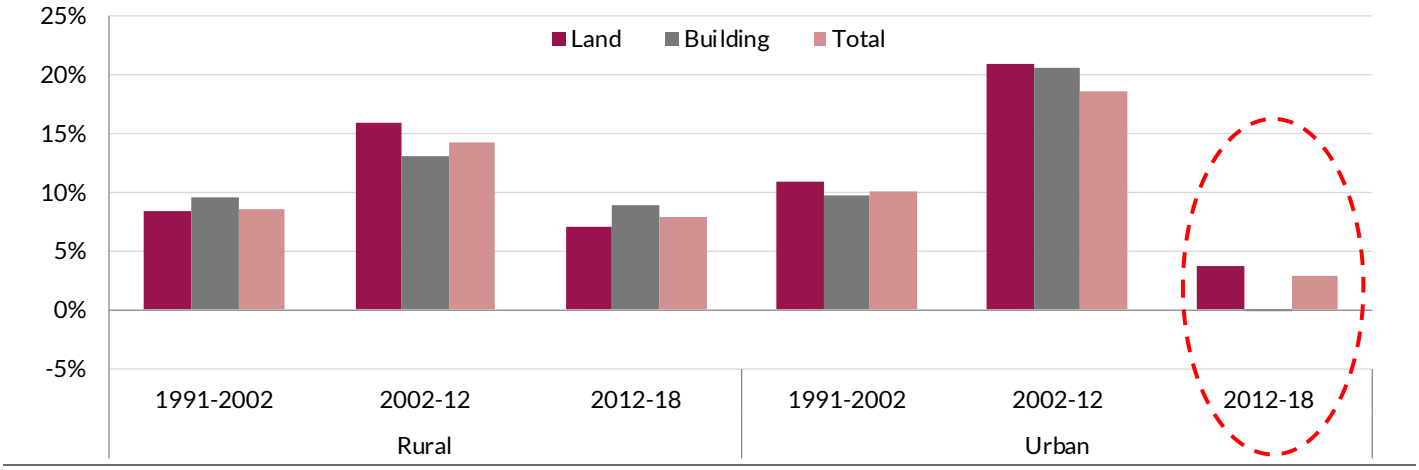
Exhibit 48: …but 79% of value of housing construction



Source: NSSO, Axis Capital

This volatility is visible in the findings of the All-India Debt and Investment Survey (AIDIS): not only is the price appreciation higher in urban land and buildings, but it is also more volatile.

Exhibit 49: Prices increased meaningfully in the 2002-12 period in urban areas, and then stagnated; far less volatile in rural areas



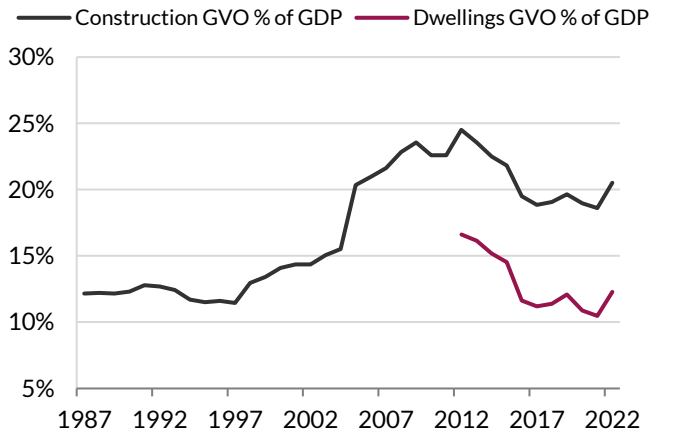
Source: All India Debt and Investment Survey

On average, between 1991 and 2018, the value of land saw a 10.5% CAGR in rural areas and 11.9% in urban areas (Exhibit 49:). Given that the quantum of land in India cannot grow, increase in the aggregate value of land can only happen through price appreciation.

Urban land prices have also been more volatile: having shown above-normal growth in the 2002-12 period, prices stalled completely in the 2012-18 period. Rural prices, on the other hand, have seen a much milder slowdown between 2012 and 2018, after a relatively moderate appreciation between 2002 and 2012.

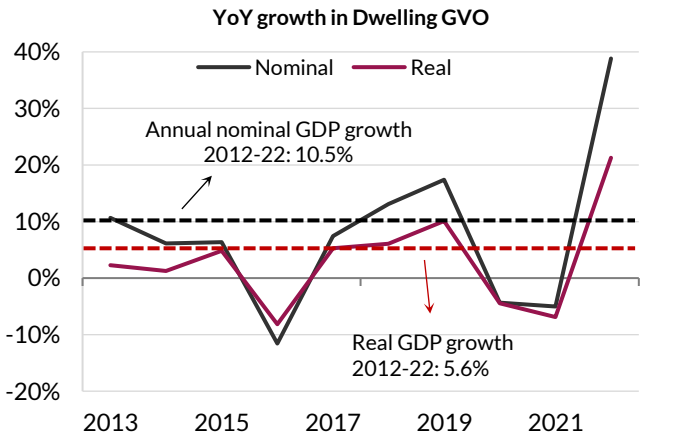
The gross value of the output of construction as a share of GDP fell between 2012 and 2021, with a minor rebound in 2022 (Exhibit 50:). Most of this decline was due to the fall in the value of construction of dwellings – both residential and commercial. Dwelling construction did see a few good years, where growth exceeded the average GDP growth between 2002 and 2012, but on the whole, it was well behind GDP growth (Exhibit 51:).

Exhibit 50: Construction therefore fell as a share of GDP



Source: NSSO, Axis Capital

Exhibit 51: Construction growth slowed after 2012

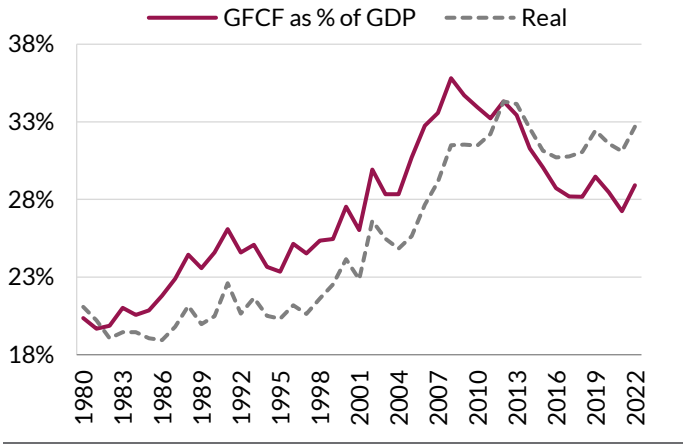


Source: NSSO, Axis Capital

Cyclicality in capital formation more in nominal than real terms

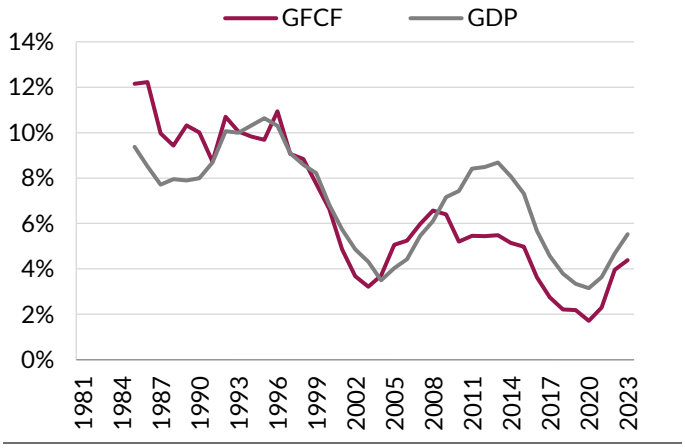
It is also important to understand the slightly different trajectories of the nominal and real ratios of investment (as measured by GFCF – gross fixed capital formation) to GDP. In nominal terms, the ratio peaked at 36% in 2008, moderated to 34% in 2012, and then fell steadily to a low of 27% in 2021. However, in real terms, the peak was in 2012 at 34%, with the 2008 ratio only 31% (Exhibit 42:); this ratio bottomed at 30.7% in 2016, and has since rebounded to 33% in 2022, and the CSO estimates it at 34% in 2024.

Exhibit 52: Volatility in GFCF/GDP ratio lower in real terms



Source: CSO, Axis Capital

Exhibit 53: GFCF deflator lagged GDP deflator last decade

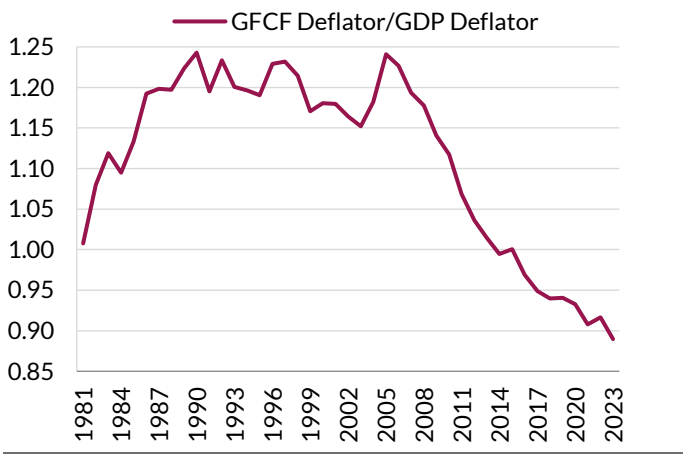


Source: MOSPI, Axis Capital

Growth in the deflator for GFCF in GDP statistics has lagged the overall deflator for GDP every year in the past two decades (Exhibit 50, Exhibit 54:). As a result, the ratio of the GFCF deflator to the GDP deflator has fallen from 1.24 in 2005 to just 0.89 in 2023, a 28% decline, with an average annual rate of 1.8%. Thus, a significant part of the decline in the investment to GDP ratio appears to have been due to the relative prices of investment-related activities growing far less than the relative prices of other activities.

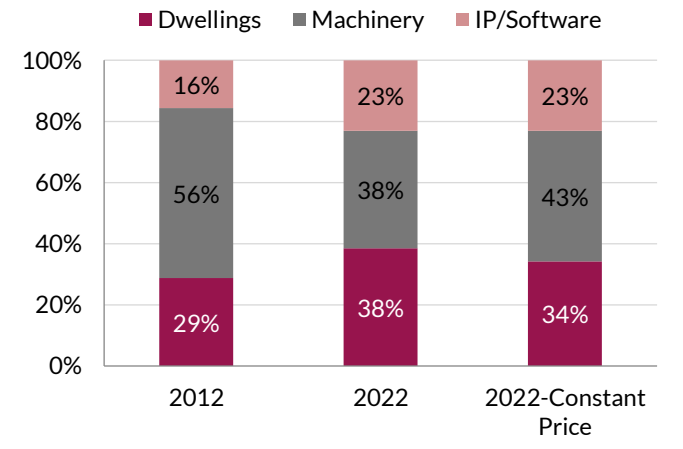
Much of this relative price weakness has been in machinery – in the 2011-12 GDP series, the share of machinery in GFCF in nominal terms is 38% but is much higher at 43% when measured in real-terms (Exhibit 55:). This is still below the 56% seen at the start of the series in 2012, but as the decline in share in 2022 is smaller in constant-price terms, it points to differing price trends for dwellings, IP/software, and machinery.

Exhibit 54: Sharp decline in GFCF deflator/GDP deflator



Source: MOSPI, Axis Capital

Exhibit 55: Machinery saw more price deflation than others



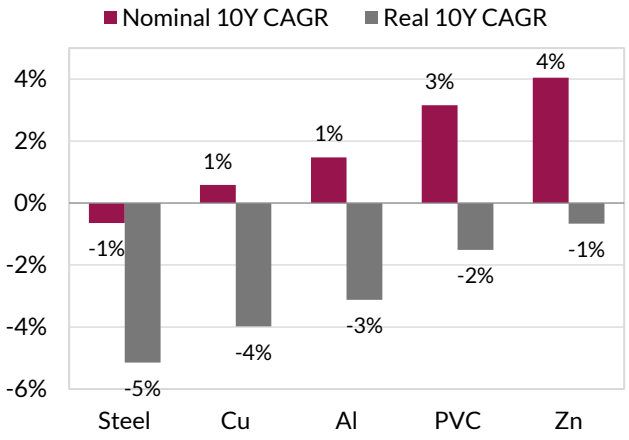
Source: MOSPI, Axis Capital

Weak commodity prices outlook means GFCF deflator may continue to lag the GDP deflator over the next few years.

Given that investment-related activities are less labor-intensive, this is likely due to the weakening of commodity prices in real terms over the past decade (Exhibit 55:). If nominal prices of global commodities that are used in investment remain range-bound, as they are likely to, given the expected weakness in China (Exhibit 57:), which accounts for more than half of the global demand for metals and several other commodities, it is possible that the GFCF deflator continues to lag the GDP deflator over the next five to six years too.

To the extent that price elasticity exists in investments, this should be support a higher investment-to-GDP ratio in India going forward, even if only in real terms.

Exhibit 56: Commodities' price changes (real & nominal)



Source: Bloomberg, Axis Capital

Exhibit 57: Chinese investment share of GDP likely to fall

Source: Bloomberg, Axis Capital

The road to 2030: Forecast methodology

The analysis of historical data in the first section of this report shows how sectoral trends can diverge and need not be aligned to the macroeconomic cycle in India. This can be due to specific issues with the sector. For instance, for telecom, it can be allocation of spectrum or generational change in standards; demand-supply imbalances in power generation; or global links, like seen in metals. Therefore, to assess forward-looking trends, we use a bottom-up approach for the major sectors.

We forecast capex outlook for FY30 separately for households, corporates, and government. For households, the primary source of capital formation is real estate. We estimate capex in real estate over the next six years using structural drivers: increasing population, reducing household size, higher urbanization, higher replacement demand, demand for bigger houses, and improvement in construction quality. Additionally, we model the cyclical uplift in urban real estate driven by under-construction in the 2012-19 period leading to record low inventories in major cities.

Exhibit 58: Estimation methodology for different sectors and institutions

Institution	Sector	Methodology
Households	**Real estate**	1) Demand model based on structural drivers 2) Estimated construction based on current inventory
Corporates	**Manufacturing**	
	Metals	Aggregate capacity expansion guidance of major steel players
	Cement	Aggregate capex plans of top cement players
	Oil and Gas	Aggregate capex plans of Oil Marketing Companies, GAIL and Reliance
	Telecom	6G spend needed only after 2030; significant capex growth only for BSNL in the next few years
	Defence	Estimated domestic demand and export opportunities
	Autos	Estimated capacity expansion, export potential, investment in alternate technologies (EV, etc)
	Others	Estimated domestic demand and exports if applicable
	Utilities	
	Generation	Estimated based on demand growth and current capacity utilization level; demand for renewables
	Transmission	Estimated based on power generation growth and current transmission line and substation capacity
	Distribution	Estimated based on power generation growth and trend in AT&C losses
	New Sectors	
	Data Centres	Estimated based on demand model
	Robotics	Estimated based on demand and decline in costs
	Hydrogen	Estimated based on capacity requirements of green energy
	Solar Modules	Estimated based on demand model and capex/GW trends
Government	**Infrastructure**	We estimate government capex to grow in-line with GDP growth

Source: Axis Capital

For corporates, we estimate separately for manufacturing, utilities, and services. Within manufacturing, nearly two-thirds of the total capex is concentrated in four sectors: oil and gas, autos, metals, and cement. We estimate each of them separately by aggregating the capacity addition plans of major players along with our estimation of demand and capacity trends (Exhibit 58:). We also look at defense manufacturing, which could be a big opportunity in the next few years, given increasing privatization and growing export opportunities amid rising geopolitical tensions.

For utilities, we have built extensive models trying to estimate the energy demand trends, along with the mix of thermal power and renewable power. We estimate the total capex by adjusting for the need of generation capex as well as transmission and distribution capex. Additionally, we

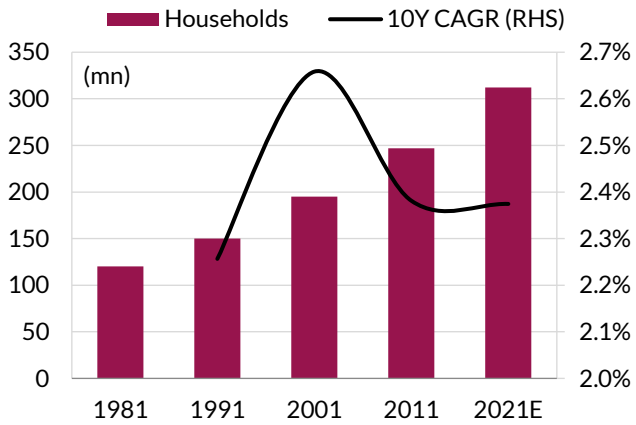
look at new and upcoming sectors like data centers, robotics, solar modules, and semiconductors which can add to the total capex requirement by corporates.

For government, we highlight the limited space for both center and state to grow capex beyond a certain point. In line with comments from senior officials, we assume that total government capex will grow in line with GDP growth in the next few years (Exhibit 58:).

Real estate: low inventory, better price-to-income & new household formation

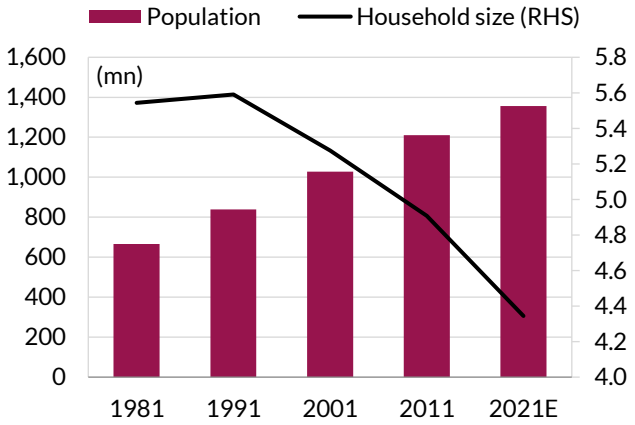
Historical data shows that the real estate cycle was a major driver of the downturn in investments – not only directly (a decline of 5 pp of GDP: (Exhibit 33:), but also indirectly (much of the ~2 pp of GDP drop in machinery investments for manufacturing was due to sectors where demand is dominated by real estate, like metals and construction materials (Exhibit 42:).

Exhibit 59: Household formation growth stable at 2.4%



Source: MOSPI, Axis Capital

Exhibit 60: Household size declining consistently

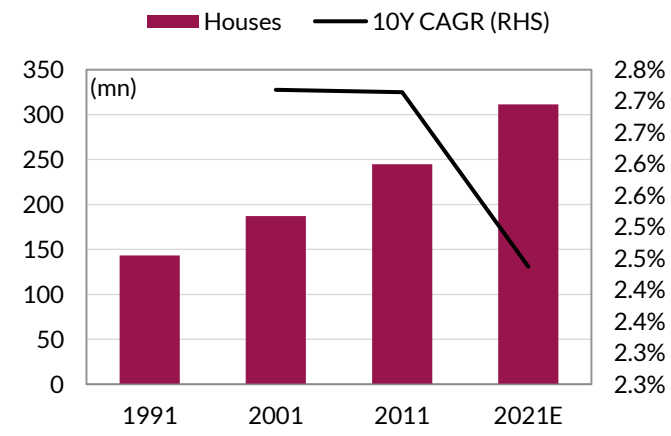


Source: MOSPI, Axis Capital

Steady growth in household formation despite slowing population growth

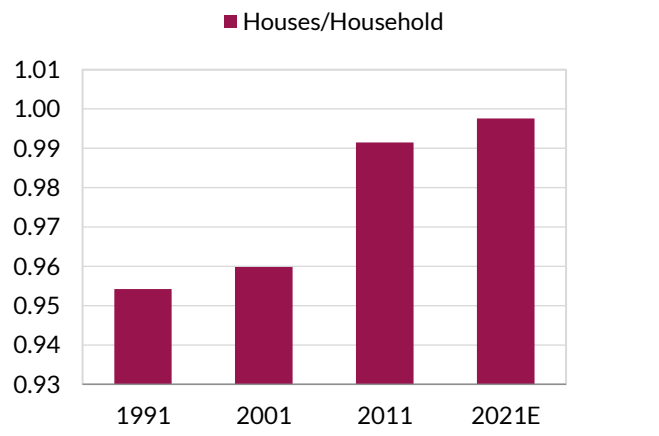
India's fertility rate dropped from 3.4 in 1992-93 to 2.2 in 2016, and then to 2.05 in 2020, just below the sustenance rate. India's annual population growth has thus likely slowed to sub-1% by 2024. However, household formation growth is likely to remain steady at around 2.4% (Exhibit 59:), driven by the fall in household size over the years (Exhibit 60:).

Exhibit 61: India has fewer houses than households



Source: Housing Conditions Survey (2019), Axis Capital

Exhibit 62: This ratio generally 1.0x-1.2x in other nations



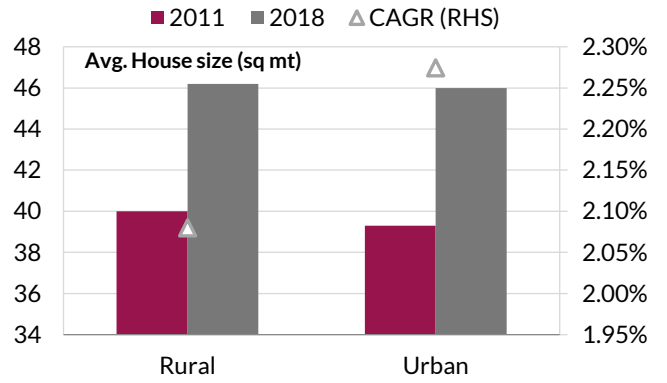
Source: MOSPI, Axis Capital

In 2021, the number of houses per household in India was 0.99 (Exhibit 62:), vs the US at ~1.1x even 50 years ago, and ~1.2x in China. Therefore, there is limited risk of excess housing inventory slowing down the need for construction.

Average house size is likely to keep growing, as area per person is too little and will expand

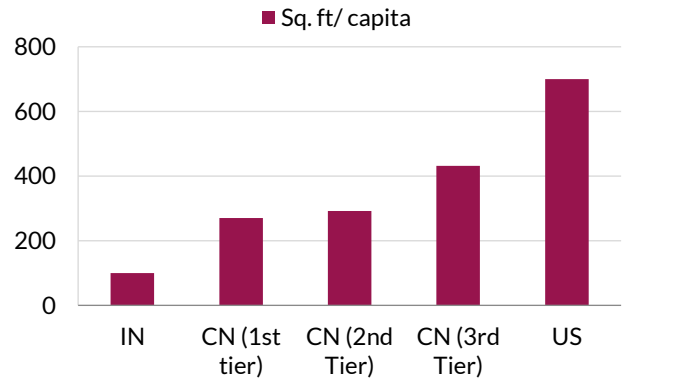
Floor area per house grew more than 2% annually between 2011 and 2018, as per the Housing Conditions Survey (Exhibit 63:), but at 46 sq m (roughly 100 sq ft/capita), an average Indian lives in one-seventh the space of an average American (Exhibit 63:). The average size of a house in the US is also growing at 1% annually. Even Chinese residential space per capita is three to four times that of India. With growing per-capita GDP, affordability and aspirations improve, and area per person can expand at 3-4% annually going forward, as people desire and can afford bigger houses.

Exhibit 63: The average size of a house should grow at 2-4% p.a.



Source: MOSPI, Axis Capital

Exhibit 64: Area per person in India a fraction of the US/China



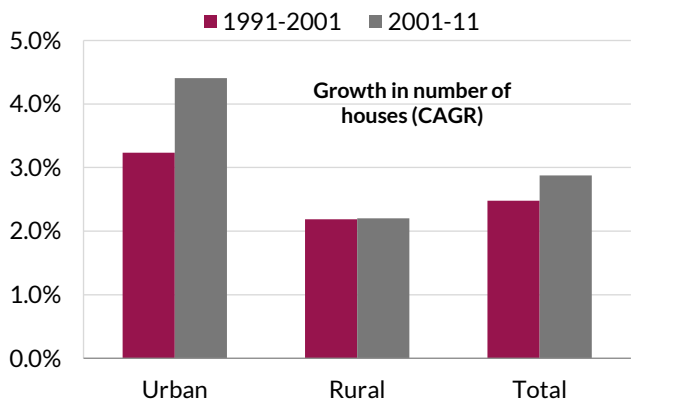
Source: MOSPI, Axis Capital

Indian residential space per capita at 100 sq ft is significantly smaller than China and the US.

Construction spending/sq ft should continue to grow too

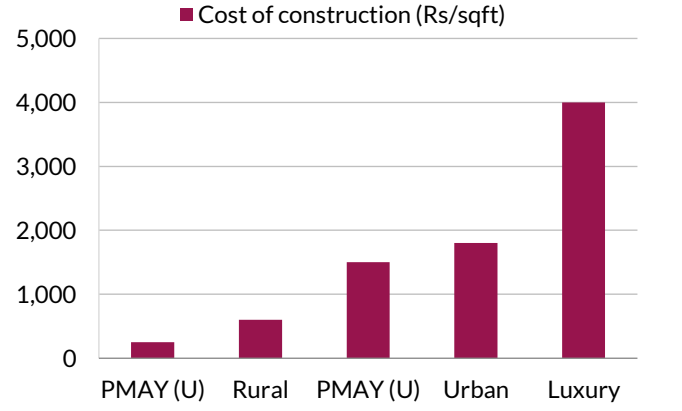
Due to rising urbanization, urban areas have seen stronger growth in the number of houses (Exhibit 65:), and these cost more per square foot to construct (Exhibit 66:). Further, not all urbanization involves people moving to cities: between 2001 and 2011, more than a third of the additional urban population came from 'in situ' urbanization, i.e. villages getting re-classified to towns/cities or cities expanding their geographical area. This usually means better-quality housing in rural areas.

Exhibit 65: Household formation growth stable at 2.4%



Source: MOSPI, Axis Capital

Exhibit 66: Urban houses have a higher construction cost



Source: Axis Capital Estimates

In 2018, only 7% of houses in India were in buildings with more than three floors, and 0.2% in buildings with more than ten floors. Further, a third of the houses had walls made of unburnt bricks or grass/bamboo. This large share of *kutcha*/semi-*pucca* houses, mostly in rural areas can transition to burnt bricks and cement/concrete as affordability improves. Even in urban areas, the quality of construction is likely to improve steadily with growing income. Thus, the cost of construction per square foot should grow meaningfully over time even in real terms.

Real estate cycles occur only in urban areas: though demand growth is steady, supply addition is in bulk, causing price volatility.

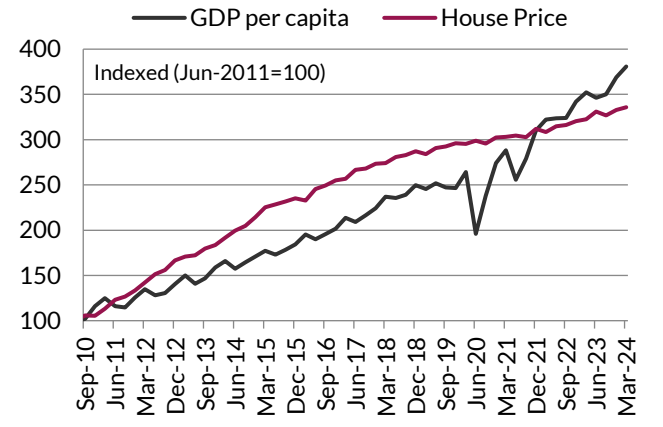
Inventory cycles driven by changes to housing affordability; supportive now

Growth in the number of households, area per person, and urbanization are steady and long-term trends. Why, then, do we have real estate cycles? There are two main reasons.

First, urban land tends to be expensive due to the higher population density, and several houses need to be built on the same tract of land (in other words, a Floor Space Index >1). The construction of common facilities (staircases, lifts, and other amenities) incurs significant costs that are better defrayed over many houses. Thus, the construction of apartment complexes renders supply addition in large batches, whereas demand growth is relatively steady, driving inventory cycles and natural volatility in prices.

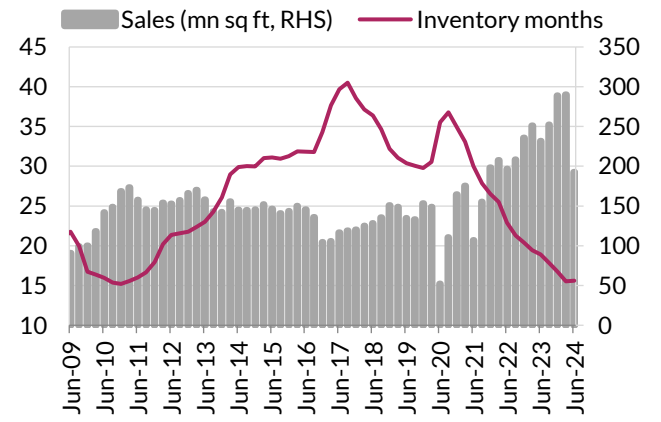
Second, this natural volatility in prices is accentuated by investor participation (Exhibit 67:). They step in when prices are set to rise, further adding to the demand, and sell when price growth slows, adding to supply in over-supplied markets. These price changes impact affordability.

