

New Age Automotive Raw Materials

Challenges & Opportunities

ACMA Members Meeting, Karnataka Hosur
July 2021



Presented by

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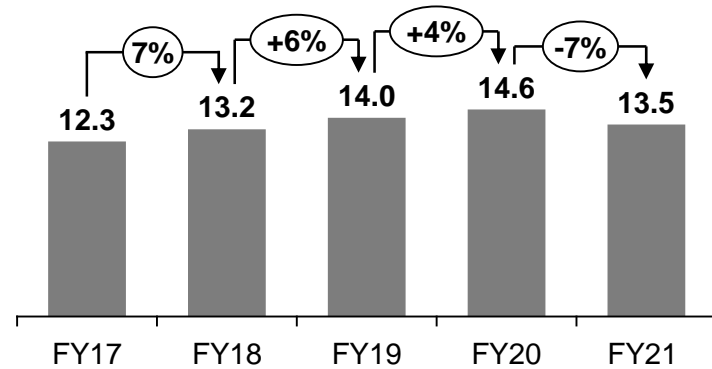
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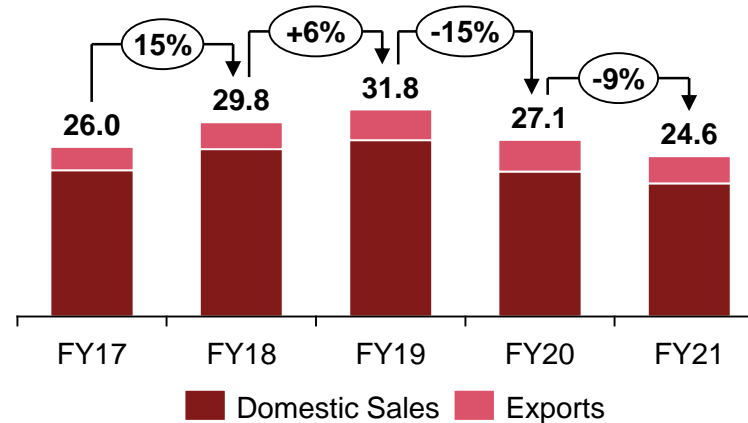
Automotive industry performance overview

FY21 after a muted Q1, the industry saw Q o Q sales growth for all subsequent quarters