Exhibit 67: Income growth has exceeded real-estate prices



Source: RBI, CMIE, Axis Capital

Exhibit 68: Volumes up, inventory in Top 8 cities at lows



Source: Prop Equity, Axis Capital

Both factors now support an increase in construction. With steady income growth outpacing house price appreciation, improving affordability has boosted sales volumes after Covid (Exhibit 68:), with quarterly sales volumes for Grade-A residential real estate in the Top 8 cities doubling vs the pre-Covid level to 300 mn sq ft. Months of inventory has fallen to cyclical lows. Recoveries in 2018 and 2020 were stalled by the failure of some NBFCs and the onset of Covid, respectively.

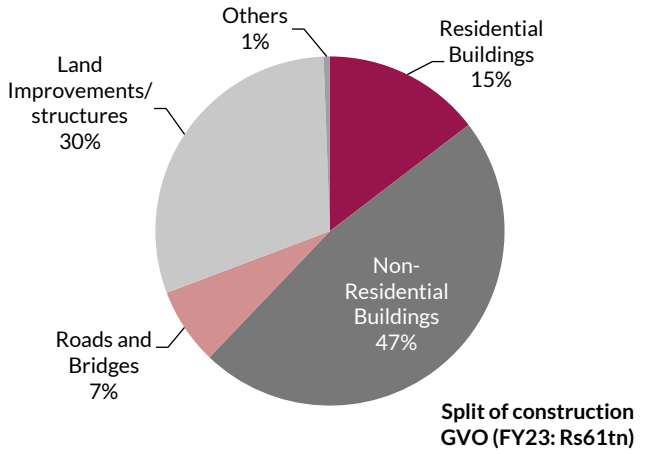
Going forward, volume of construction is likely to pick up, as developers respond to growing demand. Once supply shortages emerge, as appears to be happening in some regions already, prices begin to rise, which then triggers purchases by investors, adding to the demand from genuine home buyers – the second driver of prices. As per industry consultants like Anarock, the current surge in demand has limited investor participation. Developers with land banks and existing approvals for construction are thus incentivized to bring forward construction.

Non-residential dwellings see less volatility; offices and hotels on an upswing

A large share of dwelling construction is for non-residential buildings (Exhibit 69:), where volatility is significantly lower: the current 3x ratio of the value of construction of non-residential dwellings to residential dwellings is exacerbated by the prolonged downcycle in the latter; in 2012, the share of residential dwellings was 51%. In the former, the cycles tend to be short-lived, like for office spaces and malls, where decisions are primarily commercial, and markets tend to be more efficient. Cycles are nearly non-existent for buildings like hospitals and schools. Thus, as a share of GDP, these are unlikely to be volatile.

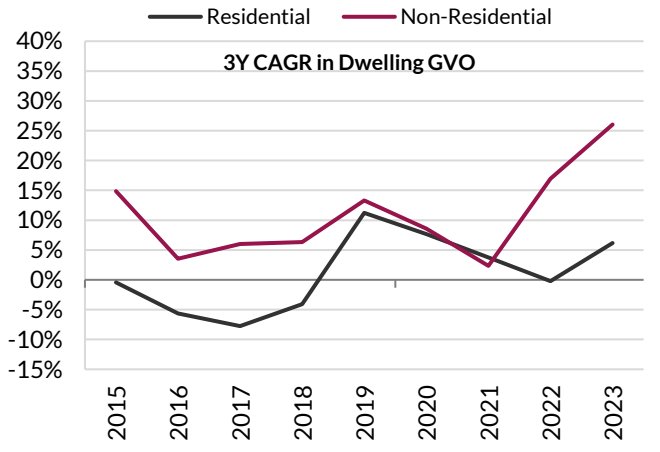
Even as the value of construction of residential dwellings fell as a share of GDP, that for non-residential dwellings did not (Exhibit 70:). For most of the previous decade, except for a few years, growth in the value of construction kept pace with that of nominal GDP.

Exhibit 69: Non-resi. dwelling construction already strong



Source: MOSPI, Axis Capital

Exhibit 70: Non-resi. construction had not slowed much

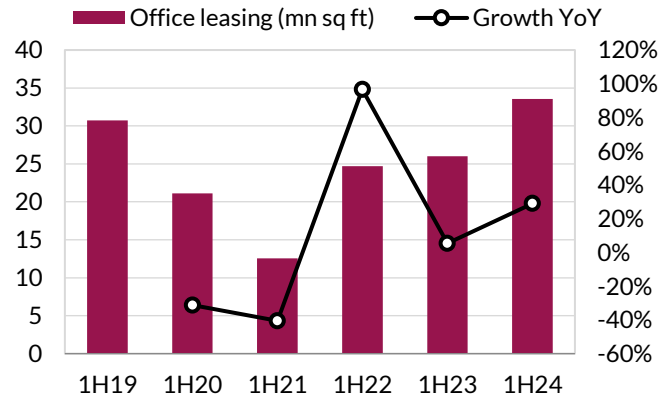


Source: MOSPI, Axis Capital

Demand for commercial real estate should remain strong, helped by growing office rental, increase in malls, warehouses, and social infrastructure.

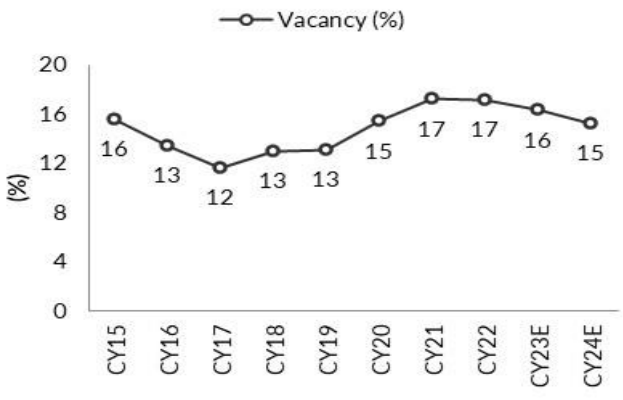
Demand for commercial real estate is expected to remain robust, though significant improvement is unlikely, given that the downcycle here was not very deep. Demand for office spaces grows with the formal workforce: the rise in work-from-home led to a drop in utilization of office spaces, and depressed leasing activity. As the share of workers working from home shrinks (though it may be unlikely to go back to pre-Covid levels) and India's services exports grow, especially in business services, we expect leasing activity to improve meaningfully (Exhibit 71:). This data is available only for Grade-A real estate in the larger cities but reflects the broader underlying trends. Construction activity should be helped by falling vacancy rates (Exhibit 72:).

Exhibit 71: Gross leasing growing for Grade-A offices



Source: Knight Frank, C&W, Axis Capital

Exhibit 72: Falling vacancy rates to support realizations

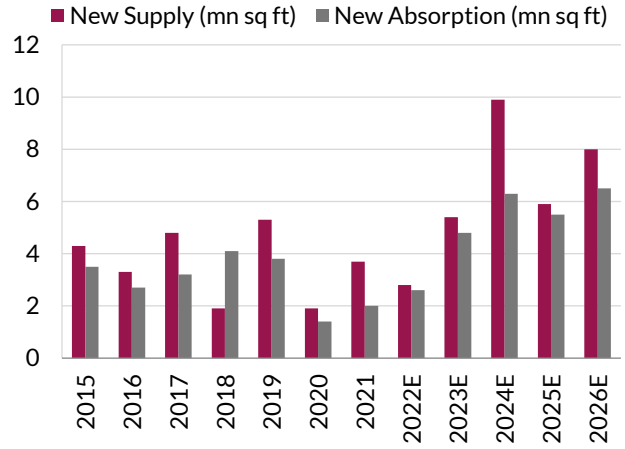


Source: Knight Frank, C&W, Axis Capital

Continuing formalization of retail activity also means both a growth in modern trade as well as continued expansion of e-commerce. The former should boost demand for malls: retail developments, with a total retail space of 24 mn sq ft, are expected to become operational during 2024-26E (Exhibit 73:).

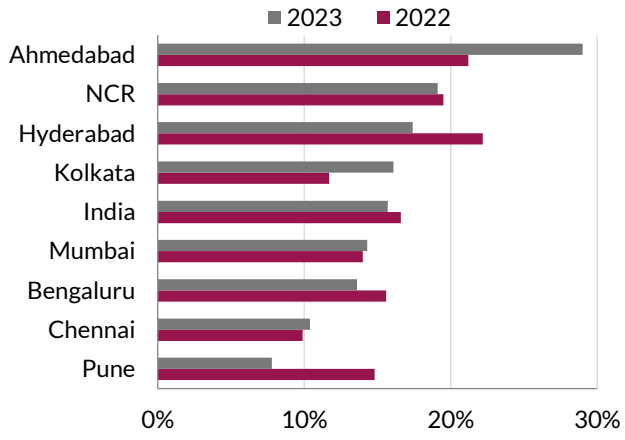
However, with the growth in e-commerce, India could end up skipping the phase where large malls are necessary; over the past year, vacancy rates have risen significantly in the major cities (Exhibit 74:). The positive impact of formalization on the back end of supply-chains though should continue, driving up demand for warehousing. On a per-sq ft basis, though, warehousing construction costs are significantly lower than that for malls. Thus, some part of the capital-stock formation that could have occurred without e-commerce, now may not be built.

Exhibit 73: Supply of malls estimated to grow in FY24-26E



Source: JLL, Axis Capital

Exhibit 74: But higher mall vacancy ➔ weaker construction



Source: JLL, Axis Capital

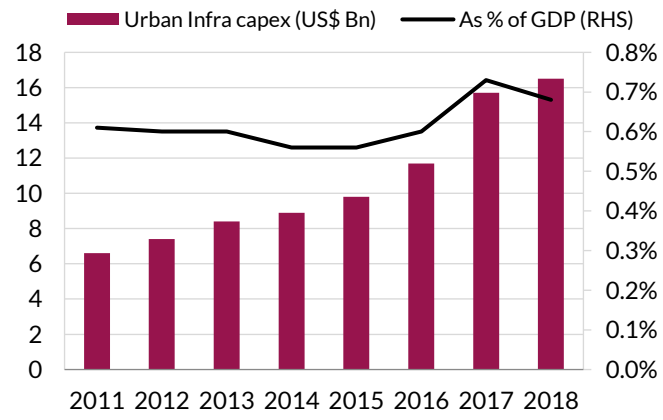
Urban Infrastructure: critical for sustained growth in real-estate construction

Increase in spending on urban infrastructure can help prolong the real-estate cycle.

Healthy real-estate cycles are volume-driven and not price-led. For the real-estate cycle to sustain for longer, cities need to not only speed up the process of clearances, but also develop urban infrastructure so that cities can expand, creating space for new construction.

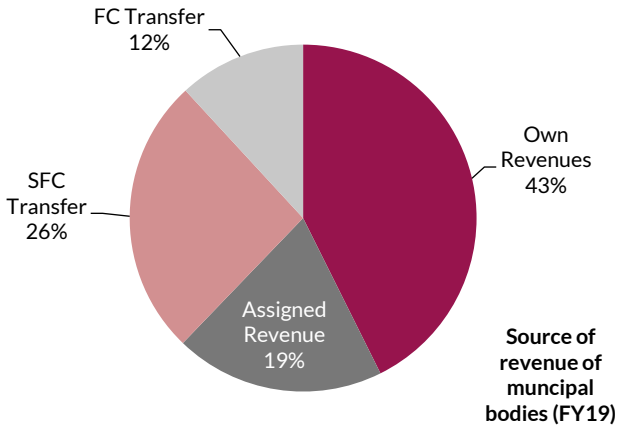
Between 2011 and 2018, investment in urban infrastructure was nearly unchanged as share of GDP (Exhibit 75:). The marginal increase (~10 bps) occurred due to a change in allocations to urban governments in the 15th Finance Commission (FC).

Exhibit 75: Urban infrastructure spend flattish as % of GDP



Source: World Bank, Axis Capital

Exhibit 76: Transfers to urban bodies are still small



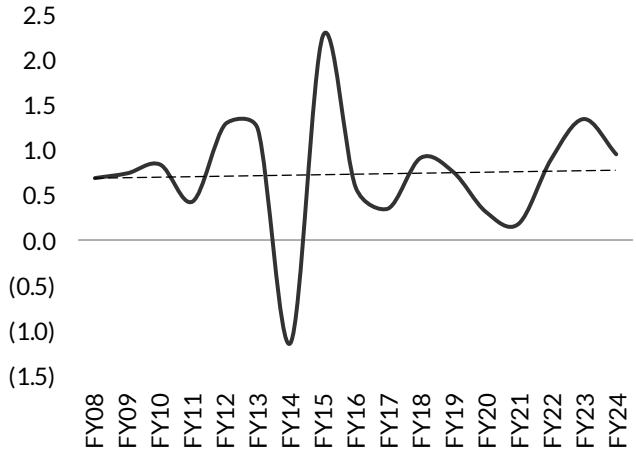
Source: CEA, RBI, Axis Capital

City governments are starved of fiscal resources. Own revenues accounted for 43% of urban bodies in 2019 (Exhibit 76:) despite these taxes, like property taxes, being very small in absolute terms. Not only are cities and state governments unable to increase private sector participation to attract capital, the market for municipal bonds has also not picked up yet (Exhibit 77:).

For cities to be able to borrow, lenders need visibility of future revenues. Policy-related discussions focus on their revenue generating capabilities, while the fastest path to increasing availability of capital would be through increasing their share of fiscal resources.

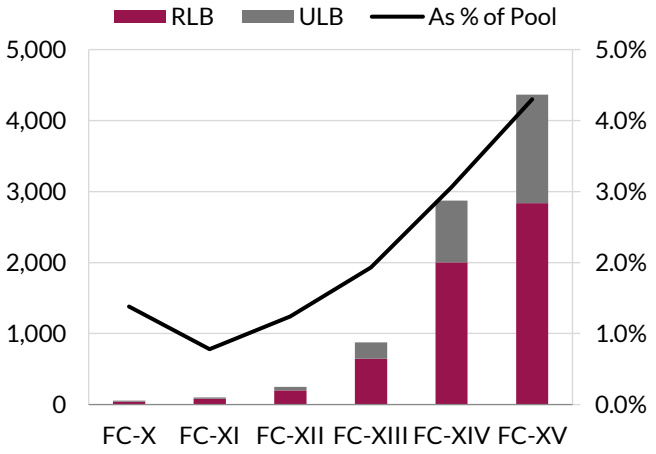
FCs have progressively increased these allocations, especially the 14th and 15th FCs (Exhibit 78:). However, compared to ~50% of fiscal resources going directly to urban governments in China, the quantum in India is still less than 5%. Unless the 16th FC increases allocations substantially, it is unlikely that urban infrastructure spending as a % of GDP can grow.

Exhibit 77: Net municipal bonds issuance small as % of GDP



Source: World Bank, Axis Capital

Exhibit 78: 15th FC recommendations

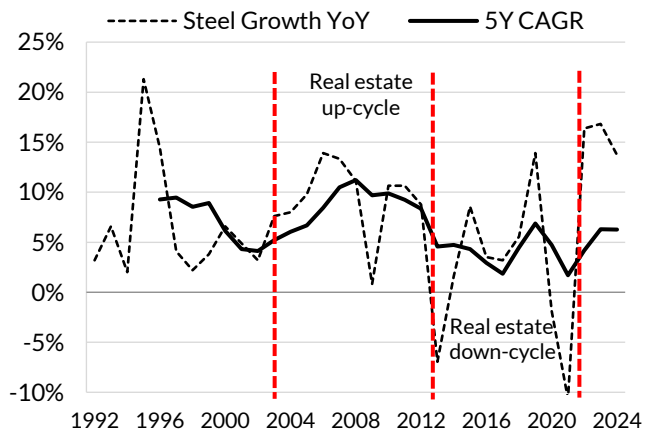


Source: 15th Finance Commission, Axis Capital

Steel and cement volume growth gets affected by real estate cycles

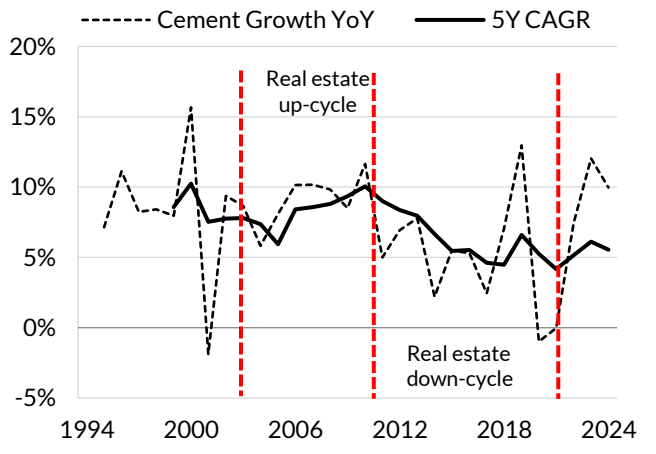
As discussed in the first section of this report, a large part of the slowdown in manufacturing capex occurred in sectors that are inputs to dwelling construction: steel, cement, and machinery.

Exhibit 79: Steel demand correlates strongly with real estate



Source: Ministry of Steel, Axis Capital

Exhibit 80: Similar trend for cement demand growth



Source: JLL, Axis Capital

Steel consumption correlates strongly with real-estate cycle, with growth slowing from 10-11% five-year CAGR in 2005-11 to ~5% during 2012-19 period (Exhibit 79:). The trend for cement demand is similar (Exhibit 79:). Thus, real estate cycle necessitates capital investment in ancillary sectors as well, particularly at a time when utilization is elevated (Exhibit 81:, Exhibit 82:).

Metals: Capex momentum set to gain steam

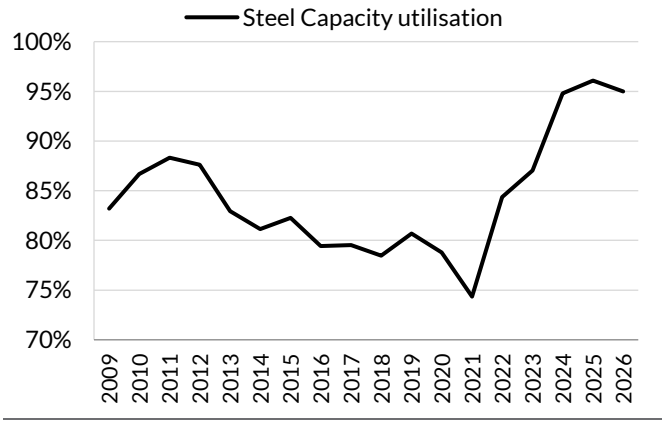
India's metals and mining sector's capex is estimated to have grown ~20% YoY in FY24E. Capex momentum is set to strengthen further over FY25-30E: we estimate growth at 9% CAGR over FY24-30E to Rs 2.0 tn in FY30E.

Within metals, capex intensity is estimated to be stronger in steel vs non-ferrous metals.

Strong capex momentum is expected to be largely driven by steel, where we expect capex to clock a 14% CAGR over FY24-30E to Rs 1.5 tn in FY30E. Major steel players like JSW Steel and Tata Steel aim to double capacity to 50 mn t p.a. and 40 mn t p.a., respectively, by FY31. SAIL targets a ~75% increase in capacity to 35.0 mn t by FY31, and Arcelor Mittal (AM) and Nippon Steel (NS) are also adding capacities at Hazira, with further capacity additions in the pipeline.

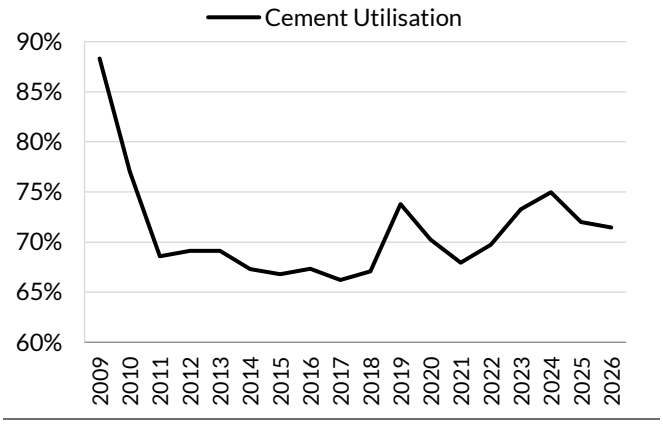
A headwind for further growth is likely to be China's overcapacity, and the sharp increase in steel exports, as its domestic demand is now shrinking.

Exhibit 81: Steel utilization at multi-year highs



Source: Ministry of Steel, Axis Capital

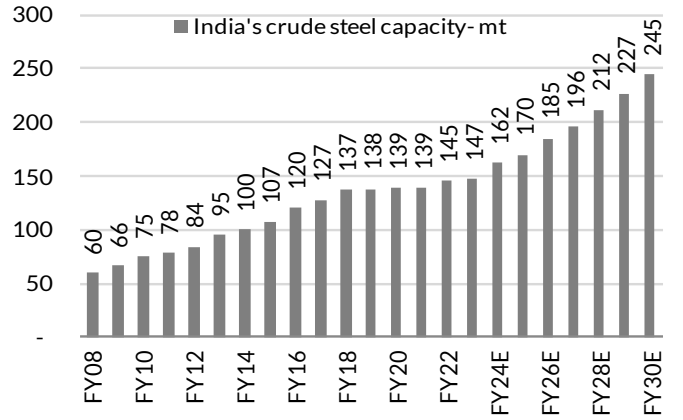
Exhibit 82: Cement industry utilization also rising



Source: JLL, Axis Capital

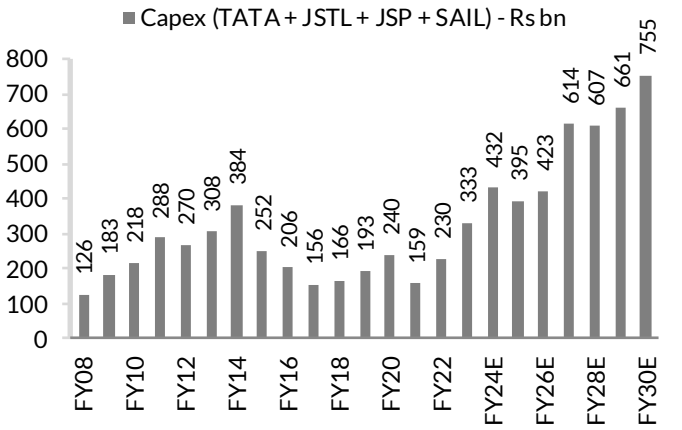
Domestic demand for non-ferrous metals is also expected to be strong, major manufacturers (Hindalco, Vedanta) are currently not planning significant expansion in capacity; all their capacity growth is expected to be from brownfield expansion and de-bottlenecking.

Exhibit 83: Steel capacity can see 7% CAGR over FY24-30E



Source: Axis Capital

Exhibit 84: Capex momentum to be strong for large steel firms



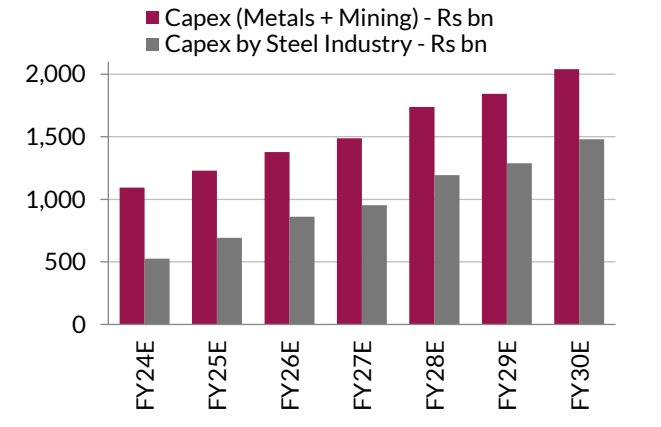
Source: Axis Capital

Adani Group's venture into the aluminum and copper business should support capex momentum in the non-ferrous space. While in the mining sector, Coal India's annual capex is expected to remain elevated at ~Rs 150.0 bn (as it aims to reach production rate of 1.1 bn t p.a. by FY30).

This strong momentum is just a continuation of strong uptick in capex seen over FY21-24, during which it is estimated to have clocked a CAGR of ~30%, driven by a strong commodities cycle during the pandemic which helped deleveraging in the sector and strengthened the balance sheets of all players.

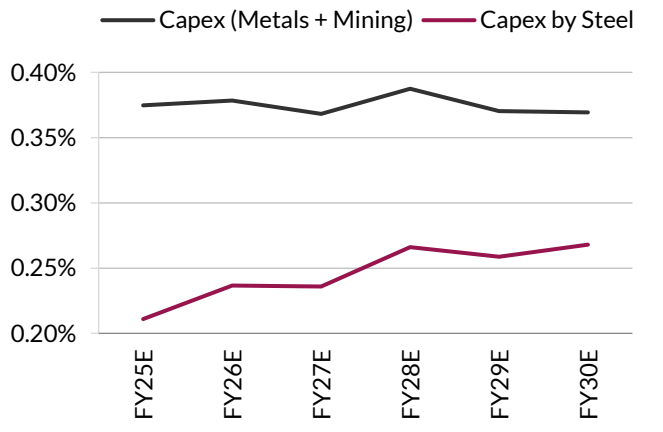
The last strong capex cycle in metals was seen over FY08-14 when capex saw ~20% CAGR to reach ~Rs 600 bn in FY14. It then tapered off FY15 onwards as the steel sector (which has been the largest contributor) was hit by weaker demand in China, impacting global steel prices and in turn impacting margins of domestic steel players, driving some bankruptcies and derailing their growth ambitions. Over the next few years, the industry consolidated.

Exhibit 85: Steel capex estimated 14% CAGR in FY24-30E



Source: CEA, Axis Capital

Exhibit 86: Capex as a share of GDP can rise steadily



Source: CEA, RBI, Axis Capital

Industry consolidation in cement sector is likely to continue, but strong capex plans of major players can help capex grow 17% CAGR from F24-30E.

Cement: Industry consolidation can aid capacity growth

We use bottom-up expansion plans of companies to estimate industry capex. Given the pick-up in industry volumes, companies have begun to announce expansion projects. The entry of the Adani Group through the acquisition of Ambuja and ACC in FY23 has also increased competitive pressure, especially as the Adani Group announced its plans to double its cement capacity from ~70 mn t at the time of acquisition to ~140 mn t by FY28. In lieu of this, other large players like UltraTech, Dalmia Bharat, and Shree Cement have also increased capex plans.

Exhibit 87: Large players have begun to announce projects to expand capacity

Company	FY23	Target	Timeframe	Comments
UltraTech	127	200	-	Work on phase 2 and phase 3 expansion of ~46 mt already underway.
Adani group	70	140	FY28	Work on 32 mt underway.
Shree cement	46	80	FY30	Will comfortably surpass the target
Dalmia Bharat	39	130	2031	On track to meet medium term target of 75 mt by 2027
J.K Cement	21	30	FY28	Expected to reach target by FY26/1HFY27.

Source: Axis Capital, Company

The cement sector has also seen a rise in inorganic acquisitions in FY23 (Exhibit 88:). We expect this trend of small players exiting the sector and selling capacities to continue in the next two to three years as well. Overall capex intentions, though, should be supported by strong volume growth, driven by the upturn in the dwelling construction cycle. Firms are also likely to refrain from larger pricey acquisitions as most of them can scale up through brownfield expansion. With smaller players moving out of the market, the sector should see pricing discipline and thereby the balance sheet strength required to sustain elevated capex.

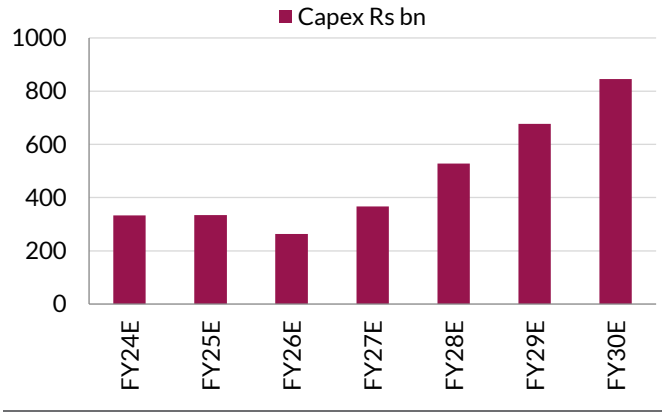
Exhibit 88: Post Adani's entry into the sector, many small players have exited the market

Date	Buyer	Seller	Location	Type	Capacity (mt)	Deal EV (USD mn)	Deal EV (USD/t)
Feb-23	Sagar Cement	Andhra Cement	Dachepalli, AP	Integrated	1.8	69	39
Feb-23	Dalmia Bharat	JP Associates	Rewa, MP	Integrated	5.2	480	93
Aug-23	Ambuja Cement	Sanghi Industries	Kutch, Gujarat	Integrated	6.1	610	100

Source: Axis Capital

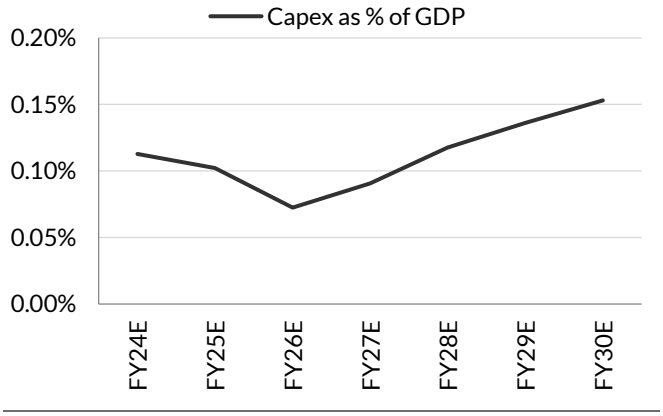
Overall, we expect capex momentum to stay elevated between FY25-30E at ~Rs 400 bn on an average vs ~Rs 190 bn in FY23 (Exhibit 89:). The impact on the overall GFCF as a % of GDP due to cement, though, is going to be limited, given the relatively low capital intensity of cement. We estimate cement demand growth would pick up to 8% CAGR over FY23-30E, in line with the 8.4% CAGR seen in FY07-12, with implied utilization rising from 72% in FY24 to 86% in FY30E.

Exhibit 89: Cement capex to see 17% CAGR in FY24-30E



Source: CEA, Axis Capital

Exhibit 90: Capex as a share of GDP can rise steadily

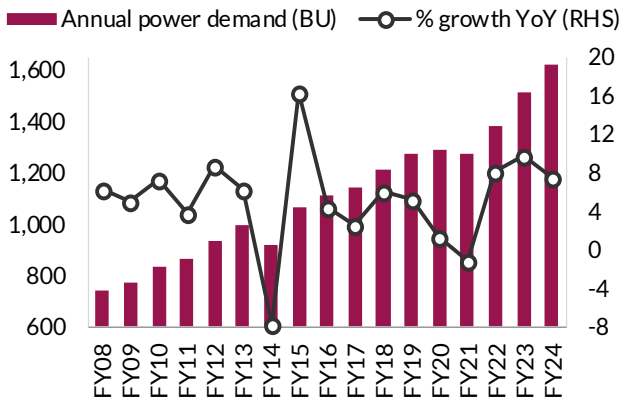


Source: CEA, RBI, Axis Capital

Electricity Generation: 'green + grey' growth in store

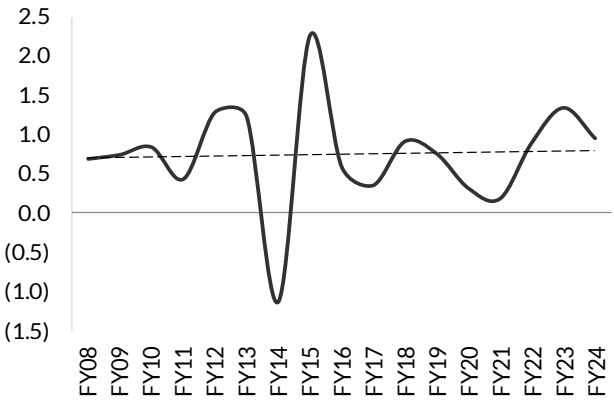
We forecast ~US$ 200 bn of power generation capex in India over FY25-30E, including ~US$ 120 bn capex on renewables (ex. hydro). Non-solar peak deficit management shall entail another ~US$ 10 bn capex in utility-scale battery energy storage systems (BESS).

Exhibit 91: India's annual power demand growth fluctuates



Source: CEA, Axis Capital

Exhibit 92: Elasticity of electricity demand growth to GDP (x)



Source: CEA, RBI, Axis Capital

India's electricity demand saw a 5.1% CAGR over FY08-24 (Exhibit 91:). The elasticity of electricity demand growth to GDP growth over this period has been ~0.8x on average, though the metric has been volatile (Exhibit 92:). Even before Covid, power demand growth had begun to slow, falling to 1.3% in FY20. After Covid, the volume growth has been on par with or ahead of GDP growth.

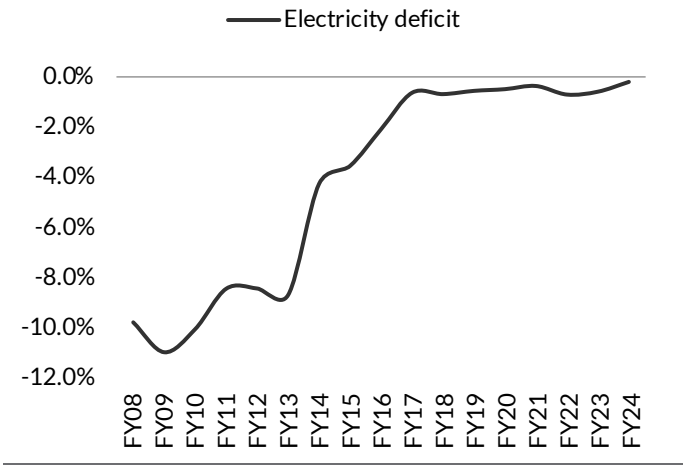
We project 7% GDP growth to drive 6% power demand growth over FY24-30E, capex outlay of Rs 19 tn during the period.

Going forward, we expect a 7% GDP growth to drive a 6% power demand growth: growing industrialization, demand from households to drive automation of household services and temperature control, and demand from data centers/electrification. Overall energy is not in deficit (Exhibit 93:), but deficits have reappeared at peak demand (Exhibit 94:). The reason behind this development is a sharp slowdown in power capacity addition after 2017.

Installed coal-based capacity saw a 11% CAGR over FY08-17 and overall installed capacity at 9.6% (Exhibit 95:), whereas it was well ahead of the 5% growth in electricity demand over this period. India's energy deficit thus fell progressively to under 1% by FY17 and has stayed there since. Capacity utilization continued to decline as new plants came online.

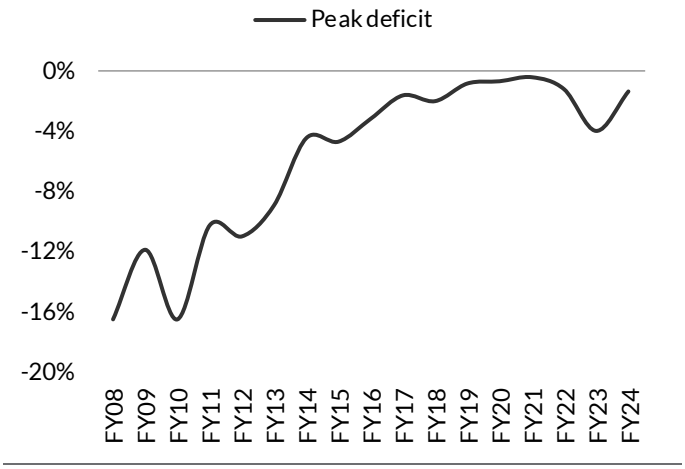
However, between FY17 and FY23, capacity growth slowed to just 4%, and that for thermal power grew just 1%. As power demand growth continued (peak demand saw a 5.2% CAGR), but base-load capacity addition (especially in coal) slowed, as peak demand deficits re-emerged. In Apr'23, the first time this occurred after many years, there were issues with coal availability and high prices of imported coal and LNG prices. Markets tightened again in Oct'23 as the heat wave following the withdrawal of the monsoon coincided with a surge in industrial demand.

Exhibit 93: Overall energy deficit remains low at <1%



Source: CEA, Axis Capital

Exhibit 94: But shortages have reappeared at peak demand



Source: CEA, Axis Capital

The strong growth in renewable capacity should continue, but the Central Electricity Authority (CEA) has also now announced an 85 GW addition in thermal power capacity by 2031.

Exhibit 95: Installed capacity grew rapidly over FY08-17 but then slowed over FY17-24

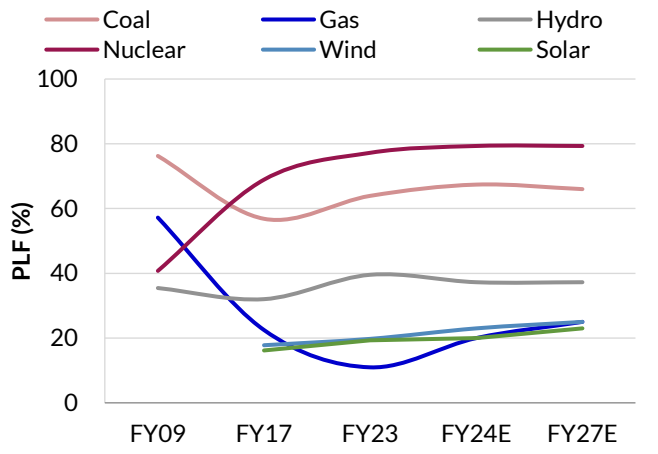
Installed capacity (GW)	FY08	FY17	CAGR (FY08-17)	FY23	FY24	% YoY	CAGR (FY17-24)
Coal*	76	192	11%	212	218	3%	2%
Gas**	16	26	6%	25	26	1%	-0.3%
Hydro	36	44	2%	47	47	0%	1%
Nuclear	4	7	6%	7	8	21%	3%
Renewable	11	57	20%	125	144	15%	14%
Total	**143**	**327**	**10%**	**416**	**442**	**6%**	**4%**

Source: CEA, Axis Capital. Note: Coal include lignite and Gas includes diesel

It is possible, if not likely, that power demand growth surprises our 6% CAGR forecast positively. If so, merchant tariffs are likely to stay elevated, boosting profits of utilities that sell in the spot market. This could incentivize new investments in capacity above and beyond the capacity forecasts published by the CEA.

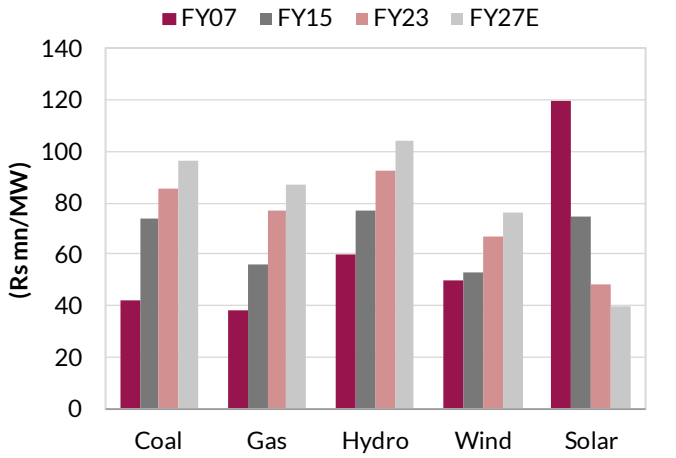
Recent bids for grid-scale energy storage have shown a sharp decline in costs. If this is sustained, we are also likely to see acceleration in renewable energy capacity along with investments in energy storage projects. Given that capex-per-MW metrics have seen price inflation over time for all types of power generation except solar (Exhibit 97:), and the trend is likely to continue, renewable capacity is likely to dominate capacity additions going forward.

Exhibit 96: Capacity utilization off the bottom but still low



Source: CEA, Axis Capital

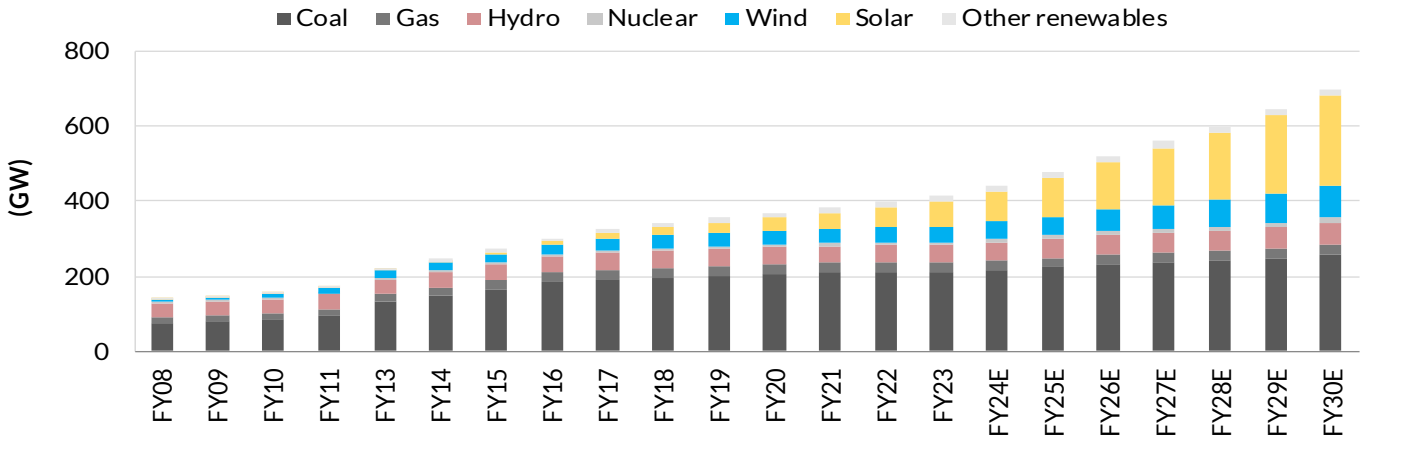
Exhibit 97: Capex; cost of solar capex/MW on a declining trend



Source: CEA, Axis Capital

If we project capacity addition based on an energy and peak demand deficit of 0.5%, the required capacity growth could be 7.9% to 700 GW by FY30E. However, this may be conservative. When the investment cycle turns, it tends to overshoot, just like it undershot demand between FY17 and FY23. It is very difficult for a marketplace to calibrate distributed demand and supply to match accurately, as visible in the volatility in utilization rates (Exhibit 96:).

Exhibit 98: We expect installed capacity to rise at 8% CAGR over FY24-30E to 700 GW

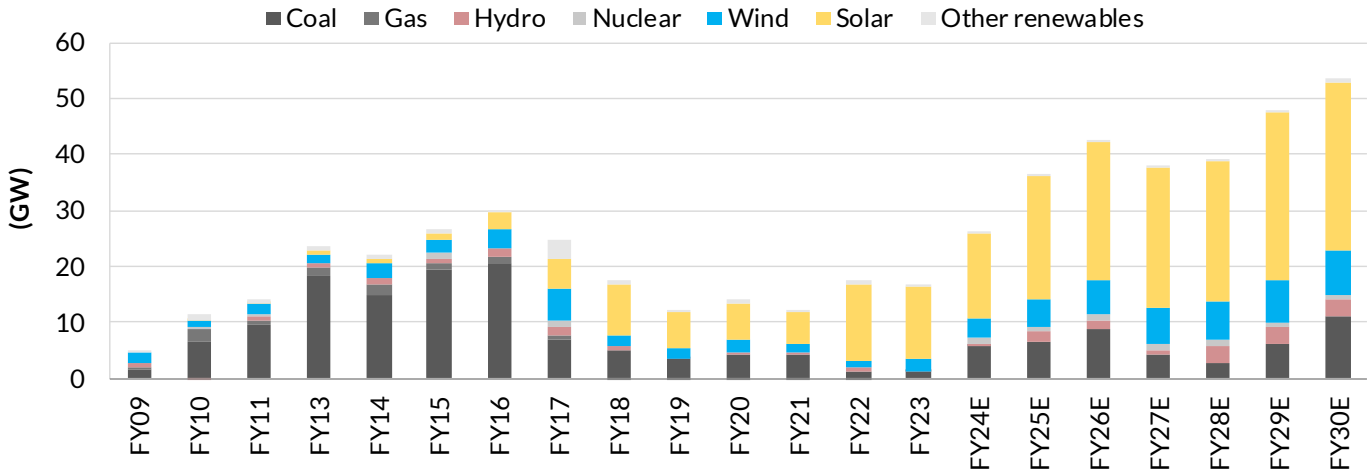


Source: CEA, Axis Capital. Note: Coal include lignite and Gas includes diesel

Demonstrative of the inherent cyclicality of this industry, capacity commissioning had peaked at 30 GW in FY16 and then fell to 12 GW in FY2021, exacerbated by Covid. The mild rebound seen in FY24 is likely to continue, in our view, growing to 40 GW in FY25E and 54 GW in FY30E (Exhibit 99:).

These projects are likely to see challenges – from availability of equipment and financing to setting up supporting infrastructure (evacuation grids, rail links to transport coal as necessary, water availability) and government permissions (several clearances necessary).

Exhibit 99: Capacity addition is likely to be dominated by renewable energy, but thermal power capacity to grow as well



Source: CEA, Axis Capital

Our assumptions on the phasing of capex across categories are shown in Exhibit 100: below. An acceleration in the pace of commissioning of projects in the coming years could pose an upside risk to our base case estimates. If we build an extra 10% capacity in the peak year, which could be 2030E, the capacity growth could be 10%, taking the industry generation capacity to 785GW.

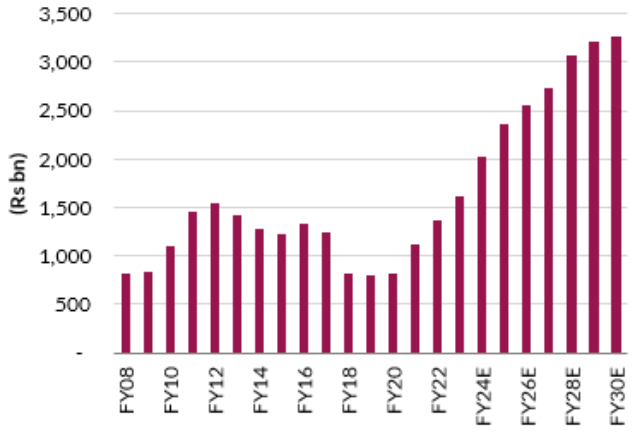
Exhibit 100: Assumptions on execution phasing of generation projects

Execution phasing	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Coal	10	20	20	20	20	10	
Lignite	10	20	20	20	20	10	
Gas	25	25	25	25			
Diesel	50	50					
Hydro	10	10	20	20	10	20	10
Nuclear	10	10	20	20	20	20	
Renewables							
- Wind	40	60					
- Small Hydro	20	20	20	20	20		
- Bio Mass	50	50					
- Solar Power	25	75					
- Waste to energy	50	50					

Source: Axis Capital

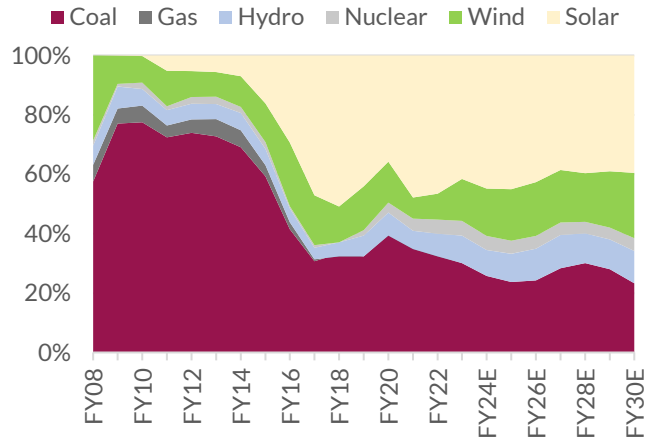
Power generation capex for various technologies is spread over many years – a thermal power plant takes six years to construct, whereas a wind project just takes two years (Exhibit 100:).

Exhibit 101: Power generation capex (Rs bn)



Source: CEA, Axis Capital

Exhibit 102: Power generation capex



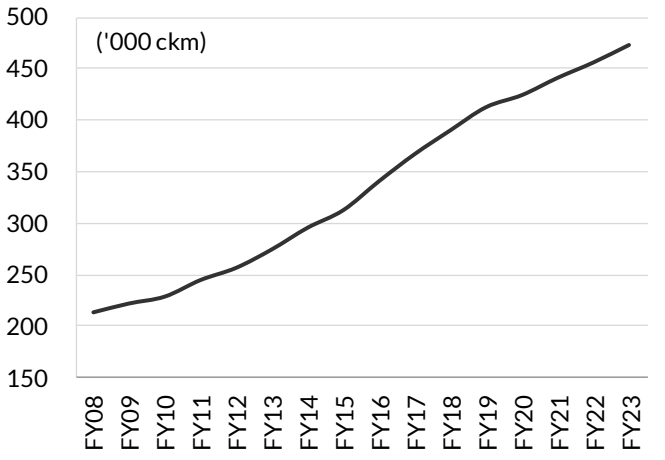
Source: CEA, Axis Capital

Our forecasts imply that the power generation capex over the 15-year period of FY08-23 (~Rs 19 tn) will be similar to that over the seven-year period of FY24-30E. The bulk of the capex will be in solar, with a higher share from nuclear as well as wind and hydro.

Power transmission: Capex has lagged in past few years and will catch up

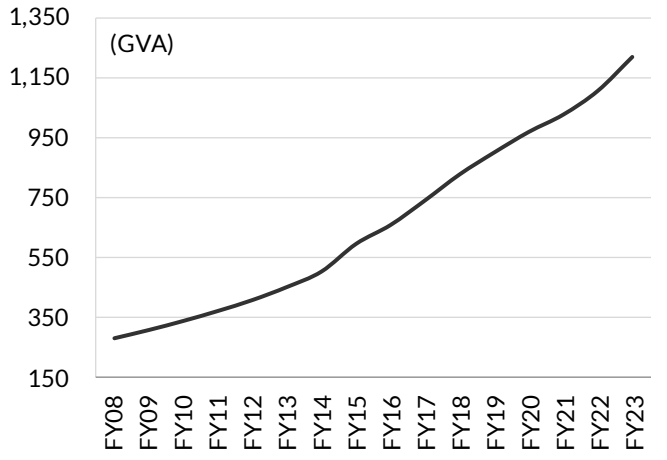
The development of an efficient, coordinated, economical, and robust electricity system is essential for the smooth flow of electricity from generating station to load centers, and for optimum utilization of resources in the country to provide reliable, affordable, un-interruptible (24x7), and quality power for all.

Exhibit 103: India's transmission line network up 5% CAGR



Source: Axis Capital

Exhibit 104: India's substation capacity up 10% CAGR FY08-23



Source: Axis Capital

Transmission planning is a continuous process of identification of transmission system addition requirements, their timing, and need. The need for augmentation of transmission system could arise from the following:

- New generation additions in the system,
- Increase in electricity demand,
- System strengthening may become necessary to improve reliability.

The transmission systems in place in the country consist of the Inter-State Transmission System (ISTS) and Intra State Transmission System (Intra-STS). ISTS is developed by the Inter-State

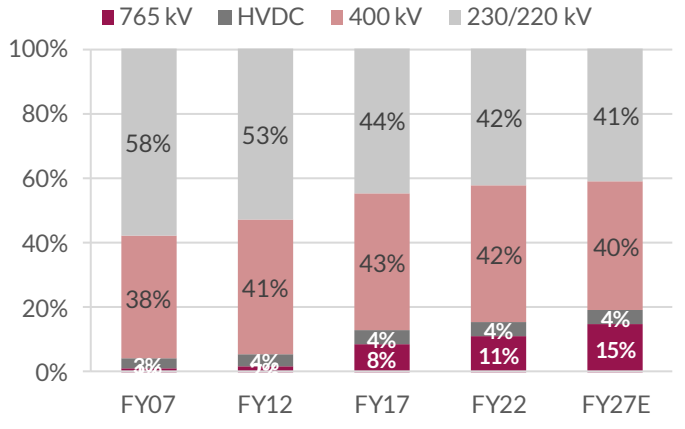
Power transmission capex is estimated to be Rs5.4 tn over FY25-30E, including 37% share of intra-STS projects.

Transmission Licensees, while the Intra-STS is developed by state transmission utilities/intra-state transmission licensees.

Over FY08-23, India's transmission line network saw a CAGR of 5.4% (Exhibit 103:) and sub-station capacity growth was higher at 10.2% CAGR (Exhibit 104:). The share of transmission line network (Exhibit 105:) and substation capacity (Exhibit 106:) at high voltage levels has gone up over the years and the trend is expected to continue.

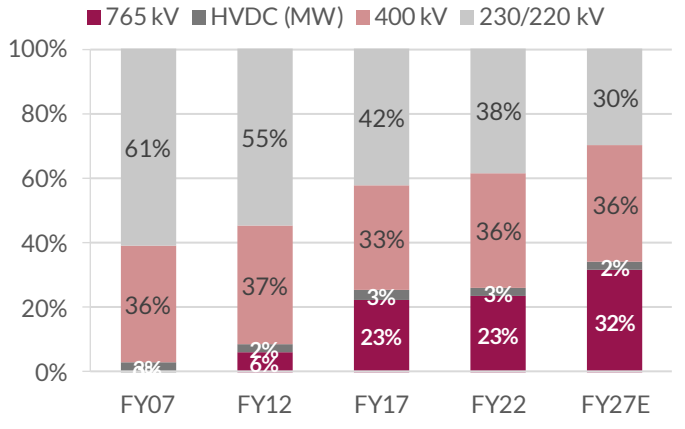
There has been substantial growth in inter-regional power transmission capacity to facilitate the smooth flow of power from surplus to deficit regions and for optimum utilization of the country's generation resources. Thus, inter-state capacity of transmission lines (Exhibit 107:) has declined from 81% in FY17 to 78% in FY24, while the inter-state share of substation capacity has been largely unchanged (Exhibit 108:).

Exhibit 105: Transmission line capacity: % break-up



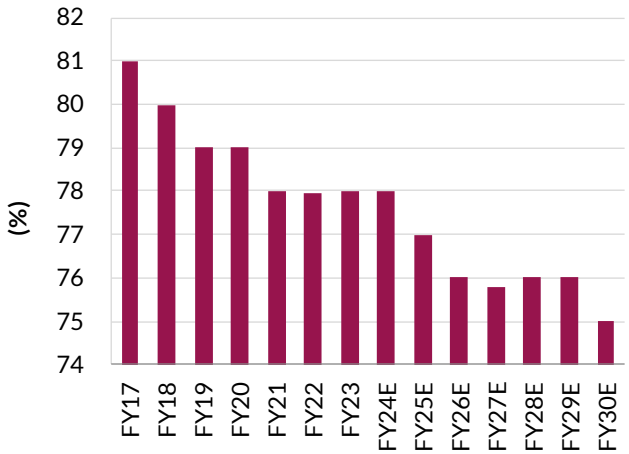
Source: Axis Capital

Exhibit 106: Sub-station capacity: % break-up



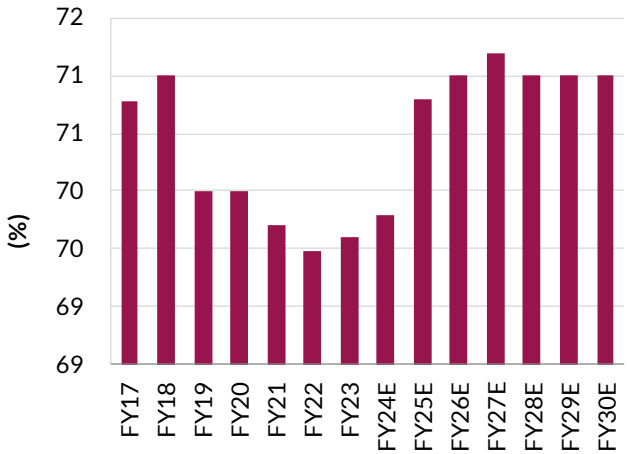
Source: Axis Capital

Exhibit 107: Inter-state as % of transmission lines



Source: Axis Capital; as a % of (765kV+HVDC+400kV) transmission lines

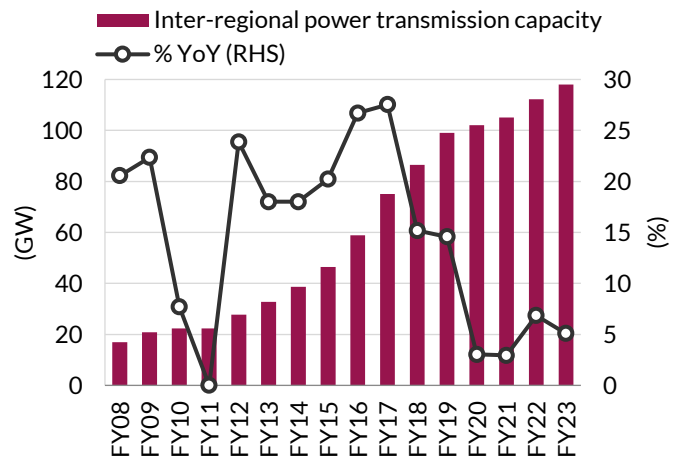
Exhibit 108: Inter-state as % of substation capacity



Source: Axis Capital; as a % of (765kV+HVDC+400kV) substation capacity

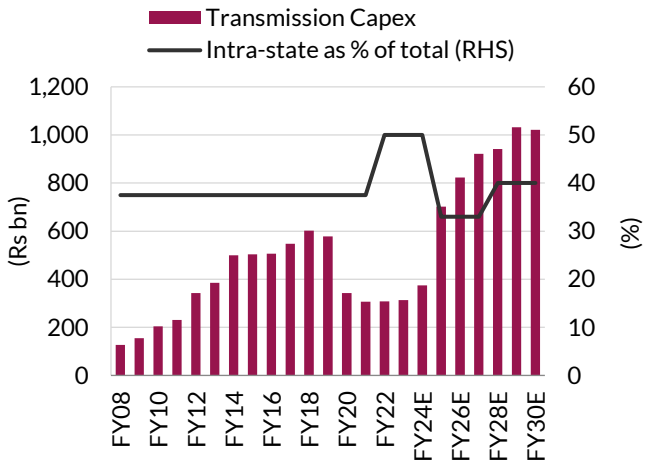
The aggregate inter-regional transmission capacity by the end of FY22 was ~112 GW vs ~14 GW as of FY07 (Exhibit 109:). The required aggregate inter-regional power transmission capacity by FY27 is ~144 GW, necessitating an increase in capex.

Exhibit 109: Inter-regional power transmission capacity



Source: Axis Capital

Exhibit 110: Transmission capex (Rs bn)



Source: Axis Capital

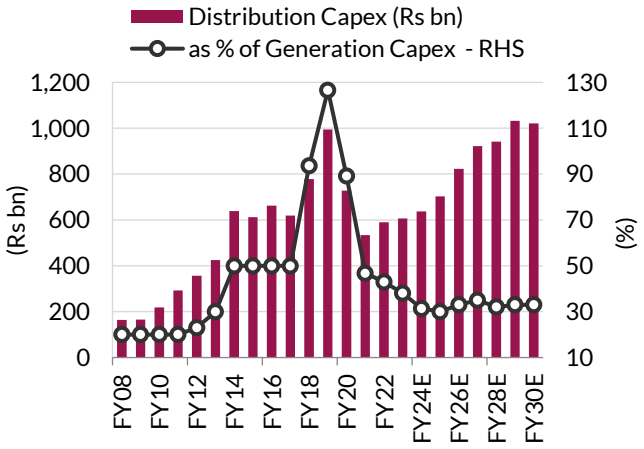
A steep pick-up in installed capacity growth led by renewables warrants a sharp pick-up in transmission capex, as the evacuation corridor must be ready as green capacities get commissioned in under two years vs five to six years taken by thermal projects typically.

We forecast a power transmission capex of ~Rs 5.4 tn over FY25-30E (~US$ 66 bn), including ~37% share for intra-STS projects (Exhibit 110:).

Power distribution: AT&C loss reduction to continue

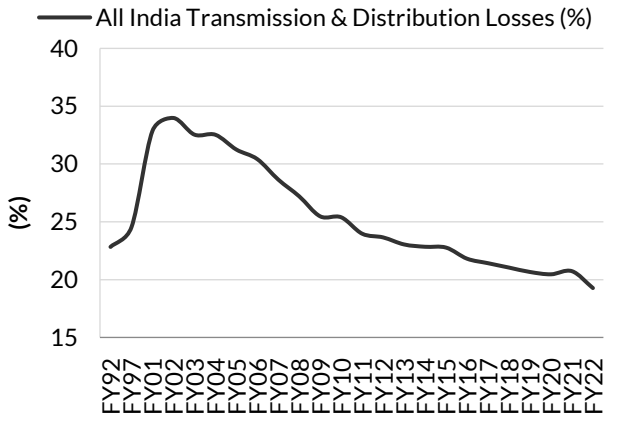
Power distribution capex went through a lean phase between FY07 and FY13, and then picked up after the launch of the UDAY scheme in FY16 (Exhibit 111:). Investment momentum is expected to continue, in our view, and distribution expenditure is expected to converge with transmission investments from here (estimated US$ 66 bn distribution capex over FY25-30E, same as transmission capex), as they see an uptick to accommodate higher green capacity addition.

Exhibit 111: Distribution capex (Rs bn)



Source: Axis Capital

Exhibit 112: All-India transmission & distribution losses (%)



Source: CEA, Axis Capital

T&D losses reduced from a peak of ~34% in FY01 to 19.3% as of FY22 (Exhibit 112:). Aggregate Technical & Commercial (AT&C) losses have reduced from 25.7% in FY15 to ~15% on provisional basis in FY23 (Exhibit 113:).

The government launched the Revamped Distribution Sector Scheme (RDSS) – a reform-based and results-linked scheme – in Jul'21, aimed at transforming the electricity distribution sector.

Overall power sector capex, including generation, transmission and distribution, is estimated to be Rs 28 tn over FY25-30E.

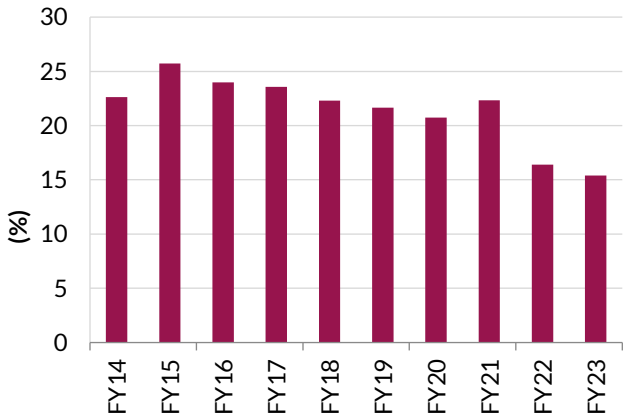
The scheme had an outlay of Rs 3 tn with gross budgetary support (GBS) from the central government of Rs 976 bn for five years, from FY22 to FY26.

The scheme aims to reduce the AT&C losses to pan-India levels of 12-15% and the average cost of supply (ACS)-average revenue realized (ARR) gap to zero by 2024-25. The scheme has two major components:

- **Part A** – Financial support for prepaid smart metering and system metering and upgrade of the distribution infrastructure.
- **Part B** – Training and capacity building and other enabling and supporting activities. Financial assistance to discoms is provided for upgrade of the distribution infrastructure and for prepaid smart consumer metering and system metering based on meeting pre-qualifying criteria and achieving basic minimum benchmark in reforms.

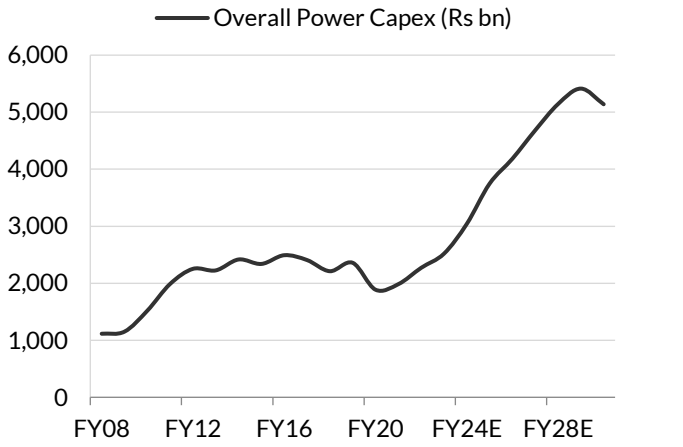
We forecast the overall power sector capex across generation (including storage), transmission, and distribution at Rs 28.3 tn, or ~US$ 340 bn, over FY25-30E (Exhibit 114:).

Exhibit 113: All-India AT&C losses (FY14-23)



Source: Axis Capital

Exhibit 114: Overall power capex



Source: CEA, Axis Capital

Green hydrogen: Lofty ambitions

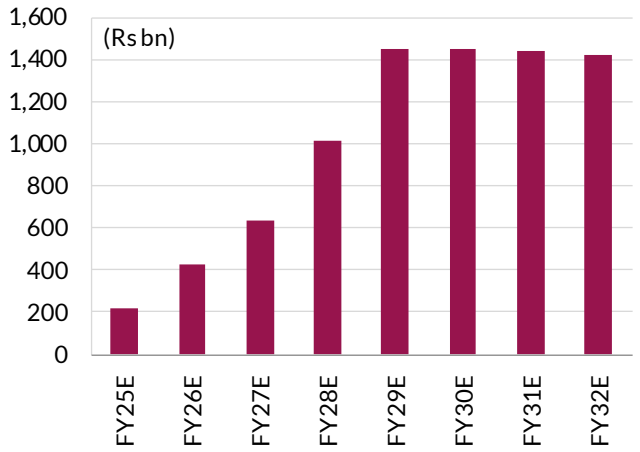
Green hydrogen (GH2) can be used to decarbonize several sectors like transportation, shipping, and steel, among others.

India has announced a target of energy independence by 2047 and net-zero carbon by 2070. Green hydrogen (GH2) is expected to play a substantial role in achieving these goals. GH2 is produced by electrolysis, where water is split into hydrogen and oxygen using electricity generated from renewable sources like solar, wind, or hydropower. This process results in a clean and emission-free fuel that has immense potential to replace fossil fuels and reduce carbon emissions. Another method of producing GH2 is from biomass, which involves the gasification of biomass to produce hydrogen. Both these production methods are clean and sustainable, making GH2 an attractive option for the transition to a low-carbon future.

The need for GH2 is rapidly increasing due to its potential to decarbonize several sectors, including transportation, shipping, and steel, among others. GH2 can replace traditional fossil fuels in transportation, which contributes significantly to greenhouse gas emissions. It can also be used in industry to produce ammonia, methanol, and steel, which are currently heavily reliant on fossil fuels. Additionally, GH2 can be used as a backup energy source for renewable energy plants, providing a constant and reliable source of energy.

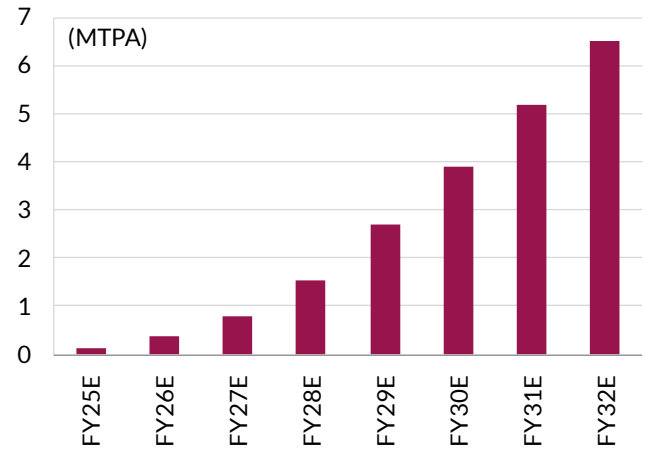
We forecast a GH2 ecosystem capex of Rs 8 tn over FY25-32E (Exhibit 115:) to set up 6.5 mn t p.a. capacity (Exhibit 116:).

Exhibit 115: GH2 ecosystem capex (Rs bn)



Source: Axis Capital

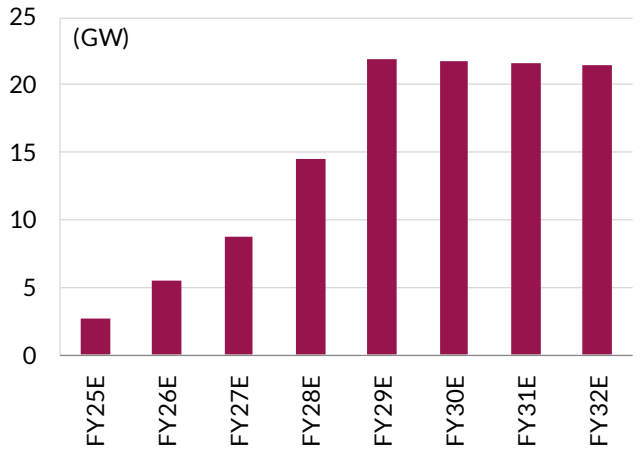
Exhibit 116: GH2 installed manufacturing capacity (mn t p.a.)



Source: Axis Capital

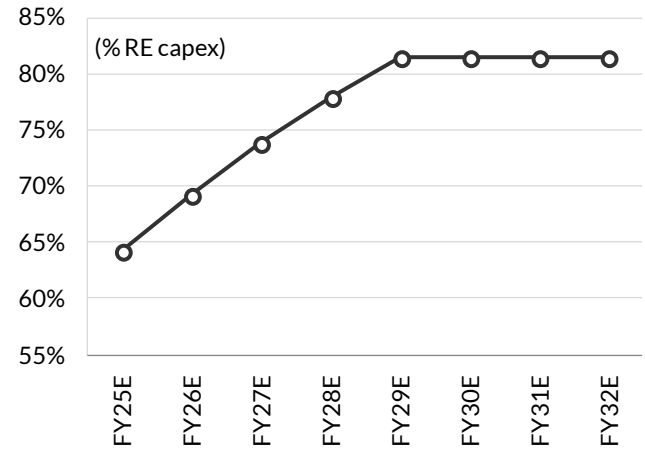
We forecast the need to set up ~150 GW of capacity to generate green electricity (Exhibit 117:). By 2030E, 85% of renewable energy capex in India may be to produce GH2 (Exhibit 118:).

Exhibit 117: RE capacity addition for GH2 manufacturing (GW)



Source: Axis Capital

Exhibit 118: % of RE capex in overall GH2 ecosystem capex



Source: Axis Capital

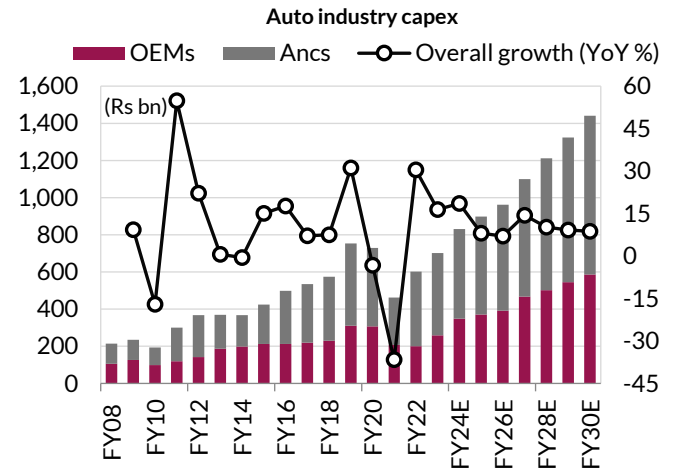
Capex in autos to be driven by technology transitions, capacity expansion of existing players, and increased focus on exports.

Auto capex growth to be driven by industry growth and electrification

Domestic auto industry volumes picked up strongly, with 25-30% volume growth across segments in both FY10 and FY11, helped by the Sixth Pay Commission. Capacity utilization was over 90% across segments, leading to a steep increase in capex over FY11-13 (Exhibit 119:).

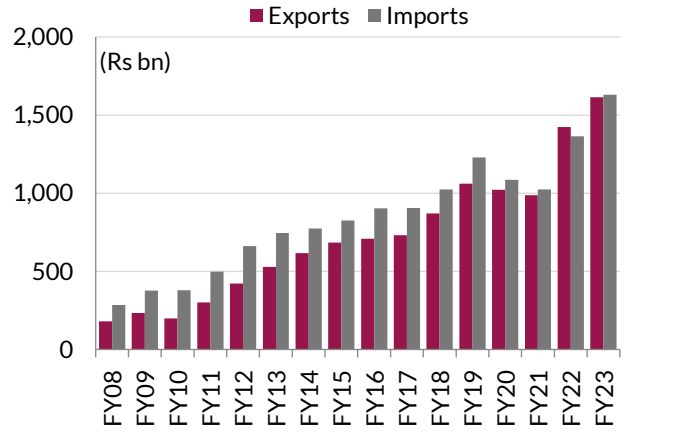
Capex was further accentuated by (1) the entry of MNCs such as Renault-Nissan and VW in India over FY08-10 and (2) several existing MNC OEMs (Ford, Toyota, Honda etc.) launching small cars and expanding capacity in India. Suppliers also had to augment their own capacities to support higher OEM production.

Exhibit 119: Capex expected to see 11% CAGR FY23-30E



Source: Axis Capital

Exhibit 120: Exports of auto components has picked up



Source: Axis Capital

However, industry volume growth did not continue beyond FY12 and hence, capex growth was muted for the next two to three years. It picked up again in FY18-19 with new players such as Kia and MG entering the Indian market and capacity utilization of leading OEMs such as Maruti and Hyundai going above 90%. At an industry level, though, capacity utilization was still around 70% in FY18, as smaller OEMs had set up capacities but were struggling to ramp up volumes.

With focus on localization/import substitution and exports, capex of auto ancillaries picked up substantially over FY15-19. Net automotive component imports in India used to be Rs 180-200 bn annually but are negligible now due to the strong pick-up in exports (Exhibit 120:).

Buoyed by the strong volume growth in the preceding years, tire-manufacturers also expanded capacities after FY18: these form 15-20% of the total auto ancillaries' capex in India.

We expect the auto industry capex to see an 11% CAGR over FY23-30E, led by (1) our view of a 6-8% volume CAGR in the auto industry, especially in PVs; (2) capacity expansions in the PV segment (the Top 4 OEMs operating at over 85% capacity utilization); (3) higher investment requirements due to the need to invest in alternative technologies such as EVs, CNG, LNG, hydrogen etc.; and (4) sustained focus on component exports from India – several MNCs are looking to increase sourcing from India. Note that these estimates do not directly build in significant new investments (beyond already announced) in setting up lithium-ion battery plants.

Capital spending in oil & gas will be boosted by strong capex plans of BPCL and ONGC transition to green-energy initiatives.

Oil & Gas: Refining and petrochemicals will drive capex

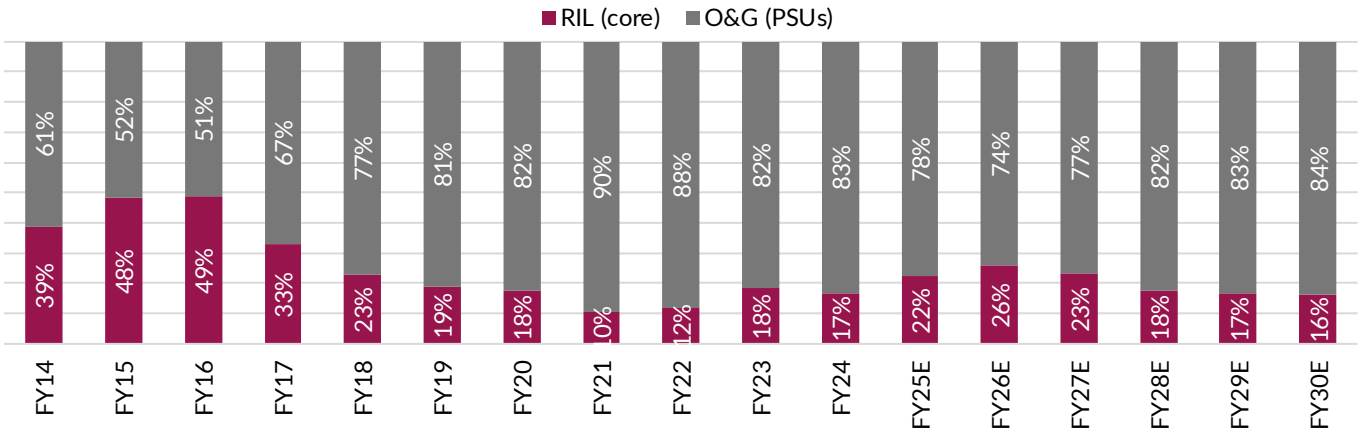
Over the past decade, aggregate capex in the Oil & Gas sector has been range-bound at Rs 1.0 to 1.4 tn annually. Capex from Oil & Gas PSUs saw a 5% CAGR over FY14-24, as state-owned Oil Marketing Companies (OMCs) increased refining capacity from 103 mn t in FY14 to 139 mn t in FY24. However, RIL's capex saw -6% CAGR for Oil to Chemicals (O2C) and Oil & Gas production (O&G); it spent on retail and telecom instead. **We estimate 4% CAGR for capex from the Oil & Gas sector over FY24-30E, reaching Rs 1.7 tn in FY30, with company-wise growth at BPCL (23% CAGR), ONGC (3% CAGR), and RIL (3% CAGR) (Exhibit 121:).**

Exhibit 121: Oil & gas sector capex is expected to grow at 4% CAGR over FY24-30E

(Rs bn)	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25E	FY26E	FY27E	FY28E	FY29E	FY30E	FY24-30E CAGR
RIL (O2C+O&G)	442	552	538	413	230	215	212	117	134	239	237	330	405	368	293	280	280	3%
IOC	167	143	115	207	215	282	314	287	304	352	385	335	335	350	400	400	400	1%
BPCL	44	69	83	169	90	110	111	111	119	121	100	170	200	250	300	350	350	23%
HPCL	26	27	14	58	72	124	163	147	168	140	140	130	125	125	125	125	125	-2%
ONGC	325	300	301	280	279	295	295	269	277	302	375	350	350	350	400	400	450	3%
Oil India	94	38	36	111	82	32	42	133	43	55	59	53	56	50	50	50	50	-3%
GAIL India	41	16	19	18	37	83	61	70	77	91	114	115	100	100	90	90	90	-4%
Total capex	**1138**	**1144**	**1107**	**1257**	**1004**	**1141**	**1199**	**1134**	**1122**	**1300**	**1410**	**1483**	**1571**	**1593**	**1658**	**1695**	**1745**	**4%**
Growth	*42%*	*1%*	*-3%*	*14%*	*-20%*	*14%*	*5%*	*-5%*	*-1%*	*16%*	*8%*	*5%*	*6%*	*1%*	*4%*	*2%*	*3%*	
RIL (O2C+O&G)	442	552	538	413	230	215	212	117	134	239	237	330	405	368	293	280	280	3%
Growth	*72%*	*25%*	*-2%*	*-23%*	*-44%*	*-6%*	*-1%*	*-45%*	*14%*	*78%*	*-1%*	*39%*	*23%*	*-9%*	*-20%*	*-4%*	*0%*	
O&G (PSUs)	696	593	568	843	774	926	987	1016	988	1062	1173	1153	1166	1225	1365	1415	1465	4%
Growth	*28%*	*-15%*	*-4%*	*48%*	*-8%*	*20%*	*7%*	*3%*	*-3%*	*7%*	*10%*	*-2%*	*1%*	*5%*	*11%*	*4%*	*4%*	

Source: MoPNG, Company, Axis Capital

Exhibit 122: Capex break-up between RIL (core) and O&G PSUs



Source: Company, Axis Capital

OMCs: OMCs have committed large capex in new petrochemical and refinery capacities for the next few years. BPCL has planned a capex of Rs 1.5-1.7 tn over the next five years, with the Bina petrochemicals project costing Rs 490 bn (Exhibit 123:). IOC plans to invest Rs 1 tn in the next three years, with 50-60% allocated to refinery expansions (Panipat refinery expansion by 10 mn t, with capex of Rs 362 bn). HPCL has guided its next five-year capex at Rs 750 bn.

Exhibit 123: BPCL's capex plans over the next 5 years

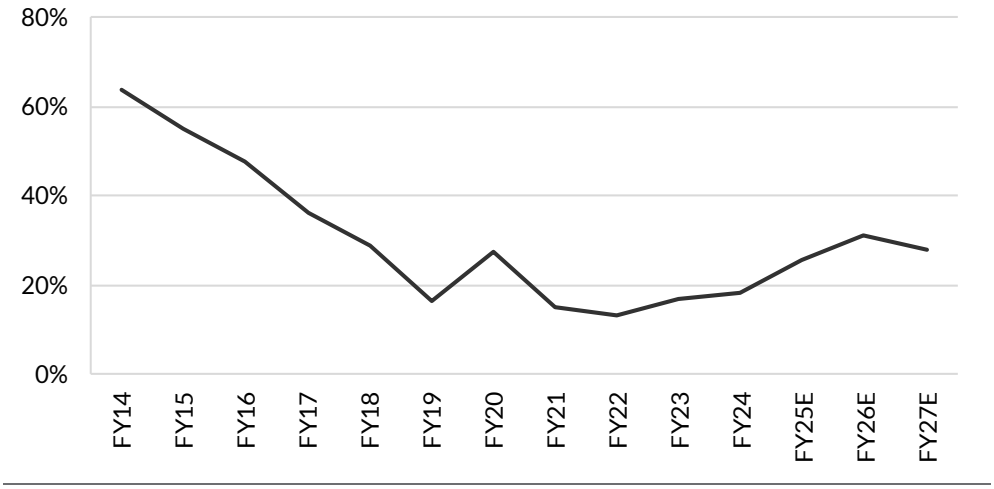
Sectors	(Rs bn)
Refining and petchem	750
E&P	320
Marketing	250
City gas distribution (CGDs)	250
Green energy	100
Total	**1,670**

Source: Company, Axis Capital

ONGC: ONGC has guided annual capex of Rs 330-350 bn for the next 2-3 years. Its oil production fell steadily over the last decade with no material capex growth. The company expects capital intensity to increase, with annual capex rising above Rs 350 bn, starting FY28, as its new green-energy plans shape up. By 2030, the company plans to invest Rs 1 tn in green energy and net-zero carbon initiatives, most of it through JVs.

RIL: Over the past three years, RIL reported a total capex of Rs 3.8 tn, with Jio accounting for Rs 1.4 tn, retail Rs 1.1 tn, and O2C + O&G Rs 610 bn. O2C + O&G capex was at Rs 237 bn in FY24 (~18% of total) and is expected to grow at Rs 300-400 bn per year over next three years, which should start moderating from FY27. The spur in O2C capex comes from a planned Rs 750 bn of growth capex for new petchem capacities which are likely to go online CY27 onwards.

Exhibit 124: RIL's core capex to make up 25-30% of total capex over next 3 years



Source: Company, Axis Capital

Telecom: the 5G-related capex surge is nearly over

We first analyze the capex trends for the sector from FY07 to FY23 and then forecast until 2030E. At an aggregate level, the total capex in the sector has been ~Rs 13.6 tn: 90% of this came from the private sector and 10% from the government (Exhibit 125:). The capex cycles can be broadly broken into four phases, which we have summarized below and in Exhibit 126:.

Phase 1: 2007-10 – expand network coverage; entry of new players

The sector was liberalized in 1995 and network coverage even after 10-12 years of launches was inadequate. There was disparity in coverage – big cities were fully covered, but at an aggregate level, the coverage was not more than 50-60%, with some circles much lower. As affordability increased, profitability improved and valuations expanded, there was a push to increase population coverage and increase tele-density, which even in 2007 was 20%. This push to increase network coverage led to an increase in capex intensity.

In addition, this period also saw incumbents like Idea and Vodafone aiming to increase their circles footprint and entry of new players, which increased players per circle from six to eight to 12-13. These included players like Uninor, Videocon, Loop Mobile etc.

over FY21-23, most capex has been channeled into rolling out 5G networks; 6G spend can start after 2030; BSNL foray into 4G/5G can be a boost to capex in the next two years.

Phase 2: 2010-20 – 3G/4G launch; advent of spectrum auctions

This period saw contrasting trends of a spike in spending despite massive sector consolidation. Capex rose on the back of the government taking the auction route for allocating spectrum as well the launch of 3G followed by 4G in a relatively short period of time: 3G in India was launched in 2011 and 4G in 2016-17. Private capex formed ~85-100% of the total industry spend and Bharti and Jio constituted the bulk of the spend, especially in the second half of the decade.

- **Spectrum auction:** Given the controversy around licenses issued, the Government of India started to allocate spectrum only through the auction route. The first auctions occurred in 2010 for 3G and 4G spectra and there were subsequent auctions in 2012, 2014, 2015, and 2016. The total spend on spectrum during this time period was Rs 3.68 tn. Companies classify spectrum purchases as capex, while in the national accounts, these are asset transfers and therefore do not add to investment.
- **Jio's greenfield 4G launch:** Reliance Jio entered the India telecom market in 2016 with heavy investments in setting up a greenfield 4G network. The scale of Jio's launch can be seen from the fact that between 2015 and 2018, it formed 52% of the total sector spend. The company's aggressive launch also led to a spate of bankruptcies and M&As, the largest one being the merger of Vodafone and Idea to form VIL.

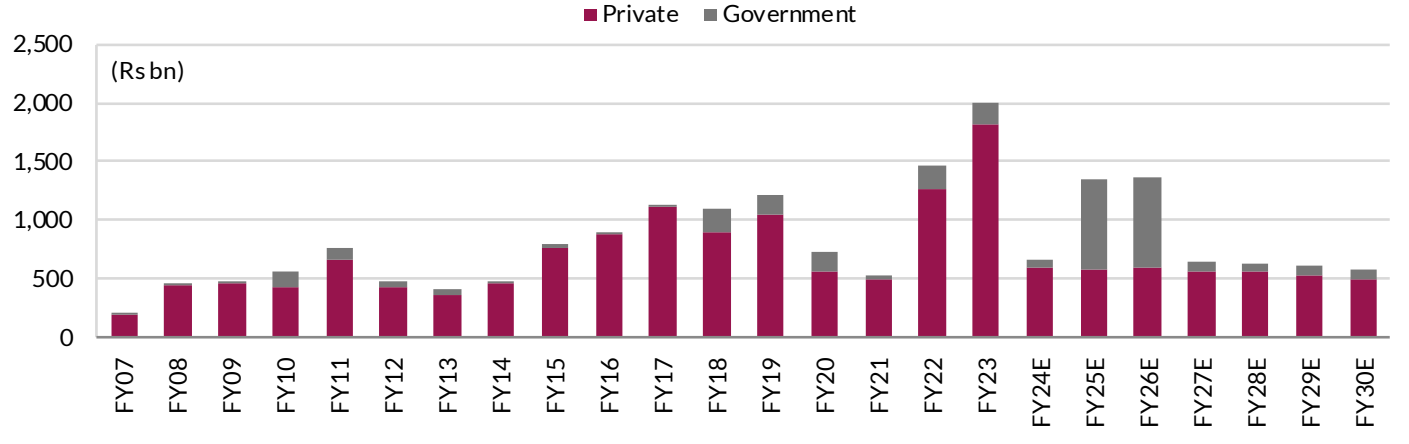
Phase 3: 2021-23 – 5G launch

In the past three years, most capex has been channeled into rolling out 5G networks. This increase was also less about spectrum: the auctions in 2021 and 2022 saw maximum participation from Bharti and Jio, while VIL only participated in 2022. Jio and Bharti are currently in the phase of peak spend for 5G and this should start to taper off. Government capex saw an upswing in FY22 and FY23, with capital infusions into Bharat Net and BSNL, respectively. This took public spending in telecom to ~13% in FY22, at the higher end of the long-term average

Phase 4: 2024-30 – flat to declining capex, BSNL could increase spend

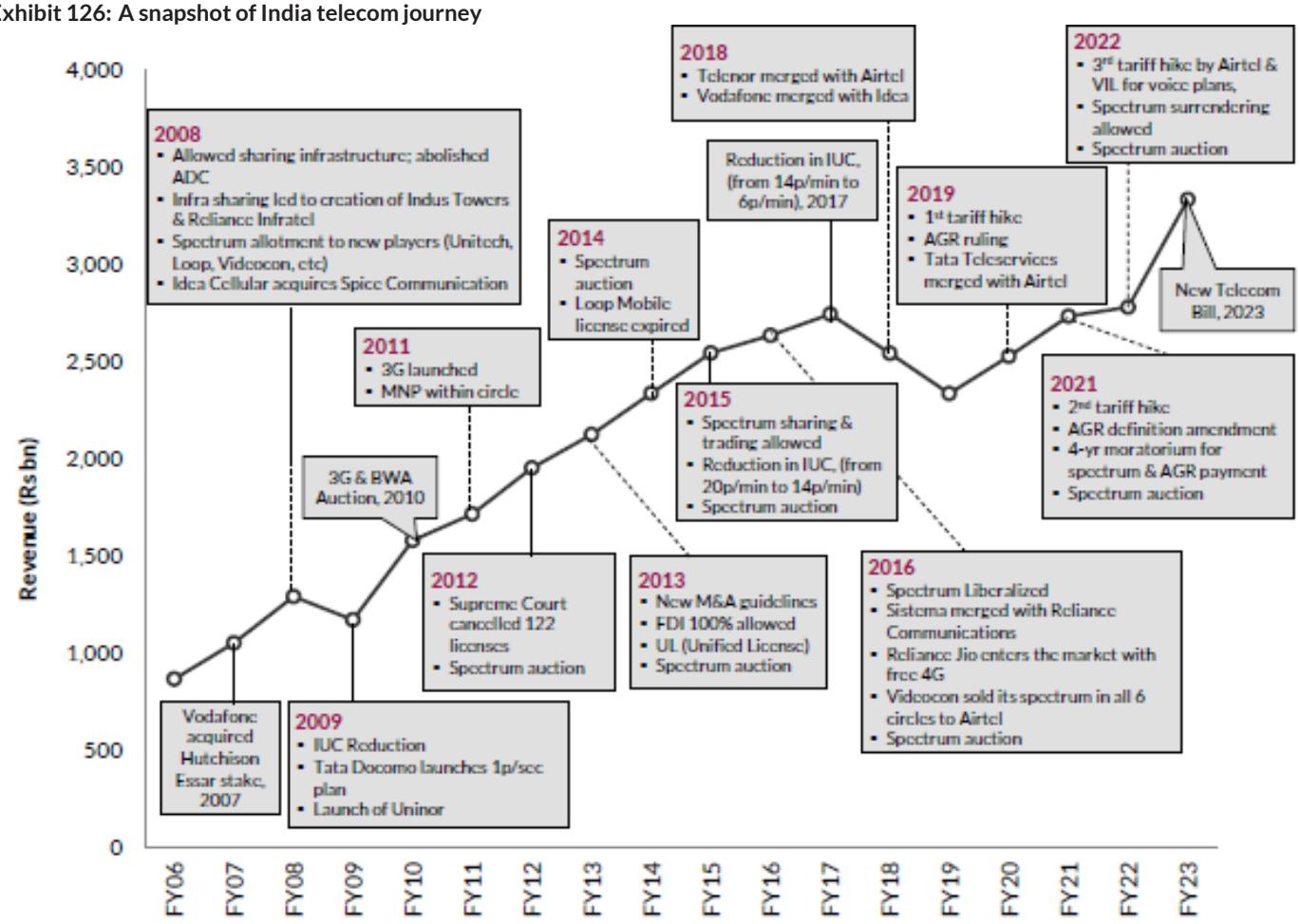
Most of the 5G capex has been incurred in 2022 and 2023. Thus, going forward, we expect declining capex intensity for the private telcos. We also do not foresee any major spectrum auctions during this period. Bharti could see some uptick in capex as and when it transitions to 5G SA. BSNL could see sustained capex spend following its capitalization to launch 4G and then 5G. Bharat Net has an outlay of Rs 1.39 tn in Phase 3 (Phases 1 & 2 were in 2017 and 2021). Going by our estimates, if Rs 1.39 tn is spread equally over FY25E and FY26E, it will form ~9.5% of each year's total capex, which is nearly in line with the long-term trend.

Exhibit 125: Cumulative capex in telecom industry with a public-private capex-split (excluding spend on spectrum)



Source: Company, Bloomberg, Axis Capital

Exhibit 126: A snapshot of India telecom journey

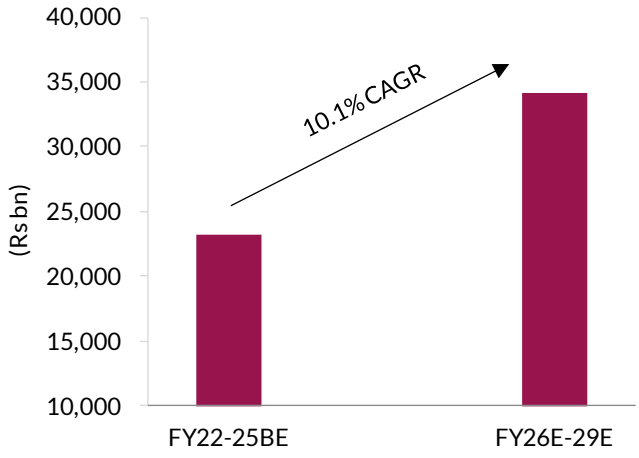


Source: Company, Axis Capital

Defense: Geopolitical pressures warrant India keeping up capex allocations

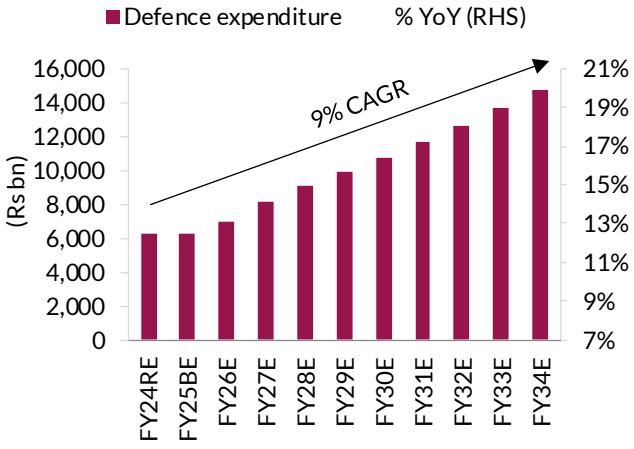
Given that the government is the only buyer of defense equipment, we first project its fiscal ability to spend on capex. We project the opportunity from exports separately.

Exhibit 127: Projected defense expenditure (Rs bn)



Source: Axis Capital

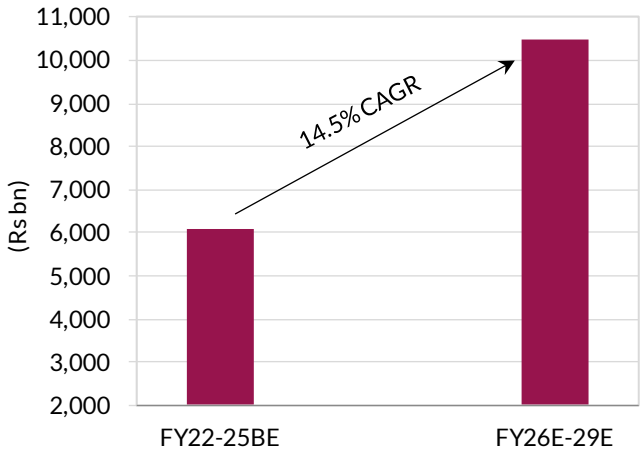
Exhibit 128: Projected defense expenditure (Rs bn)



Source: Axis Capital

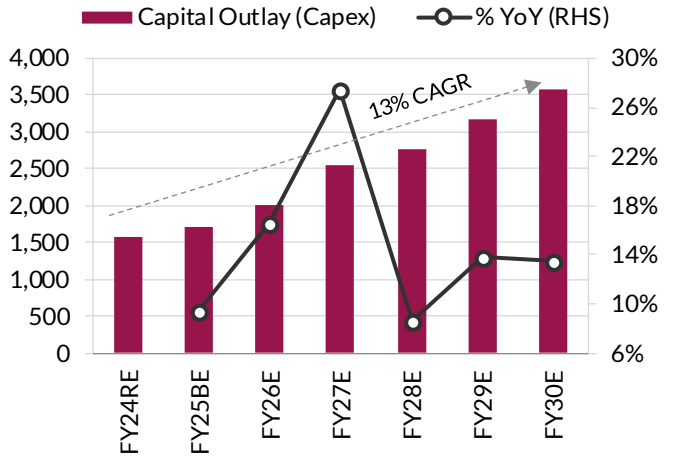
Over FY24-34, we expect India's gross defense expenditure to see a 9.1% CAGR (Exhibit 128:). In FY25BE, the defense expenditure as a % of GDP was the lowest in a decade, at 1.90%. We built in an increase to 2.05% of GDP in FY27E and keep the ratio flat thereafter. Evolving geopolitical equations will have a bearing on growth in defense spending. We expect the aggregate revenue expenditure (ex. stores), pension, and MoD (civil) to see a 7.5% CAGR (Exhibit 132:), leaving the allocation of expenditure addressable by the defense industry to see a 11.3% CAGR (Exhibit 130:) and capital outlay at 13.3% CAGR.

Exhibit 129: Capital outlay forecast (Rs bn)



Source: Axis Capital

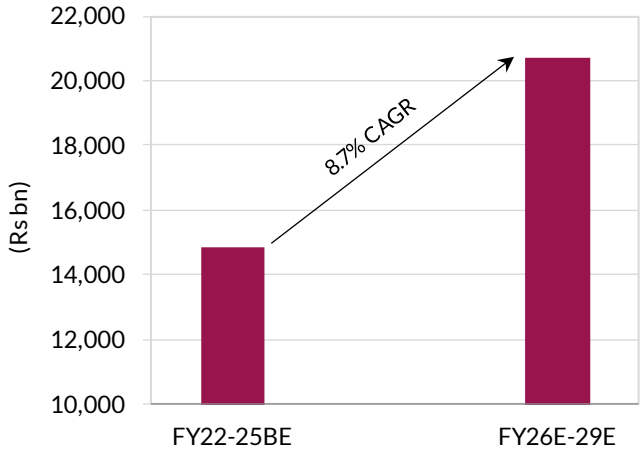
Exhibit 130: Capital outlay forecast (Rs bn)



Source: Axis Capital

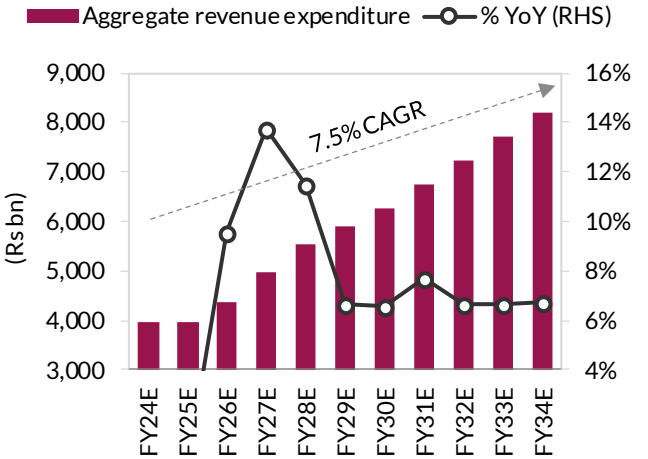
Over FY26-29E, we estimate ~Rs 34 tn of defense expenditure by India, vs the FY21-24 spend of ~Rs 21.8 tn. Capital outlay over FY26-29E is estimated at ~Rs 10.5 tn vs ~Rs 5.7 tn over FY21-24.

Exhibit 131: Aggregate revenue expenditure (Rs bn)



Source: Budget documents, Axis Capital

Exhibit 132: Aggregate revenue expenditure (Rs bn)



Source: Budget documents, Axis Capital

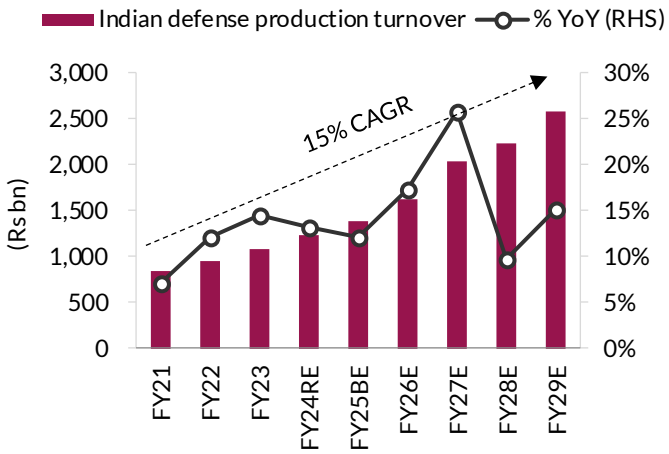
Defense production is estimated to see 16% CAGR over FY23-29E led by increasing privatization and more export opportunities.

India's defense production turnover: Historical trend and road ahead

India's defense production turnover in FY22 was Rs 948 bn (+12% YoY) and in FY23 was Rs 1,087 bn (+14.6%). Defense PSUs, including OFB, have accounted for close to 75% of the total value of production. Over FY17-23, India's defense production saw a 6.6% CAGR; over FY23-29E, we expect the CAGR to increase to 15.9% (Exhibit 133:). The overall defense production in India, excluding exports, has seen just 4.2% CAGR over FY17-23, implying that a marked shift in indigenization of production is yet to happen.

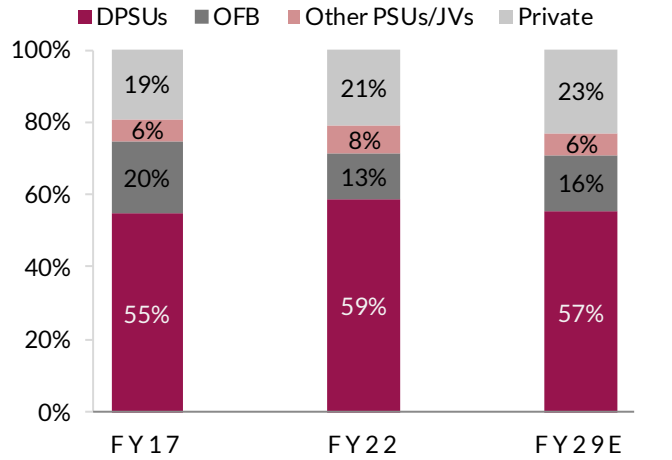
We expect the share of private sector to keep inching up from ~19% in FY23 to 23% by FY29E (Exhibit 134:), translating into ~19% CAGR opportunity for private players over FY23-29E. Private players are expected to continue doing better than DPSUs in tapping the export opportunity aside from sharing the benefit of government initiatives around indigenizing defense procurement.

Exhibit 133: India's defense production turnover (Rs bn)



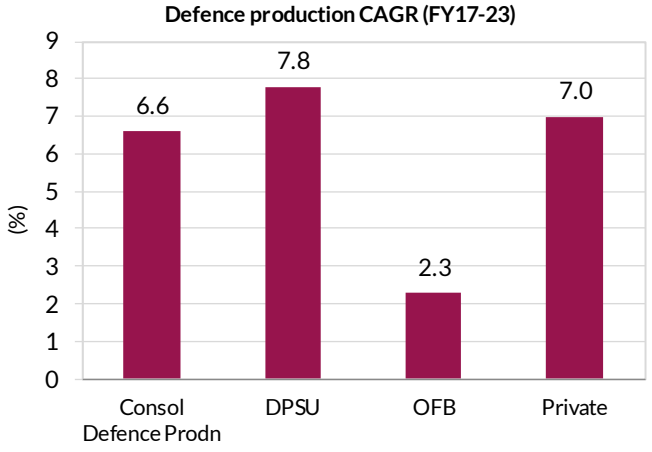
Source: DRDO, Axis Capital

Exhibit 134: India's defense production turnover – % mix



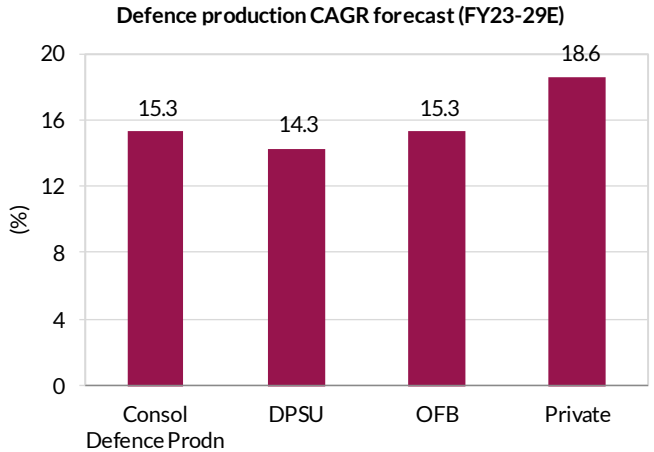
Source: DRDO, Axis Capital

Exhibit 135: Historical CAGR for defense production FY17-23



Source: Budget document, Axis Capital

Exhibit 136: Forecast CAGR for defense production FY23-29E



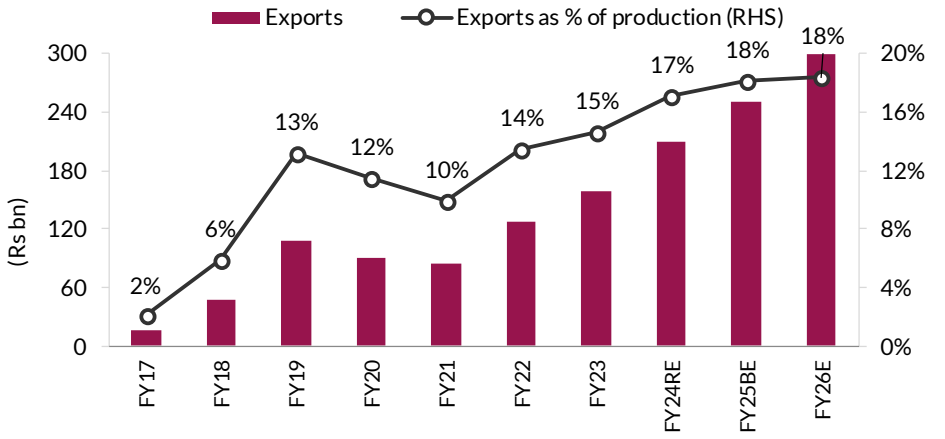
Source: Budget document, Axis Capital

Defense exports are growing as a share of production, nearly half of private sector production

Defense exports have grown to Rs 159 bn as of FY23, from just Rs 15 bn in FY17. Their share in defense production turnover has increased from 2% in FY17 to 15% in FY23 (Exhibit 137:).

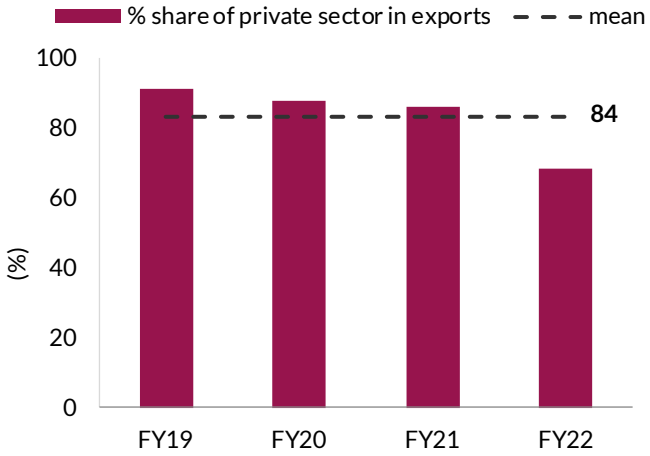
Private sector has been driving exports. Exports represent around half of defense production by the private sector. The government targets ~Rs 350 bn of exports by 2025. The MoD policy has been conducive, as reflected in the faster, and a higher number of, export authorizations over the years

Exhibit 137: Defense exports as % of total defense production



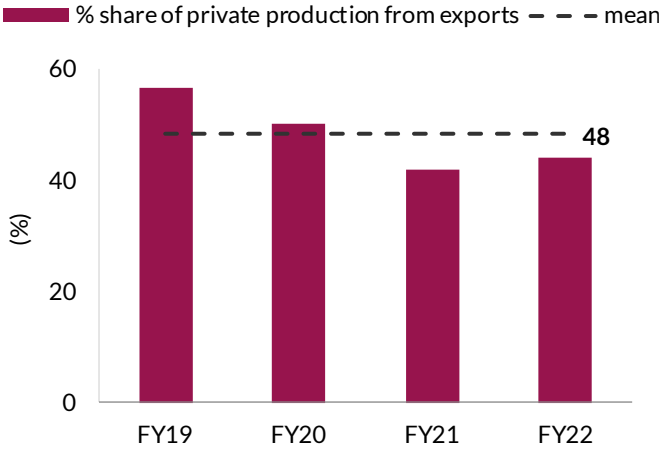
Source: Ministry of Defense, Axis Capital

Exhibit 138: % share of private sector in exports



Source: DRDO, Axis Capital; Note: Mean value is highlighted by red

Exhibit 139: % share of private production from exports



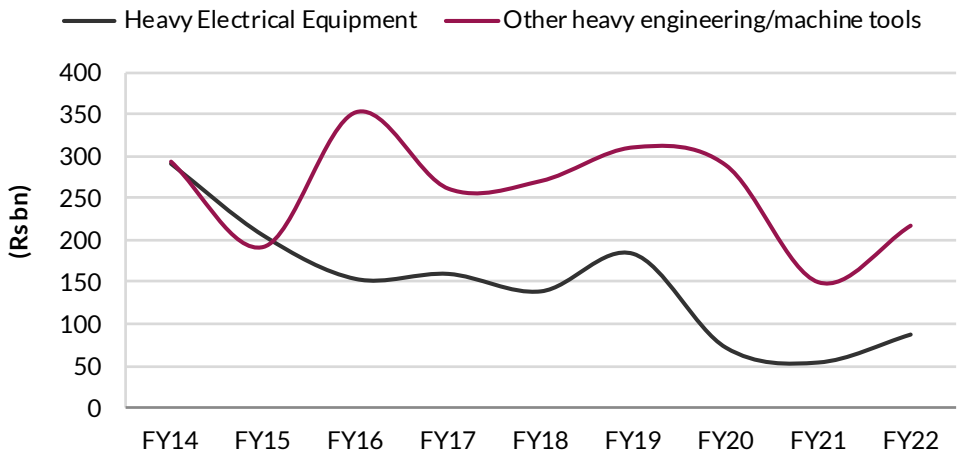
Source: DRDO, Axis Capital; Note: Mean value is highlighted by red

Manufacturing-led growth requires growth in capital goods output

The capital goods sector serves the construction, heavy engineering, machine tool, and heavy electrical equipment requirements which is a part of manufacturing capex. There is an overlap of this spend with outlays for power and industry-level capex.

The capital goods market size as of FY23 was ~Rs 4.4 tn, or ~1.6% of India's nominal GDP. This sector is crucial for economic development, as India has historically been heavily dependent on imports for its requirement of capital goods (Exhibit 140:). Production shifting to India is important for '*Atmanirbharta*' (self-reliance).

Exhibit 140: Net import of capital goods (Rs bn)



Source: Axis Capital

Growth in capital goods market is estimated to grow from 3% CAGR in FY14-20 to 16% CAGR in FY23-30E.

The heavy electrical equipment industry is an important manufacturing sector which caters to the need of energy and other industrial sectors. It leads to development of industries by facilitating provision of energy network and critical requirements. Steam generators, turbo generators, turbines, transformers, switch gears and relays, and related accessories are manufactured by this sector. On a median basis, ~58% of capital goods expenditure over the past decade has been for heavy electrical equipment.

The heavy engineering and machine tool sector comprises plant and machinery, equipment and accessories required for manufacture and production, either directly or indirectly, of goods or rendering services required for replacement, modernization, technological upgrade, and expansion. It also includes packaging machinery and refrigeration equipment.

India is a net importer of capital goods but import dependence has reduced over the past decade.

India's capital goods expenditure ambled at a 3% CAGR over FY14-20. Despite the Covid disruption in FY21, over FY20-23, the CAGR was 12%. With the thrust for manufacturing and a broad-based cyclical recovery, we expect the capital goods market to increase from 1.6% of GDP in FY23 to 2.37% of GDP by FY30E, implying a healthy 16% CAGR (Exhibit 141:).

Exhibit 141: India's capital goods expenditure (Rs bn)

Sub sector of capital goods (Rs bn)	FY14	FY20	FY23	FY24E	FY30E	FY14-20 CAGR (%)	FY20-24E CAGR (%)	FY23-30E CAGR (%)
Machine Tools	79	157	211	259	774	12	13	20
Does, Moulds and press tools	142	189	240	291	831	5	11	19
Textile machinery	117	121	288	344	924	0	30	18
Printing Machinery	207	204	255	307	860	-0	11	19
Earthmoving and Mining machinery	222	322	370	433	1,082	6	8	17
Plastic Machinery	31	29	73	94	324	-1	34	24
Food processing Machinery	149	93	154	197	664	-8	21	23
Process Plant Equipment	206	256	256	294	678	4	4	15
Heavy Electrical Equipment	1,580	1,864	2,513	2,855	6,317	3	11	14
TOTAL	**2,733**	**3,235**	**4,360**	**5,073**	**12,454**	**3**	**12**	**16**

Source: Axis Capital

Solar module manufacturing: Localization push and 'China + 1' to light up capex

As solar becomes a growing part of power generation, the government is incentivizing local production of solar modules and further backward integration. Over FY25-27E, we forecast ~Rs 580 bn of capex for manufacturing capacities across the solar PV value chain (Exhibit 142:). ~20 GW p.a. capacity is expected to be fully backward integrated up to polysilicon by FY27E.

Exhibit 142: Capex across solar PV value chain

	Up to FY23	FY24E	FY25E	FY26E	FY27E
Capacity (GW)-DC					
Module	30	15	20	15	10
Cell	4	12	15	15	4
Wafer	0	0	4	10	15
Polysilicon	0	0	0	5	15
Capex/GW (Rs bn)					
Module	1.2	1.2	1.2	1.2	1.2
Cell	5.5	5.5	5.5	5.5	5.5
Wafer	6.5	6.5	6.5	6.5	6.5
Polysilicon	7.5	7.5	7.5	7.5	7.5
Capex (Rs bn)	**58**	**84**	**133**	**203**	**244**
Module	36	18	24	18	12
Cell	22	66	82.5	82.5	22
Wafer	0	0	26	65	97.5
Polysilicon	0	0	0	37.5	112.5

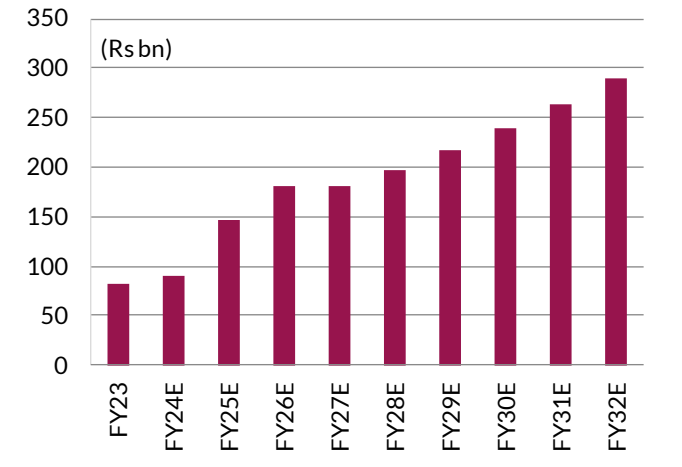
Source: Axis Capital

Data centers: On an upswing, but small for capex

India's data center capacity can grow 5x over FY22-30E to ~3 GW, requiring investment of Rs 900 bn over FY25-30E.

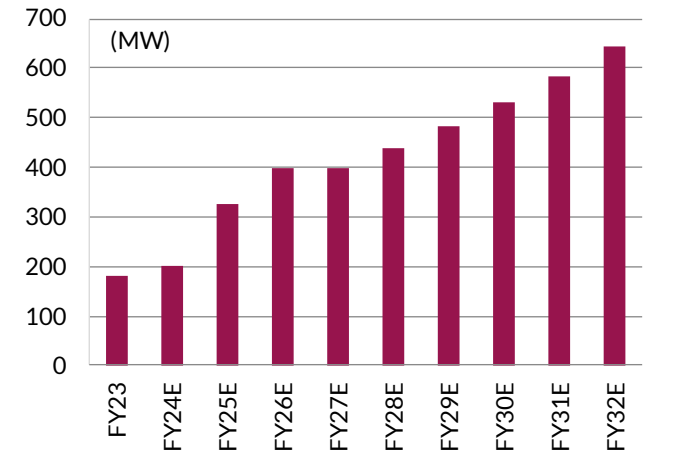
A data center is a physical facility that organizations utilize to house their critical application and data. It comprises routers, switches, firewalls, servers, storage systems, and controllers, and is very power-intensive. Data centers are classified under infrastructure facilities by the government and are eligible for tax incentives for capex. Most of the data centers are concentrated in India's top metros due to infrastructure availability. The 'Digital India' initiative, 5G rollout, and development of Tier-2/3 cities will spur high and geographically diverse growth in data centers. India's data center capacity is forecasted to grow ~5x over FY22-30E to ~3 GW (Exhibit 144:). We forecast investment of ~Rs 900 bn over FY25-30E (Exhibit 143:).

Exhibit 143: Data center capex estimated at Rs 0.9 tn FY25-30E



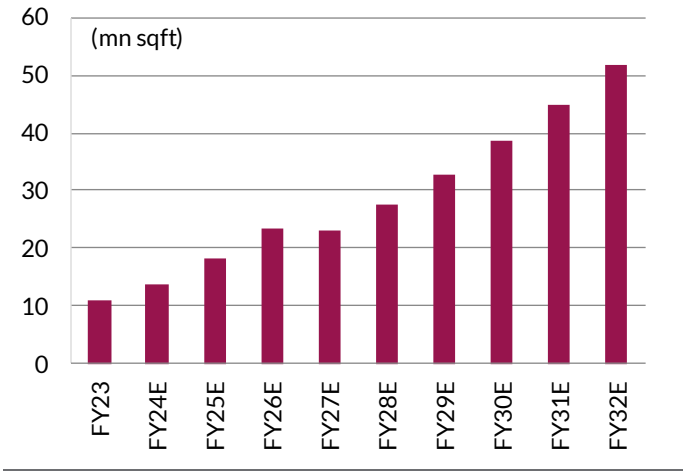
Source: Axis Capital

Exhibit 144: Data center capacity addition estimated to rise



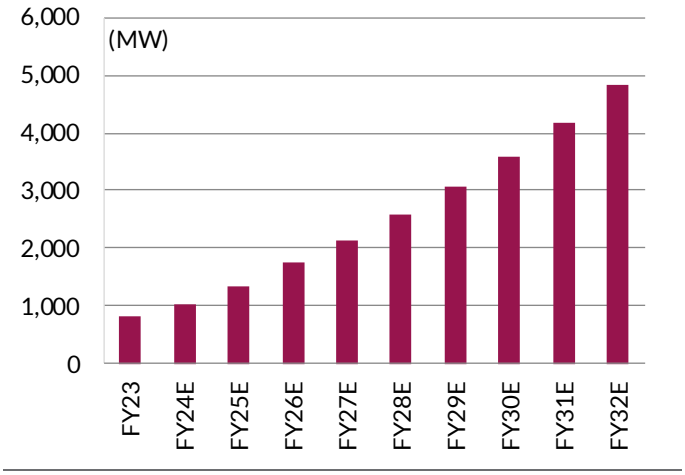
Source: Axis Capital

Exhibit 145: Area occupied by data centers (mn sq ft)



Source: Axis Capital

Exhibit 146: Data center capacity to grow 5x to 3 GW by FY30E



Source: Axis Capital

Given the availability of cheap and surplus labor, the penetration of robots in India is limited, total investment is unlikely to be significant.

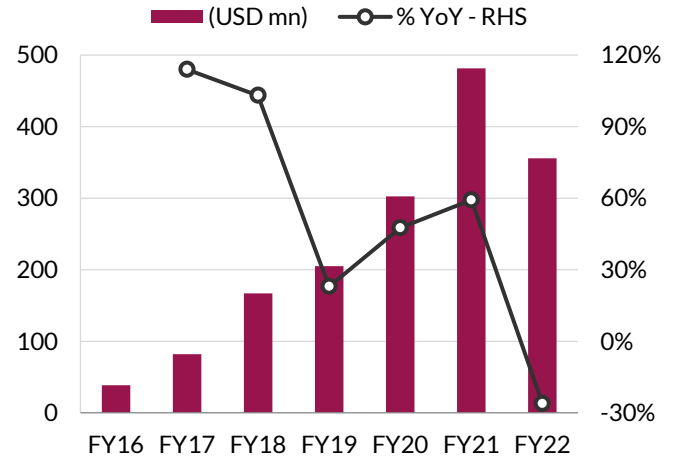
Robotics: More is less, automation capex could see exponential growth

The robotics market is shaped by various trends, e.g., the Industrial Internet of Things, mobile autonomous robots, collaborative robots, and/or open-source software. In addition, trending topics such as 5G, edge computing, and smart mobility influence the market.

Artificial intelligence (AI) is boosting further innovation in automation. AI in robotics is becoming more sophisticated, and the use of self-learning robots is becoming more popular. In addition to that, the possibility to collect and analyze data from intelligently automated processes allows manufacturers and service providers to make data-driven decisions.

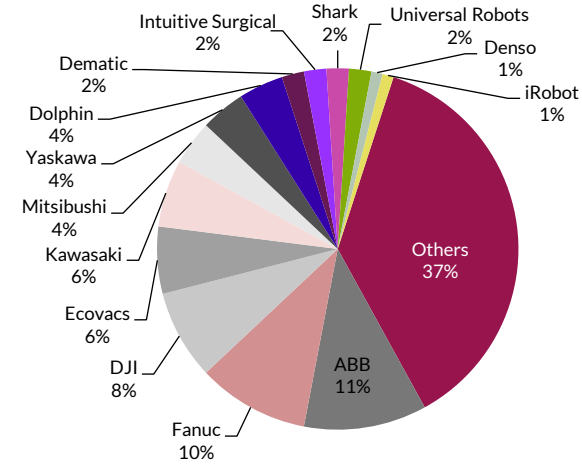
Given the availability of cheap and surplus labor, the penetration of robots in India is limited, and while we expect it to grow rapidly, the total investments even at the end of the forecast period are unlikely to be a significant part of overall capex (Exhibit 147:).

Exhibit 147: Robotics investment



Source: Statista; Note: Data shown is using current exchange rates and reflects market impacts of the Russia-Ukraine war.

Exhibit 148: Key players in robotics in India

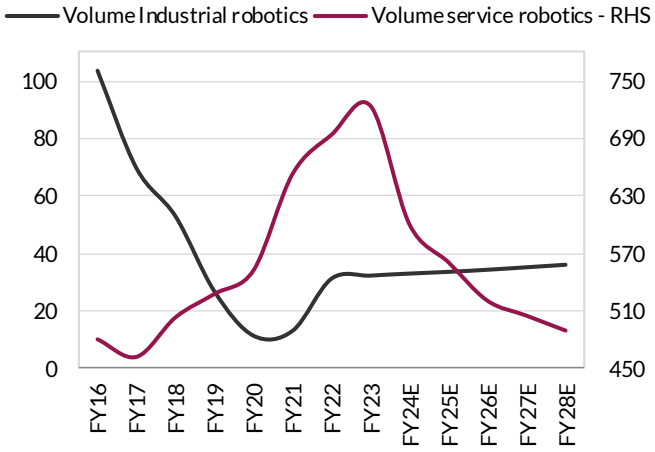


Source: Statista; Note: ; Note: Data shown is using current exchange rates and reflects market impacts of the Russia-Ukraine war.

The trend of simplification is another driver of the robotics market. With decreasing implementation efforts, robotics is also gaining importance in industries that have not used robots in the past. Robot manufacturers try to make their products easier to use by providing holistic offerings, i.e., bundling hardware packages with software solutions, which facilitates easier implementation of autonomous setups.

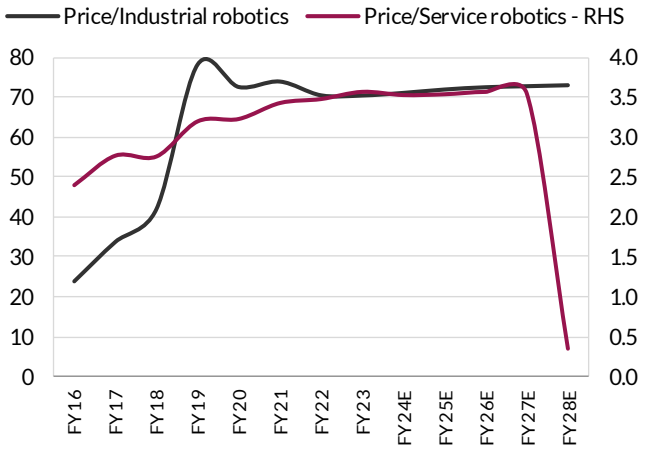
With all these trends driving the robotics market, it is expected to continue growing in the future, resulting in positive revenue growth rates in the forecast period.

Exhibit 149: Total number of robots ('000s)



Source: Statista; Note: Data shown is using current exchange rates and reflects market impacts of the Russia-Ukraine war.

Exhibit 150: Price per new installed robot (US$ '000s)



Source: Statista; Note: Data shown is using current exchange rates and reflects market impacts of the Russia-Ukraine war.

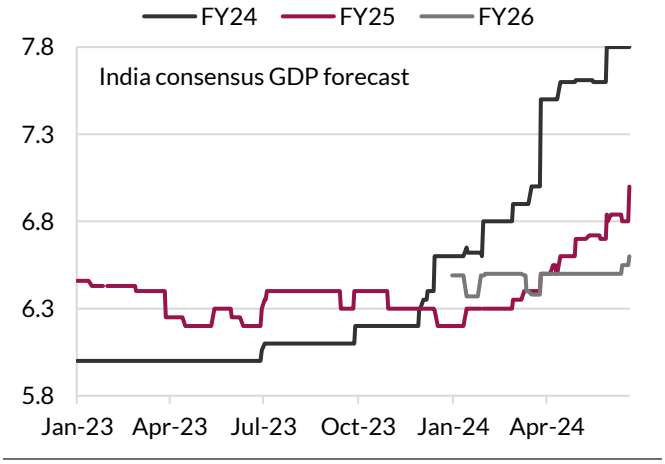
Challenges to further growth acceleration can limit upside to capex

Economic cycles have strong self-reinforcing characteristics, akin to inertia in a moving vehicle. Momentum often builds on itself, as investments in aggregate reflect not only imminent demand-supply mismatches but also future expectations of growth. Acceleration in demand for goods and services drives up investment activity, which creates jobs, and the resultant income feeds back into the cycle. Say, if an economy has settled into a 7% annual growth pattern, firms in various industries build capacity according to that momentum. If growth picks up to 8% or slows down to 6%, firms then end up bringing forward or postponing their investment intentions.

Growth forecasts being upgraded, but economic output is still below potential

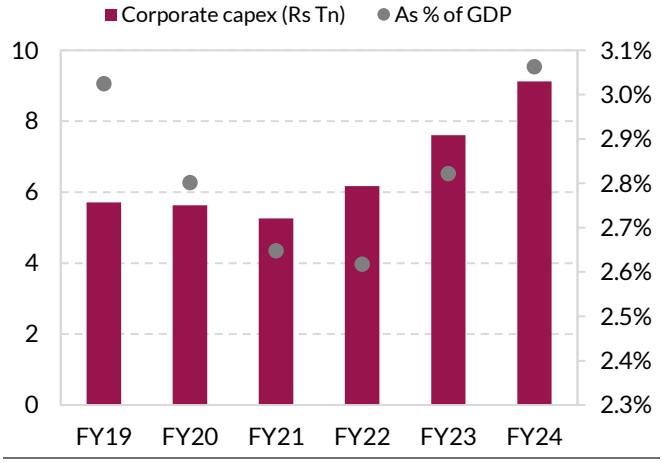
Over the past few quarters, India's GDP growth forecasts have been upgraded meaningfully (Exhibit 151:); with the level of real output in FY25 raised nearly 3 pp in the past 18 months. This is substantial, necessitating upward revisions to volume growth forecasts across industries and bringing forward investments. Capex by ~3,900 companies rose 20% YoY in FY24, and as a % of GDP has now gone back to pre-Covid (FY19) levels (Exhibit 152:).

Exhibit 151: Growth forecasts upgraded meaningfully



Source: RBI, Axis Capital

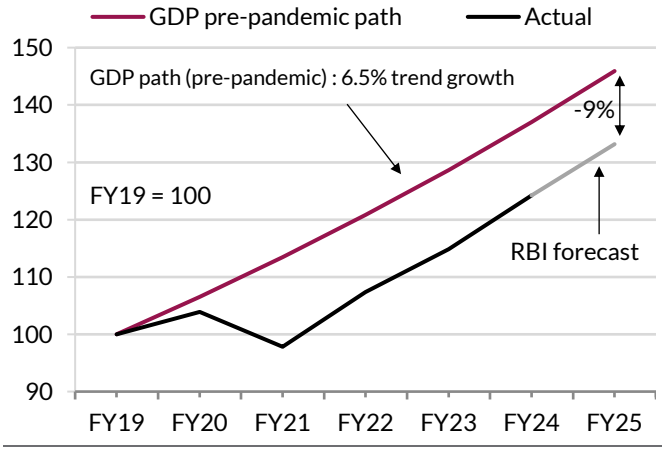
Exhibit 152: BSE200 capex as % of GDP back at FY19 level



Source: CEIC, Axis Capital

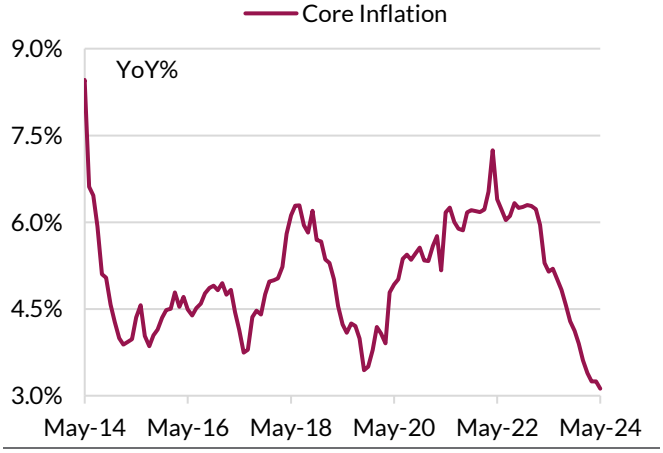
Despite the positive surprises, though, the economy though is still ~9% below the pre-pandemic path (Exhibit 153:). This slack in the economy is also visible in the weak core inflation (Exhibit 154:), in our view. That raises the question: can growth accelerate further?

Exhibit 153: Output yet to catch-up vs. pre-pandemic path



Source: RBI, Axis Capital

Exhibit 154: Output below potential ➔ weak core inflation

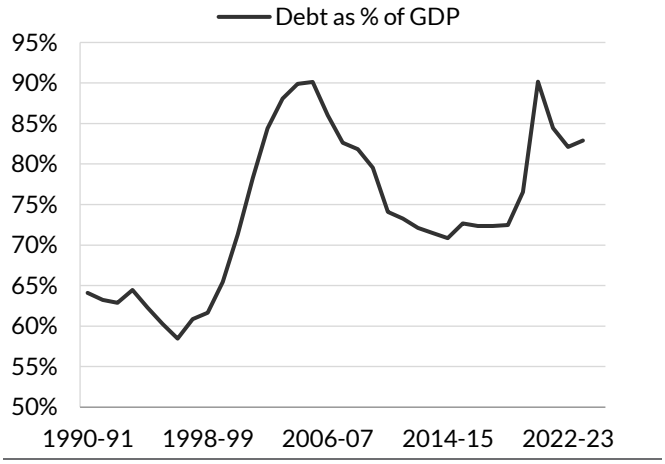


Source: CEIC, Axis Capital

But cyclical boost is unlikely, given lack of fiscal and monetary space

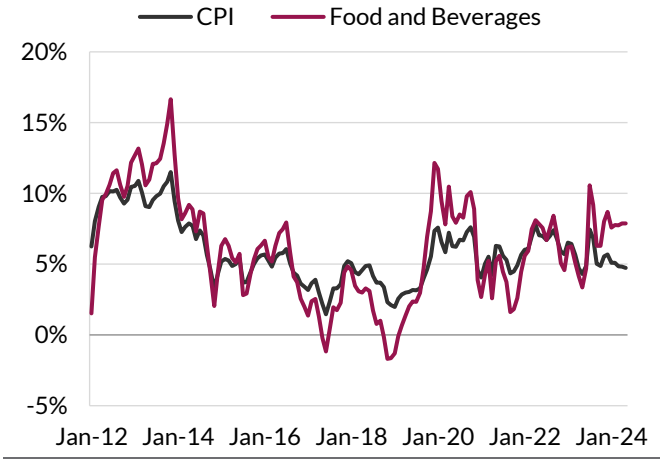
Monetary and fiscal policies are used to smoothen growth cycles by borrowing from the future when growth is below potential and vice versa. The pandemic-driven slack in the economy, though, is unlikely to drive active intervention. Elevated sovereign debt-to-GDP levels (Exhibit 155:) limit the scope for expanding fiscal deficits and necessitate adherence to the stated fiscal consolidation path. Similarly, sustained high food inflation reduces the scope of monetary easing (Exhibit 156:), given the monetary policy committee's mandate to target headline inflation.

Exhibit 155: High debt-to-GDP limits scope of fiscal stimulus



Source: RBI, Axis Capital

Exhibit 156: Food inflation limits scope of monetary easing

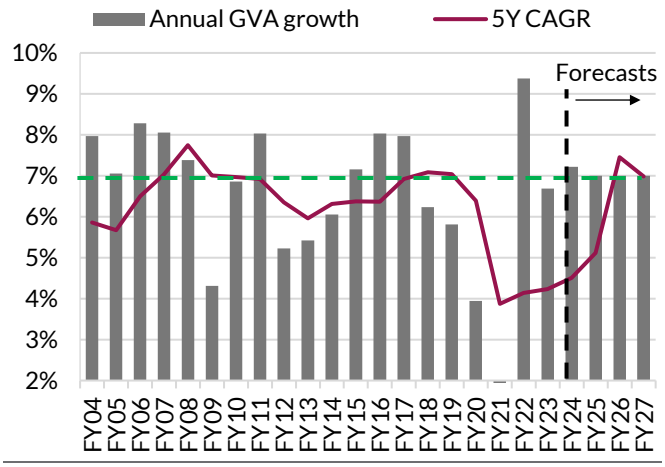


Source: CEIC, Axis Capital

Can trend growth rise to 8% p.a. again? Constraints mainly in capital formation

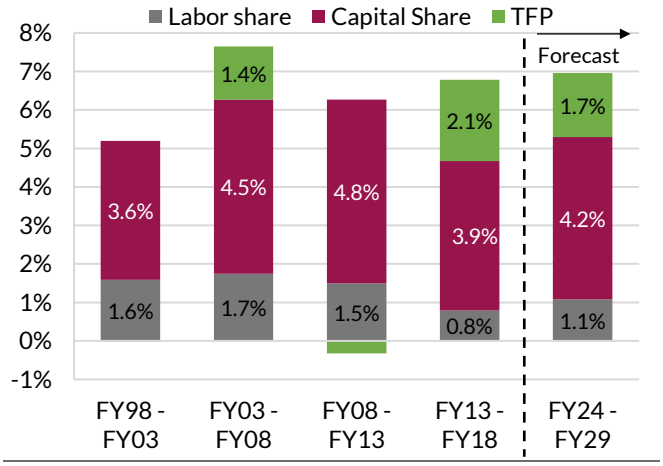
The five-year CAGR of India's GDP came close to 8% only in the FY03-08 period (Exhibit 157:). During that period, labor added a strong 1.7% to GDP growth, as employment was growing at 2.5-3% YoY (Exhibit 159:). As population growth starts to decelerate and the pace of increase in the labor force participation rate (LFPR) stalls (increase in FY21 was due to the female LFPR rising during the pandemic), labor growth is unlikely to grow 1.5% annually for the next five years. Labor quality can continue to improve steadily, as visible in the growing enrolment in higher-education and skill-training, but in aggregate, we expect labor to add only around 1pp annually to GDP growth for the next five years (Exhibit 158:).

Exhibit 157: 5Y CAGR of GVA has rarely crossed 7%



Source: CBO, Axis Capital

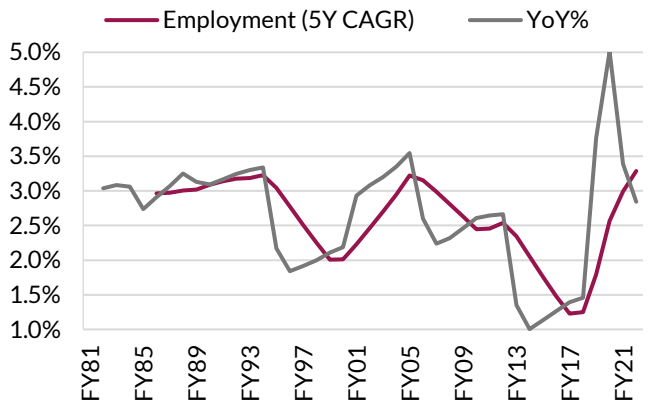
Exhibit 158: ~8% trend growth difficult; 7% more realistic



Source: CEIC, Axis Capital

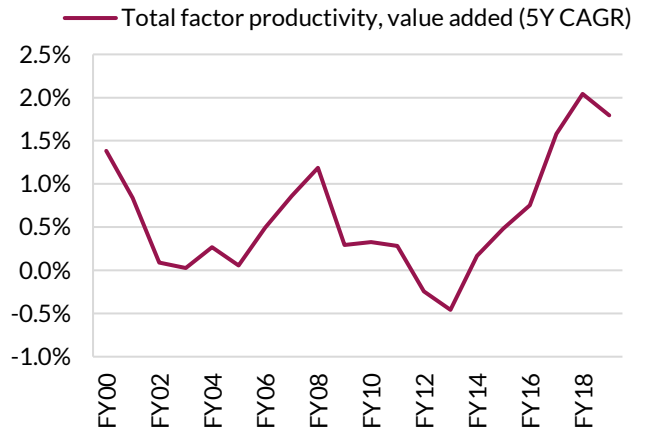
The total factor productivity (TFP) was also strong during the FY03-08 period, at 1.4% (Exhibit 160:). Since then, it saw a deceleration during FY08-13 but has improved steadily thereafter; growth has increased to nearly 2% YoY in the past ten years, one of the strongest in the world.

Exhibit 159: Labor growth likely to slow down to 1.5%



Source: RBI, Axis Capital

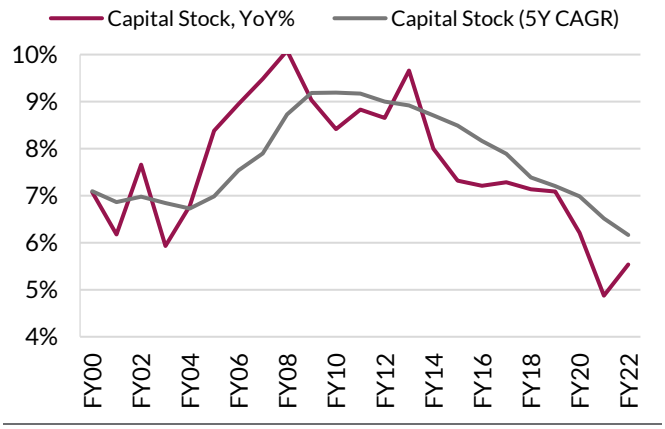
Exhibit 160: TFP likely to be higher vs 2004-07 growth era



Source: CEIC, Axis Capital

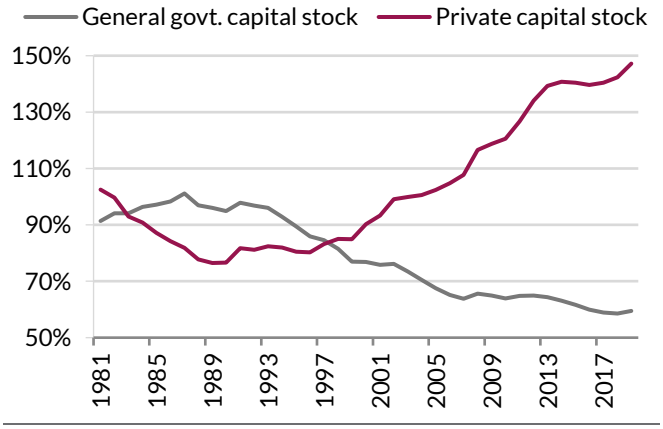
The primary drivers of growth in productivity are continuing shift of control to the private sector (as also reflected in their rising share of capital stock: Exhibit 162:), the government shifting from a control mindset to relying on market forces, diffusion of global best practices and technology as foreign firms expand presence in India, and continued improvement in macro-infrastructure (roads, railways, highways, telecom, digital) as well as micro-infrastructure (water pipes, cooking gas). As these trends continue, TFP growth can continue to grow 1.5-2% annually for the next five years, adding ~1.7 pp to the total GDP growth.

Exhibit 161: Capital stock (% of GDP) stagnated since 2011



Source: RBI, Axis Capital

Exhibit 162: India's capital stock dominated by private



Source: CEIC, Axis Capital

For growth to cross 7.5%, capital formation needs to accelerate

The primary driver of the strong GDP growth during the FY03-08 period was growth in capital formation, which grew 8.7% annually during the period (Exhibit 161:). A slowdown in capital formation in the succeeding period (FY13-18) was also the primary driver of the slowdown in GDP growth.

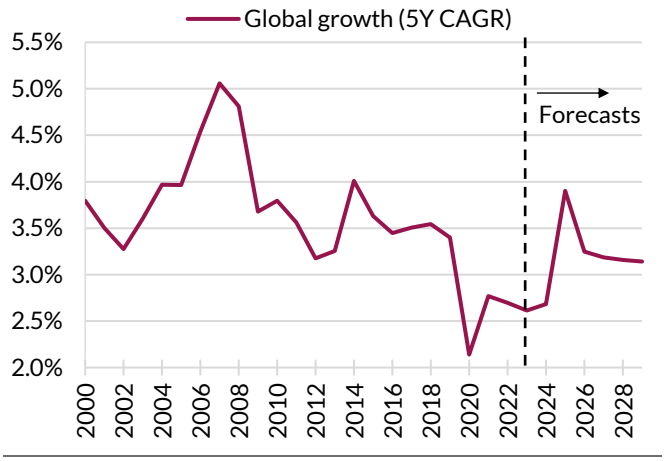
For India's growth to cross 8%, capital formation needs to accelerate to 8%+ annual growth. This appears unlikely, in our view. India's capital stock as a share of GDP has been stagnant at ~200% over most of the past decade. Government share of capital stock has been declining steadily in the past three decades, while the share of private capital in India's capital stocks has been rising (Exhibit 162:). These are usually more productive and hence, bode well for the economy.

Slower external demand and external financing headwinds for capital formation

Capital formation in the FY03-08 period was helped by strong global growth of 4.5-5% annually; this is now forecast to slow to ~3% in the next five years (Exhibit 163:). This means slower growth

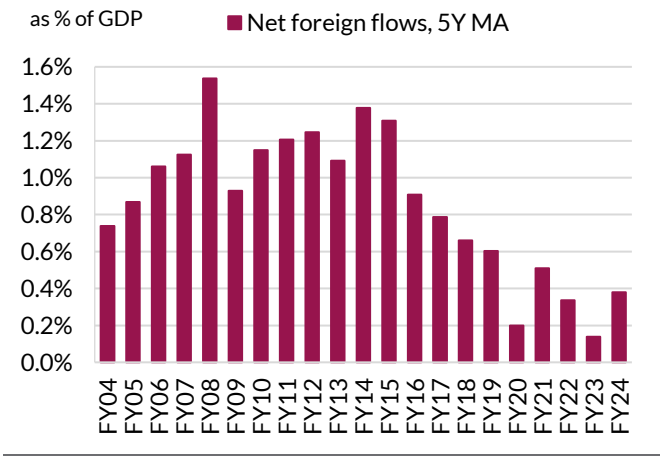
in goods and services exports, and thus deployment of capital to cater to it. Only by expanding its share of global goods exports can India sustain a stronger growth. Weakness in global growth also impacts risk capital formation and capital inflows. Net foreign flows (FDI + FPI) have already been subdued in the past few years and are lower by ~0.6% of GDP vs in FY03-08 (Exhibit 164:).

Exhibit 163: Global growth est. weaker by ~1.5% vs pre-GFC



Source: RBI, Axis Capital

Exhibit 164: Net foreign inflows (5YMA) down ~0.6% of GDP



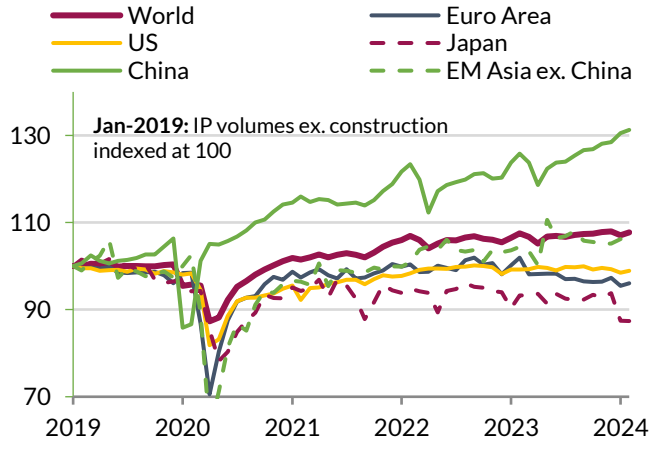
Source: CEIC, Axis Capital

China's pivot from real estate to industrial capacity is also a headwind

For most of the previous decade, industry share of China's GDP had been falling (at 0.7 pp p.a.). This sharp fall has now been arrested and has significant implications for the world. In the past five years, while the global IP saw a 1.7% CAGR, China's rose 10% annually (Exhibit 165:). Its share of global manufacturing value-add is likely to have risen above the last reported ~32%.

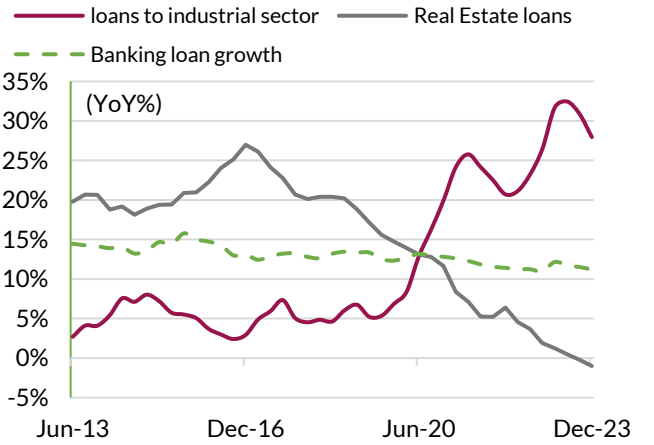
As Chinese firms sell at lower margins, their share of global manufacturing output can be estimated to be much higher. The expansion is funded by capital redirected from real estate; medium-to-long-term loans to industry are up US$ 1.9 tn in the past four years, up 2.4x (Exhibit 166:), accounting for 30% of loan-book growth since Mar'20. As the global IP is still well below the pre-pandemic path, China's strong IP growth means industrial activity excluding China is much weaker and countries like India can find it harder to push through.

Exhibit 165: China's expansion leaves little room for India



Source: CEIC, Axis Capital

Exhibit 166: Falling real-estate loans diverted to industry



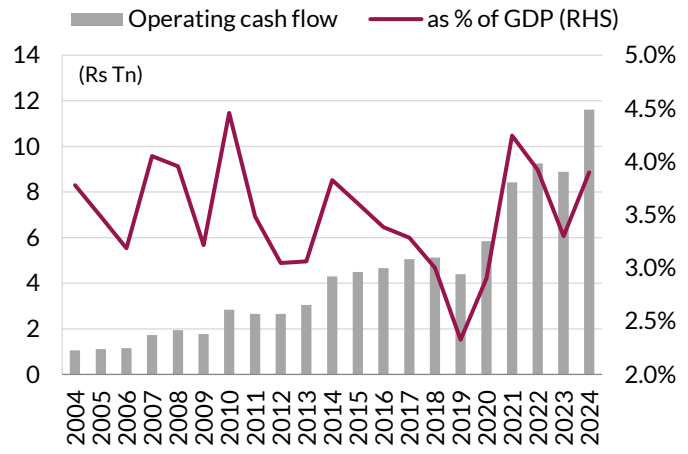
Source: CEIC, Axis Capital

Operating cash flow for BSE200 firms has risen 2.5x FY19-24 after remaining stagnant over FY14-19.

Strong operating cash flows: Constraint to capital formation not local savings

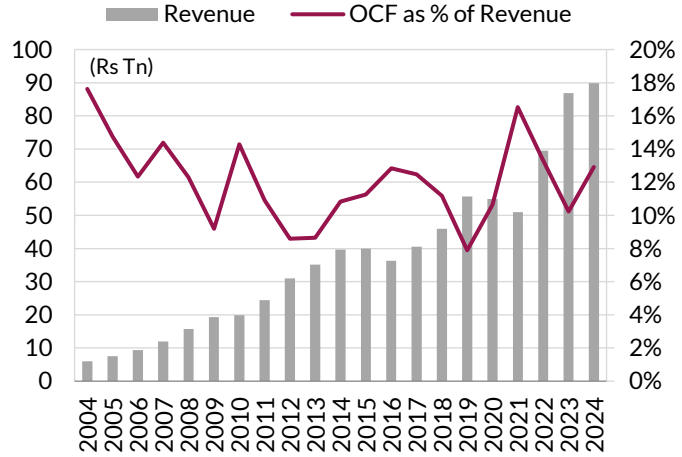
Operating cash flows for BSE200 (excluding financials) in FY24 of Rs 12 tn were 2.5x FY19 levels, seeing a 22% CAGR over FY19-24 after staying flat over FY14-19 (Exhibit 167:). This was driven by strong revenue growth (10% CAGR over FY19-24: Exhibit 168:) and an increase in PBT margin from 8% to 10%, driving a 15% CAGR for PBT. This is likely to continue for a few more years, in our view, as revenues have grown largely in line with nominal GDP, and the PBT margin, while better than five years back, is below the 12-14% range seen during FY04-10.

Exhibit 167: Operating cash flows up sharply 2024



Source: Refinitiv, Axis Capital

Exhibit 168: Revenue and OCF share of revenue have improved



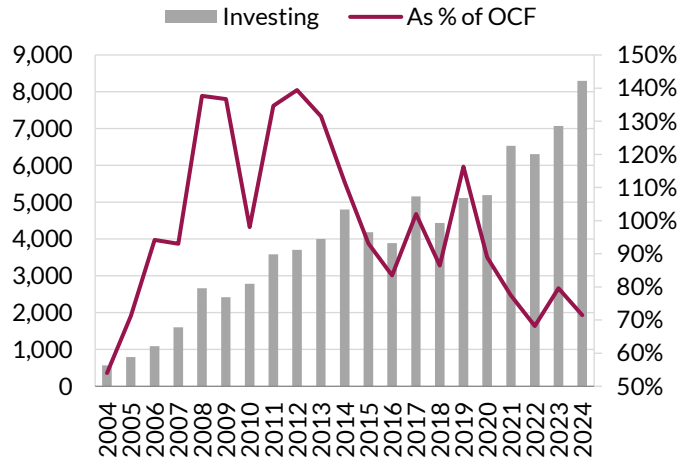
Source: Refinitiv, Axis Capital

Investing activities have not increased in line with operating cash flow

Despite a 22% CAGR in operating cash flow in the past five years, investments of BSE200 (excluding financial companies) have seen only a 10% CAGR over the same period. This was better than the 4% CAGR seen during 2012-19 but was much lower than the 30% CAGR in the last investing upcycle of 2004-10. Most of the investing cash flow goes towards capital expenditure, while the rest goes for investments, excluding loans (mostly in securities) and acquisitions and mergers (Exhibit 170:).

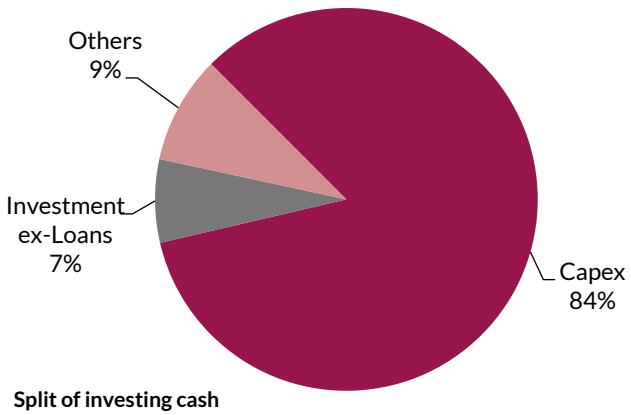
For the set, investing cash flows as % of operating cash flows have declined to 70%, the lowest since 2005 (Exhibit 169:).

Exhibit 169: Investing cash flow as % of OCF at 20Y low



Source: Refinitiv, Axis Capital

Exhibit 170: Bulk of investing cash flow is for capital expenditure



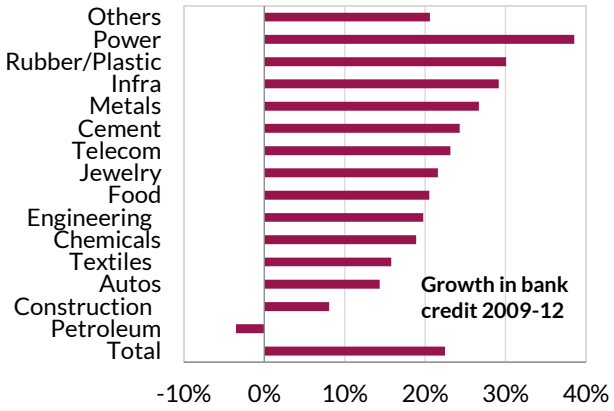
Split of investing cash flows (FY20-24)

Source: Refinitiv, Axis Capital

Broad-based deleveraging over 2012-22 ➔ funding unlikely to be a constraint

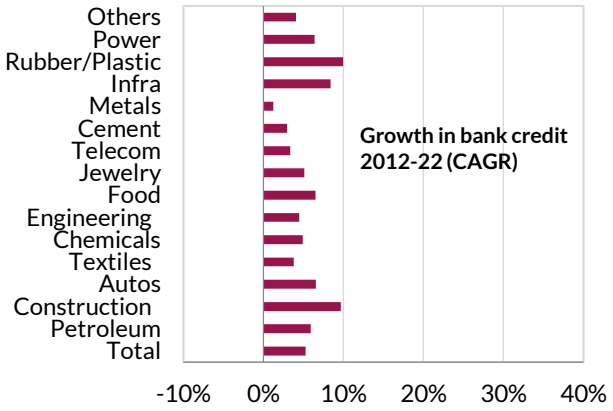
Given the analysis presented above, it is not surprising that credit growth slowed across sectors in the 2012-22 period. Capex in the 2009-12 period was funded primarily with bank credit: bank loans to industries grew at 22% annually during that period (Exhibit 171:). Growth was broad-based across sectors but was led by utilities (power), infrastructure (roads), and manufacturing (mostly metals, cement). In the past few years, though, bank credit growth has come off sharply for these sectors, implying (1) capex is weak and (2) incremental capex is funded mostly with operating surpluses (Exhibit 172:). As capex by these companies increases in the next few years, operating cash flow, by itself, might not suffice, and corporates might need debt again. A deleveraged balance sheet for most firms means funding is unlikely to be a constraint.

Exhibit 171: Industry bank loan growth was strong in 2009-12



Source: MOSPI, Axis Capital

Exhibit 172: But slowed down significantly in the last decade



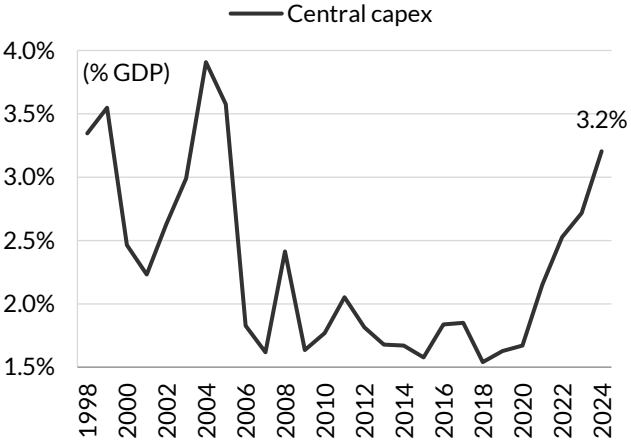
Source: MOSPI, Axis Capital

Government capex likely to grow in line with nominal GDP going forward

The central government capex as % of GDP has risen significantly in the past few years and is budgeted at an 18-year high of 3.2% in FY25 (Exhibit 173:). Given the central government's focus on fiscal consolidation and already elevated levels of investment in infrastructure (mostly in roads and railways), we expect the central government capex to move in line with nominal GDP growth going forward.

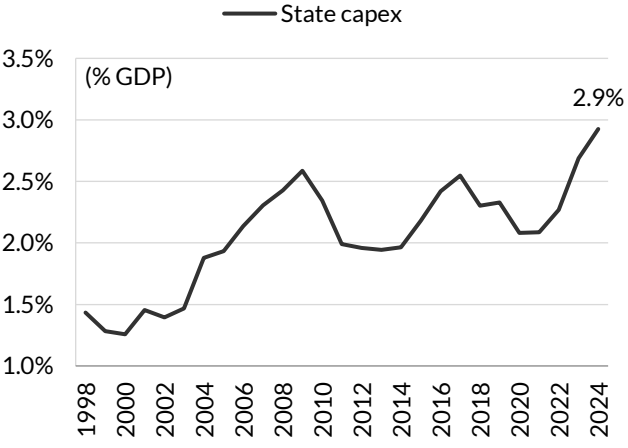
State governments have increased capital spending as well and are currently at the highest-ever level as % of GDP (Exhibit 174:). Some of it is helped by the higher share from the central government towards more capital outlay, and states' capex can also be sustained at these levels.

Exhibit 173: Central government capex as % of GDP



Source: MOSPI, Axis Capital

Exhibit 174: State government capex as % of GDP



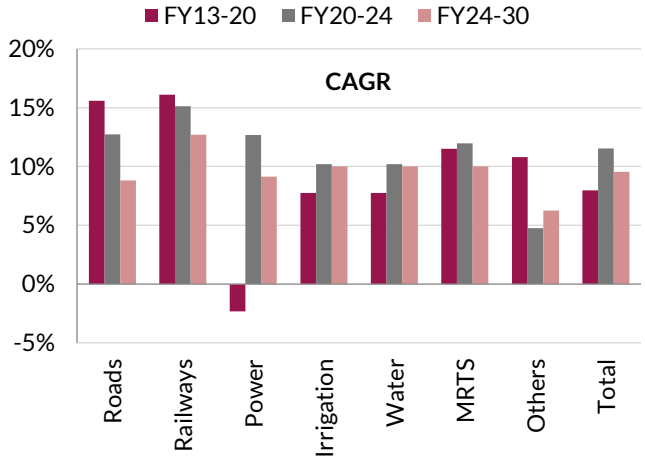
Source: MOSPI, Axis Capital

Infrastructure capex growth can slow down vs high growth of FY20-24

Infrastructure project capex growth (public, private as well PPP) slowed down over FY13-20 in all sectors except roads and railways. In the past four years, growth has picked up significantly in most sectors, led by power, irrigation, and water. We estimate growth to slow down marginally in most sectors in the next six years but will remain elevated in the irrigation, water, and MRTS (metro) segments (Exhibit 175:).

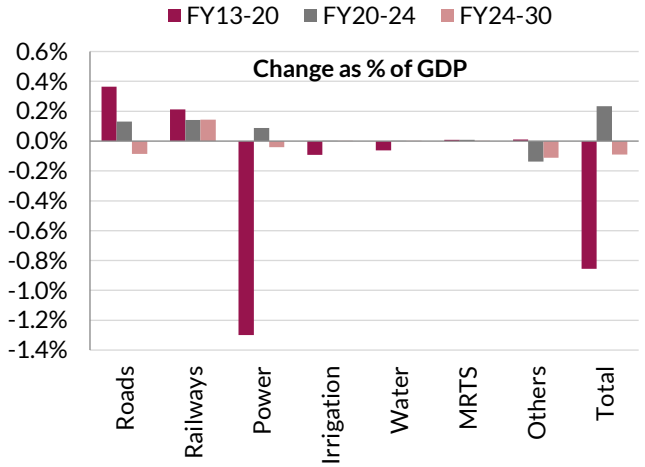
Railways capex as % of GDP may continue to rise, but there could be some slowdown in road projects. As % of GDP, only railways is expected to hold up over FY24-30E (Exhibit 176:).

Exhibit 175: Growth in infra can slow down over FY24-30E



Source: MOSPI, Axis Capital

Exhibit 176: As % of GDP, FY24-30E rise is mostly in railways



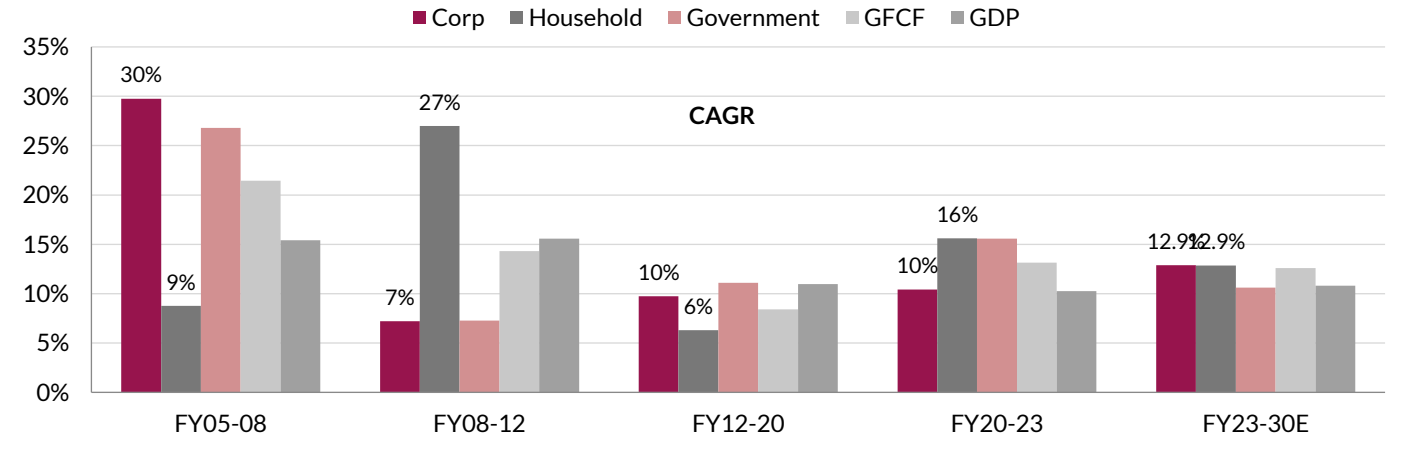
Source: MOSPI, Axis Capital

Investments by both corporate and households are projected to grow 13% CAGR from FY23-30E

GFCF growth to lead nominal GDP growth in FY23-30E

GFCF growth has been ~10% for both the FY12-20 and FY20-23 periods. We project GFCF growth to pick up from these levels to a 13% CAGR over FY23-30E, 2.8 pp higher than the expected nominal GDP growth. We expect household investments to see a 13% CAGR in FY23-30E vs an 8% growth in the past decade, primarily boosted by the real estate up-cycle. Growth in corporate GFCF (including PSU and private companies) is also estimated to rise significantly to a 13% CAGR vs 9% during FY12-22. Government capex, on the other hand, could slow down marginally to 10.6%, tracking the nominal GDP growth (Exhibit 177:).

Exhibit 177: GFCF projected to see 13% CAGR over FY22-30E, led by corporates and households



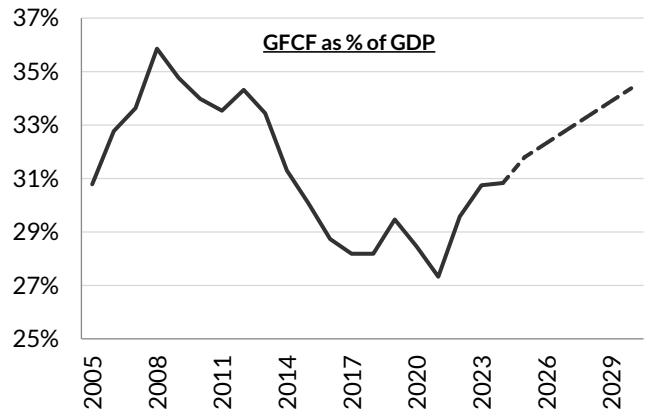
Source: MOSPI, CEIC, Axis Capital

GFCF share of GDP could expand 3.7 pp from 31% in 2024 to 34% in 2030E

We project GFCF as % of GDP to pick up 3.7 pp by 2030E to 34.4% but still be lower than the peak of 37% seen during the 2005-12 cycle (Exhibit 178:). Household investment share of GDP is estimated to reach 14.6%, closer to the 20-year peak of 15.7% in 2014. While the peak share of household GFCF is lower, we expect the cycle to last longer than the previous one, given better regulations and better urban infrastructure.

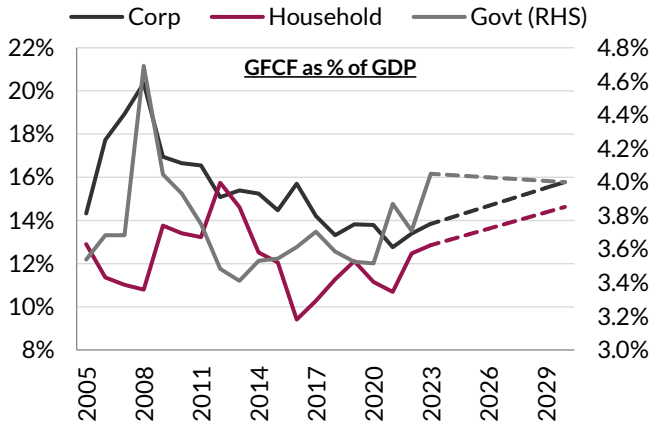
Corporate capex is also expected to expand to 15.8% of GDP, still lower than the prior peak of 20%, as the growth of real estate-oriented sectors (cement, metals etc.) will be offset by lower capex from export-oriented sectors (apparel, chemicals etc.) and telecom. Government GFCF will grow in line with nominal GDP growth and can settle at around 4% (Exhibit 179:).

Exhibit 178: GFCF share of GDP could rise to 34% by FY30E



Source: MOSPI, Axis Capital

Exhibit 179: Increase to come from corporates and HHs

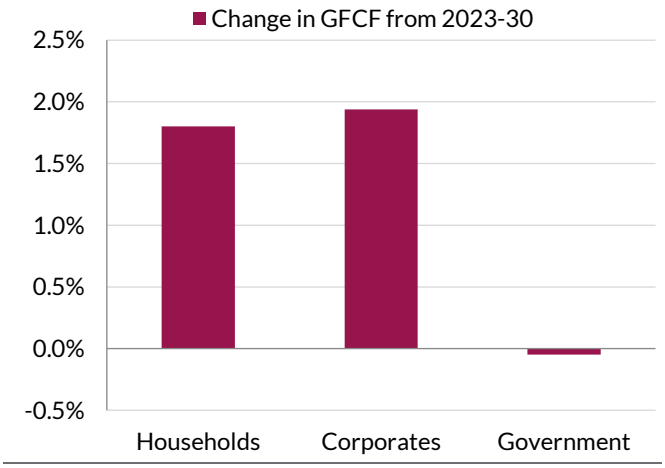


Source: MOSPI, Axis Capital

HH dwellings, utilities, and manufacturing to drive GFCF growth

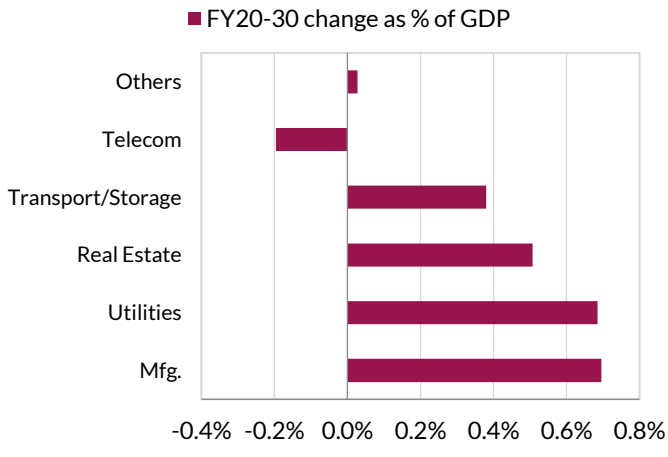
The bulk of the increase in GFCF over FY23-30E is likely to come from increase in investments by households, mostly in real estate (Exhibit 180:). Within corporates, we expect manufacturing, utilities, and real estate to drive up investments. Within manufacturing, sectors like metals and cement will see strong investment momentum, offset by petroleum (Exhibit 181:). New sectors like electronics/semiconductors, data-centers, and batteries could see more meaningful investment growth.

Exhibit 180: HH GFCF could rise 1.7 pp, corporates 1.8 pp



Source: MOSPI, Axis Capital

Exhibit 181: Within corporates, mfg. and utilities

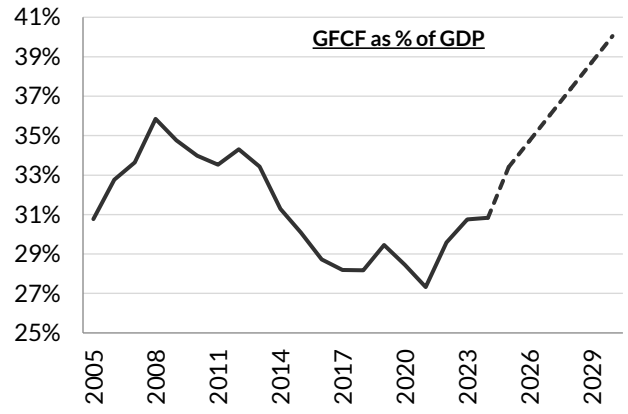


Source: MOSPI, Axis Capital

Optimistic case: can GFCF share of GDP expand to 40%, up 9 pp vs FY24?

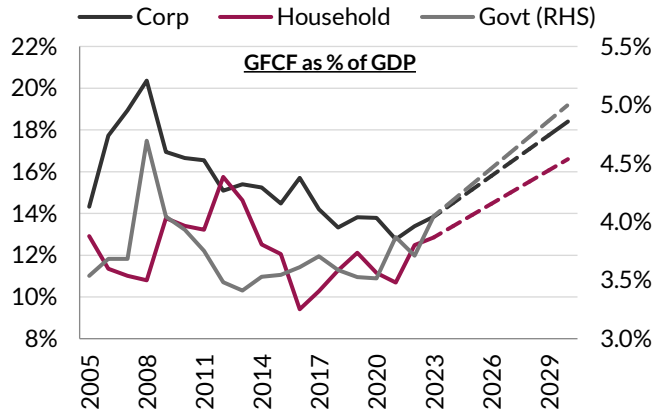
We also explore two conditions that could push the investment ratio higher: (1) a stronger and longer real-estate cycle, and (2) export-driven growth that drives manufacturing capex. The GFCF share of GDP could rise to 40%, 4 pp higher than the previous record of 2008 (Exhibit 182:).

Exhibit 182: Optimistic case: GFCF to GDP 40% by FY30E



Source: MOSPI, Axis Capital

Exhibit 183: Optimistic case: HH 17% of GDP, corp. 18%



Source: MOSPI, Axis Capital

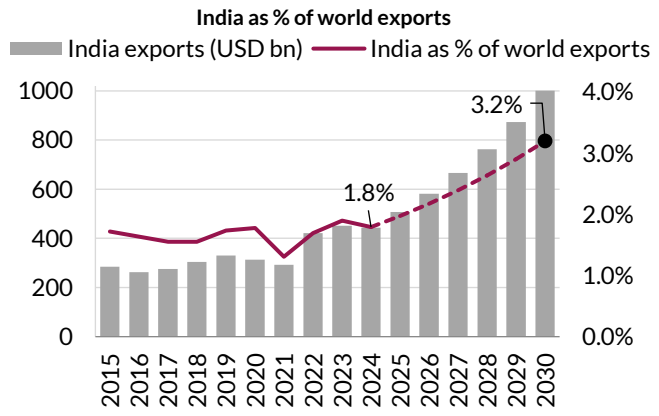
Both would require policy interventions. Higher income growth can boost demand growth by accelerating growth in the floor space per person as well as construction quality, but such changes in the broader economy would be difficult to engineer. Instead, an increase in investments in urban infrastructure would boost investment demand, help expand cities, and accelerate the supply of new houses that keeps housing price growth in check.

The central government targets US$1tn of exports by 2030, implying India's share of global trade can rise to 3.2% vs 1.8% currently

Similarly, if India expedites its entrenchment in global value-chains (13 regional trade agreements {RTAs}/free trade agreements {FTAs} are already signed, and several large ones are being negotiated), the export opportunity would drive strategic investments in some sectors and could help the country reach the target of US$ 1 tn of exports by FY30E.

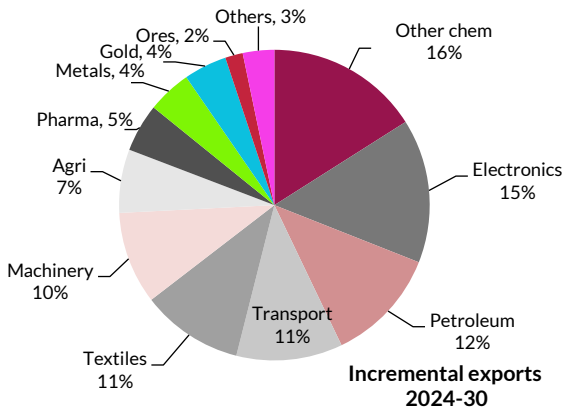
Household GFCF as a share of GDP could then rise to an all-time high of 16.6%, at a 15% CAGR over 2023-30E. With government capex ratio 1 pp higher than in the base case as well, the resultant demand for materials could push corporate GFCF as well, with a 15% growth CAGR pushing the ratio to 18% of GDP (Exhibit 183:).

Exhibit 184: Share of global exports



Source: MOSPI, Axis Capital

Exhibit 185: Split of incremental exports



Source: MOSPI, Axis Capital

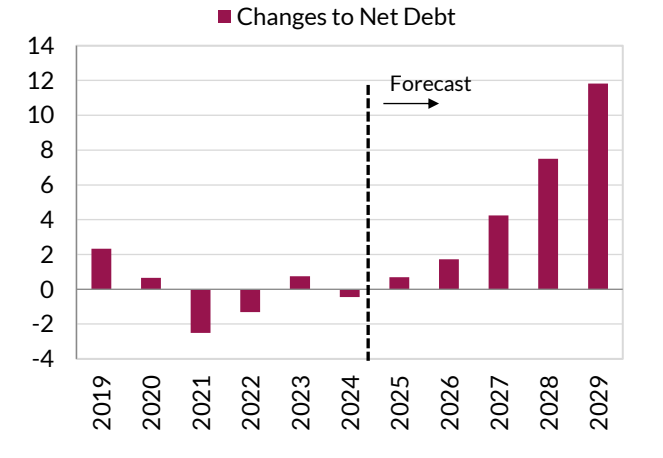
A stronger growth in exports can push India's share of global goods exports to 3.2% in FY30E, vs 1.8% currently (Exhibit 184:), at a 14.5% CAGR over FY24-30E (in US$ terms), taking exports to US$ 1tn by FY30E. As a % of GDP, exports would rise from 12% in FY24 to 15% in FY30E. Sectors

that can potentially drive this: chemicals (including pharmaceuticals), electronics, automobiles, textiles, and machinery (Exhibit 185:). Assuming an asset turnover ratio of 1, incremental corporate capex can also rise further by 2.4 pp of GDP to reach 18% in FY30E.

There can be second-order positive effects as well. More trade openness is not just about growth in exports. It also boosts efficiency of allocation of financial resources, as well as overall economic productivity. The resultant speeding up of growth then boosts investments.

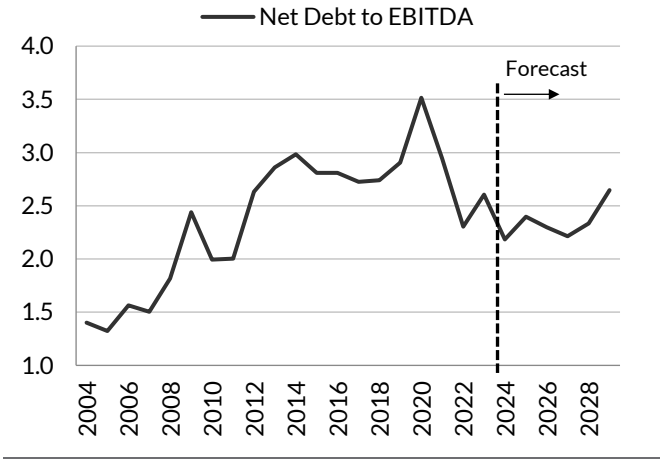
Corporates have the balance sheets to raise more debt than may be necessary

Exhibit 186: In optimistic case, firms will need to raise debt



Source: MOSPI, Axis Capital

Exhibit 187: But debt-to-EBITDA can still be manageable



Source: MOSPI, Axis Capital

Corporates have deleveraged over the past five years, resulting in NSE200 debt-to-EBITDA for non-financial firms falling to a 13-year low of 2.2 in FY24. India's non-financial corporate debt-to-GDP ratio has been stagnant for nearly a decade.

Going forward, if aggregate capex for the set is to pick up at 16-18% CAGR over the next five years, corporates would need to raise debt to funding it, supplementing their operating cash flows (Exhibit 186:). Even after factoring in this additional debt, we calculate the debt-to-EBITDA would rise to a manageable 2.6 by FY29E (Exhibit 187:), still lower than in previous years.

Slowdown in GDP near-term is likely to be temporary

Over the past few months, economic activity has slowed visibly; the 1Q GDP captured only part of it, and the first two months of 2Q have also not seen a reacceleration.

Exhibit 188: Fading fiscal impulse in India Centre & State

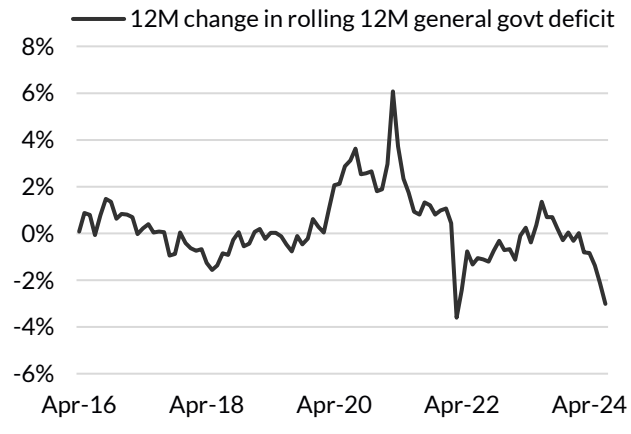


Exhibit 189: India's QT – M3 growth back to single digits

Source: MOSPI, Axis Capital

Source: RBI, Budget documents, Axis Bank Research

Of the three possible reasons behind this slowdown, we believe two are controllable for India, and are likely to be corrected in a few months.

The near-term slowdown is the result of unintended fiscal consolidation by the center and the states, aggravated by monetary tightening

The first of these is the fiscal impulse (Exhibit 188:) -- measured as the change of 12-month rolling investment over 12 months -- currently measured at 1.3% of GDP. The second challenge is monetary tightening – in addition to the hike in rates, the supply of money has also slowed (Exhibit 189:). Both should be addressed in a few months – fiscal through a post-election rise in government spending, and monetary through the RBI changing its liquidity stance (link), bringing back the economic momentum by 4QFY25. The third, that is the slowdown in goods exports, could remain a challenge given weak global demand.

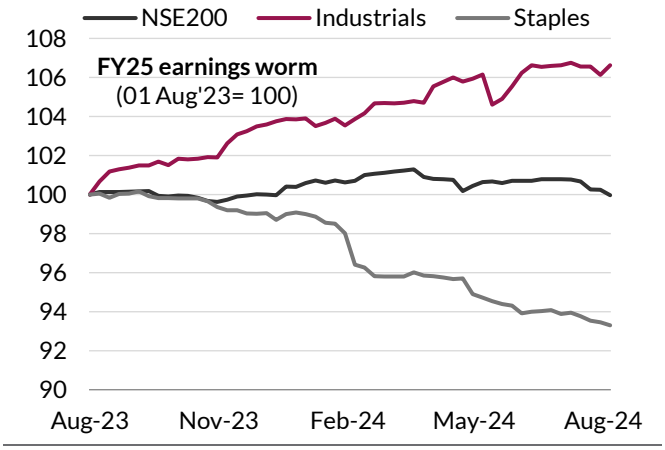
Overall, we expect the economy to sustain a 7% annual growth rate over the medium term, keeping investment prospects intact.

Industrials: Earnings have been upgraded 7% in the last 1Y, but stagnant over 3M

Over the past year, the Industrial sector has seen meaningful revisions to earnings estimates. Aggregate FY25 EPS (weighted by free-float market capitalization) for industrials has been upgraded by 7%, when NSE200 earnings have been unchanged (Exhibit 190:), and staples have seen cuts of 6%. Growth in the order books of industrials has continued to surprise on the upside, while volume growth failed to pick up meaningfully for Staples, despite slowing price hikes.

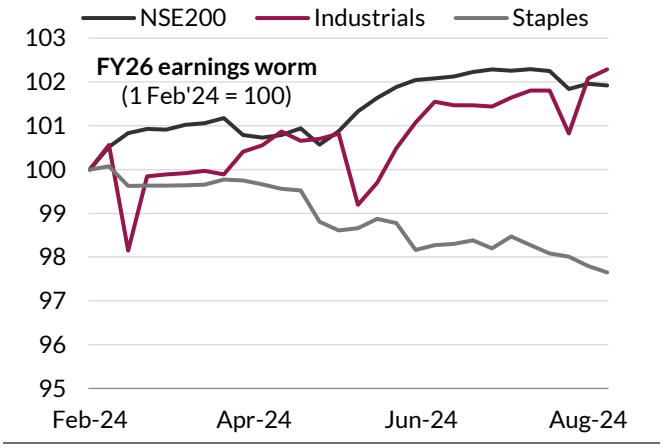
However, the upgrades to industrials have stagnated over the past three months, reflecting the slowdown in GDP growth in the near term.

Exhibit 190: Industrials saw 7% EPS upgrades in FY25



Source: Refinitiv, Axis Capital

Exhibit 191: FY26 EPS also saw upgrades, but staples cut 2%



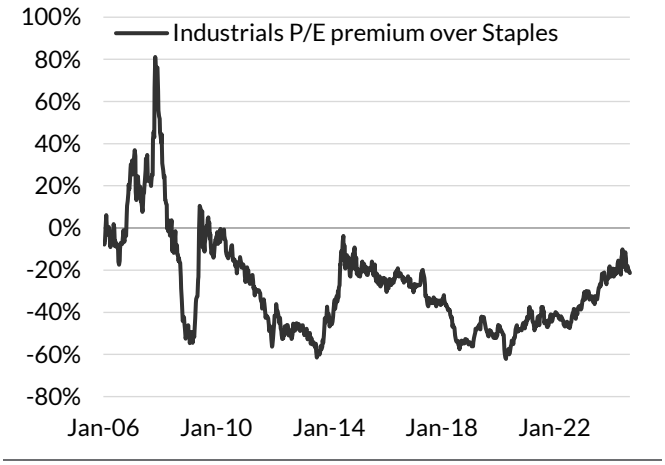
Source: Refinitiv, Axis Capital

For FY26 EPS forecasts over the last six months, Industrial stocks have seen upgrades of 2% vs a 2% cut for Staples (Exhibit 191:). Even as upgrades to GDP estimates have slowed, order inflows have remained strong for Industrials.

Industrials: Slight correction to P/E provides an opportunity to buy in

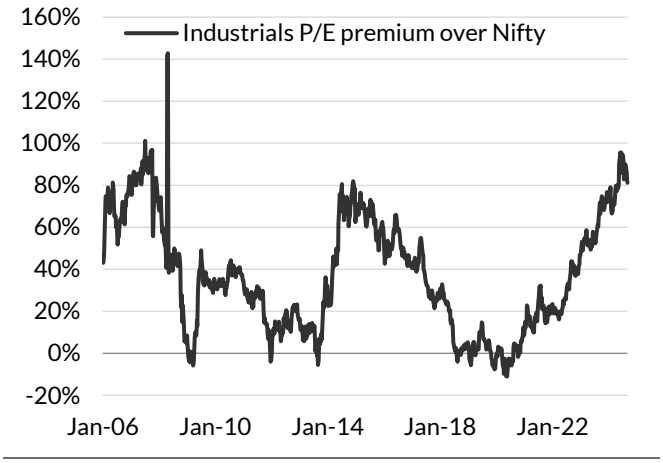
The industrials sector has experienced a significant re-rating in recent years, especially relative to consumer staples. In July 2024, the P/E premium of industrials over staples hit a decadal high of -4% (Exhibit 192:). Although this premium has reduced somewhat since then, it remains notably high at -21%. During the capital expenditure cycle from 2006 to 2010, the premium was much greater, but consumer staples were valued considerably lower during that period. In comparison to the Nifty index, the P/E premium of industrials has also climbed to a 10-year high, already matching the peak levels seen in 2009.

Exhibit 192: P/E premium of industrials over staples rising



Source: Refinitiv, Axis Capital

Exhibit 193: Premium of industrials vs Nifty at 10-year high

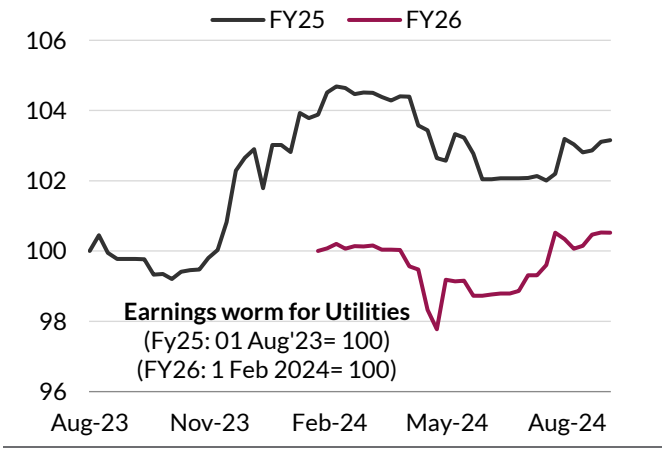


Source: Refinitiv, Axis Capital

Utilities: Earning visibility likely to pick up; medium-term demand steady

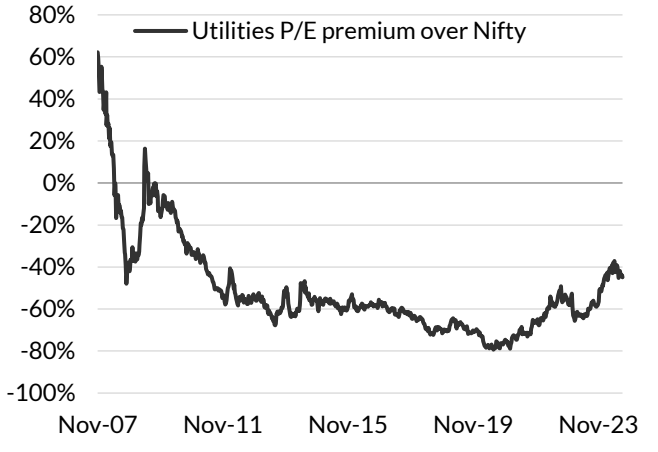
The utilities sector has seen 3% upgrades to FY25 earnings forecast in the last 12 months (Exhibit 194:) and FY26 numbers are unchanged. While power demand has weakened in the last few months (de-growth in Aug due to higher base and cooler temperatures YoY), we believe power demand growth will also rise from current levels as the economic activity picks up. In the medium term, we expect growth to be 6.2-6.3% over FY25-26E, and to keep rising thereafter on demand from new-age 'electricity guzzlers' – data centers, EV charging, and GH2 manufacturing. The current discount in Utilities P/E vs Nifty is the lowest in the last 10 years, as the stocks have re-rated due to sustained earnings momentum. Despite the run-up, valuations are not excessive, and can thus continue to remain supportive.

Exhibit 194: Utilities stocks have seen minor EPS upgrades



Source: Refinitiv, Axis Capital

Exhibit 195: Premium to Nifty have risen but not excessive



Source: Refinitiv, Axis Capital

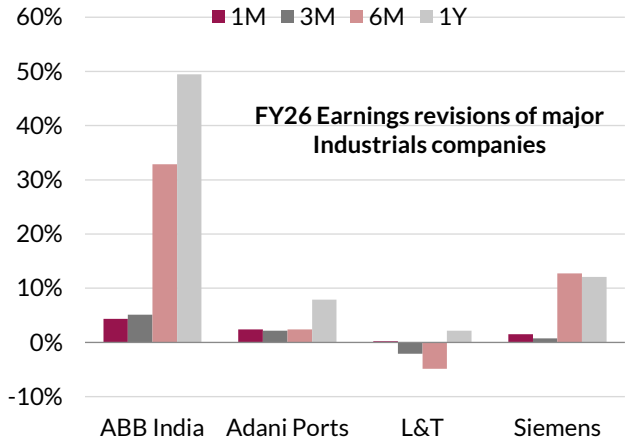
ABB, Siemens lead the upgrade cycle for Industrials

Most stocks in the industrial sector have experienced earnings upgrades over the past year, and ABB leads the pack with a 50% increase in FY26 EPS estimates (Exhibit 191). L&T, on the other hand, faced minor reductions in the past six months, primarily due to margin pressures, but this trend is expected to reverse soon. Strong order inflows and increasing capex from both government and private sectors suggest further stock upgrades are likely.

In the last three months, utilities have experienced earnings upgrades predominantly driven by GAIL, which has outperformed due to higher-than-anticipated marketing margins in its trading

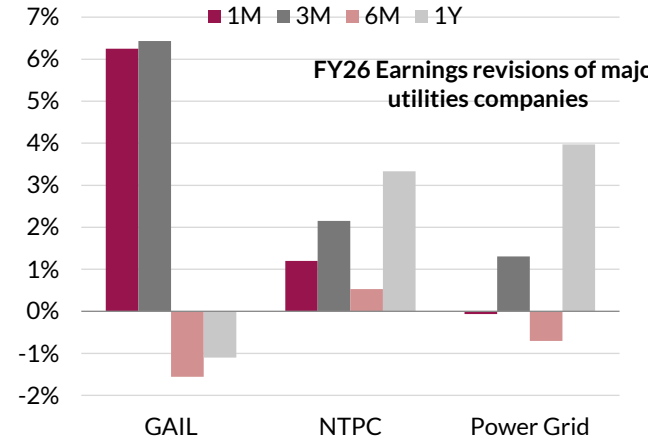
segment and increased volumes from strong power demand (Exhibit 192). Similarly, NTPC has seen steady upgrades and is expected to perform well as the demand for power remains strong.

Exhibit 196: Industrial earning upgrades led by ABB



Source: Refinitiv, Axis Capital

Exhibit 197: GAIL, NTPC saw upgrades in last 3M



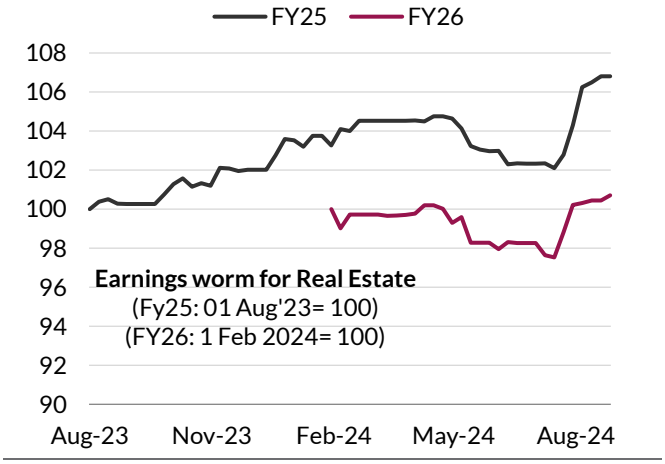
Source: Refinitiv, Axis Capital

Earnings momentum for real estate stocks are likely to remain strong, but record high premium keep us cautious

Real Estate: Strong earnings momentum, but valuations premium already high

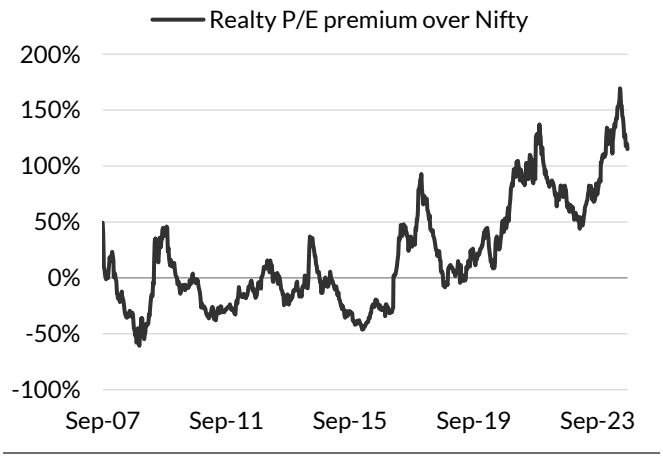
The real estate sector has seen positive earnings revisions for both FY25 and FY26 forecasts in the last 3 months (Exhibit 198:). Over the last 1 year as well, FY25 earnings have been upgraded 7% led by the stronger-than-estimated housing sales in the top 20 cities in India. New launches in major cities have also been rising over the past year, and a decade-low inventory suggests the sales growth will remain robust in the medium term. The exuberance in real estate stocks' performance has resulted in the P/E premium over Nifty rising to a record high of 150%, much higher than the high of 50-100% seen during previous cycles (Exhibit 199:). While P/E may not be the best metric to value real estate stocks, the recent performance suggests the sector can be over-valued and one needs to be picky in stock selection. In our screen, Godrej Properties and Oberoi Realty have the lowest z-score and strongest earning revision in the last 3M.

Exhibit 198: Real Estate earnings upgraded for both FY25/26



Source: Refinitiv, Axis Capital

Exhibit 199: P/E premium over Nifty at record highs

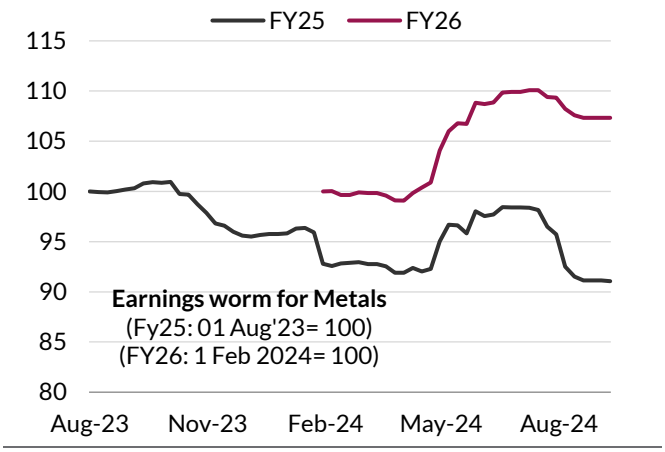


Source: Refinitiv, Axis Capital

Metals: Earning outlook bleak due to global pricing/margin pressures

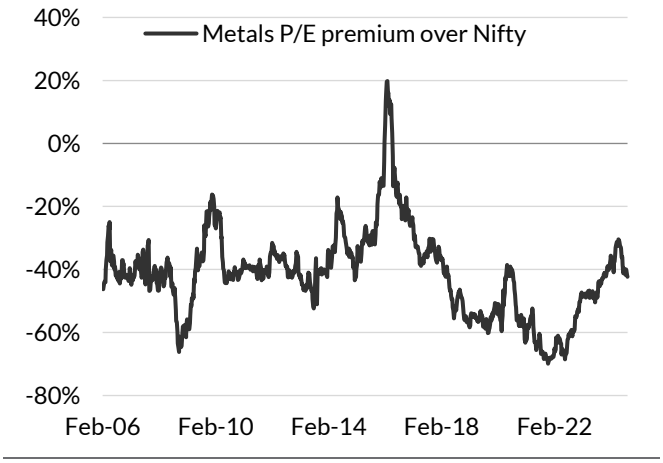
The metals sector has seen earnings cut 9% for FY25 over the last year, but FY26 earnings have been upgraded 7% over the past six months (Exhibit 200:). Consumption of steel in India has grown at double digits YoY for the last six months, but this has not translated to higher earnings, primarily due to lower steel prices.

Exhibit 200: Metals saw cuts to FY25 EPS, upgrades to FY26



Source: Refinitiv, Axis Capital

Exhibit 201: Premium vs Nifty in-line with trend

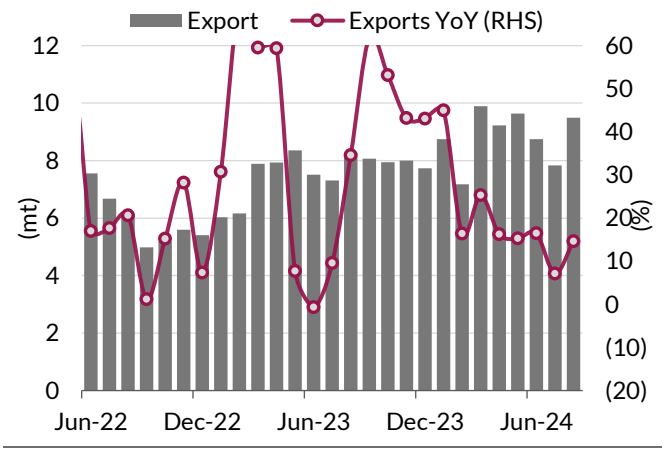


Source: Refinitiv, Axis Capital

Weak housing market in China implies higher net exports from China, that can pressure steel prices

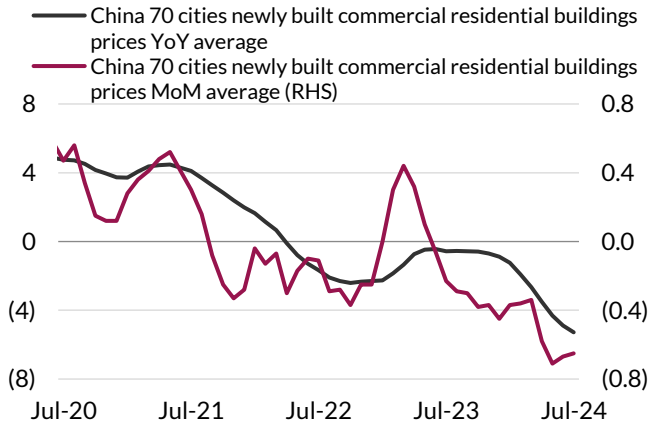
Net steel exports from China have been strong over the past year, with the latest print pointing to an 18% YoY growth (Exhibit 202:). This is likely to sustain for long as: (1) Iron-ore imports for 8MCY24 at 815mt are the higher ever iron-ore imports by China in Jan-Aug period; (2) Iron ore inventory of Chinese ports remains high at 150mt and is ~30% higher than in the same period last year; and (3) China's housing market is yet to show any sign of recovery as prices of newly-built commercial and residential buildings have been falling MoM since Jun-23 (Exhibit 203:).

Exhibit 202: Chinese steel exports rose 15% YoY in Aug'24



Source: Refinitiv, Axis Capital

Exhibit 203: China property prices continue to decline



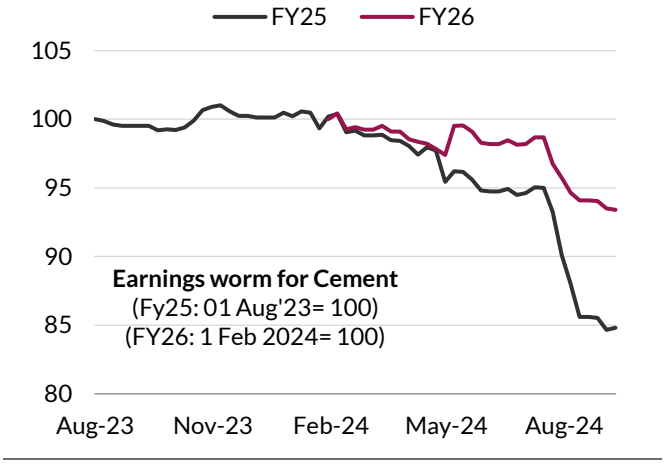
Source: Refinitiv, Axis Capital

Despite the weak earnings momentum, Metals' valuation premium over Nifty has been stagnant and in line with the trends seen in prior years (Exhibit 201:). We believe earning downgrades can continue even when capex activities pick up, as pricing and margins will continue to remain under pressure. Higher valuations are also not supportive of sector performance.

Cement: Weakness in demand is temporary; earning upgrades likely

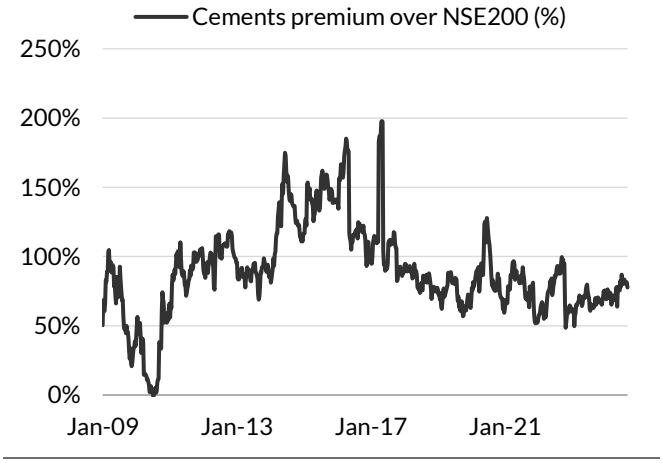
The cement sector has seen sharp earning cuts in the last few months, driven by weak construction activity during the lead-up to elections and price cuts for two consecutive quarters (Exhibit 204:). While the demand from urban real estate has remained robust, the weakness comes mostly from slower infrastructure activities and lower spending on rural housing. Going forward, as government spending picks up, demand for cement should also rise – which can trigger earning upgrades. Additionally, companies have guided for price hikes in the coming quarters – which can boost earnings estimates further. The cement premium over the market is lower than the last 10Y average, and suggests there is room for re-rating (Exhibit 205:).

Exhibit 204: Cement stocks have seen EPS cuts in last 2M



Source: Refinitiv, Axis Capital

Exhibit 205: P/E premium vs market lower vs history



Source: Refinitiv, Axis Capital

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