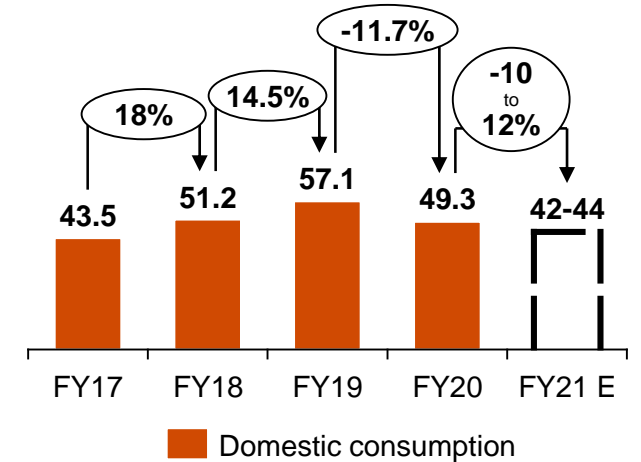
GDP (Constant Prices) | INR Cr



OEM - Domestic sales and exports | million units



Indian Component Industry | USD Bn



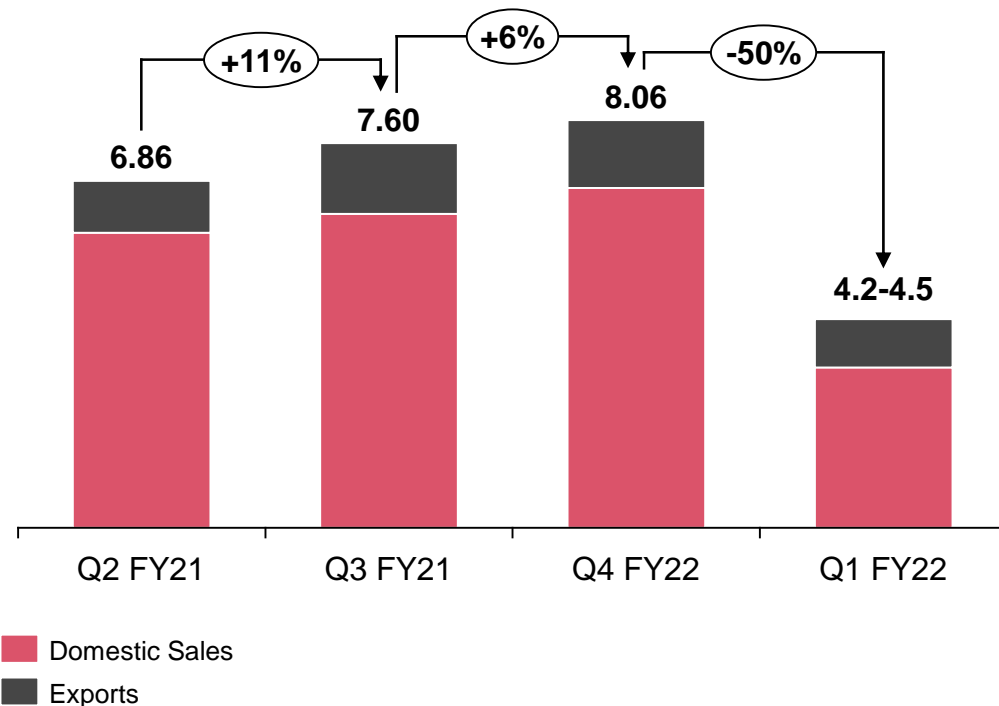
- (+)**
- **Tractors** : expansion in Rabi acreage, higher liquidity in the hands of farmers
 - **PVs**: High demand aided by preference for personal mobility and new launches were key drivers of sales; preference towards SUVs
 - **CVs**: Sales rebounded in tandem with reopening of the economy. Q3 onwards

- (-)**
- Covid-19 – industry shrunk by **9% Y-o-Y**; Impact of 2nd wave of Covid-19 pandemic in April '21 ; supply chains constrained
 - FY21 - Imports decline -11%; exports -6%
 - **2Ws**: Dip in demand from urban & semi-urban markets attributing to work from home ; **3Ws**: Most impacted segmented; **Last mile connectivity** - key driver of growth

Source: PwC Analysis, SIAM, MoSPI

Q1 FY22 was impacted by the second wave of Covid-19; a revival for the auto industry will be driven by multiple market factors

Quarterly– Sales, Exports | million units



Note: SIAM June'21 official Data has not been released as on 13 July

Source: SIAM, CRISIL, PwC Research

Key Trends

- Purchasing Manager's Index (PMI) fell to **50.8 – May'21**
- **Budget 2021:** Increased customs on components, increased Capex on infrastructure; IIP improving in comparison to pre-pandemic levels
- Voluntary **Vehicle scrappage policy**(eff. April '22), is **expected to revive demand.**
- Resilient rural income factoring a normal monsoon this year expected to **propel demand for motorcycle and tractors in FY22.**
- **Aftermarket demand** : Higher Uptime & asset utilization, OEMs ensure spares availability
- FY21 was a lower base year ; FY22: **6-18% growth across segments**
(*The Economist Intelligence Unit, July 2021*)
- **Sourcing strategies** will continue to be a **key focus area** for companies - **Raw material index** expected to **increase 25%+ over** last fiscal year (Crisil)

Vehicle demand has recovered faster than supply chains; *upward squeeze on commodity prices*

Raw material prices have risen sharply (May FY20 vs May FY21)

	Application	Price	Y-o-Y
Steel	Body structure, suspension, powertrain	79,750*	▲ 36%
Aluminium	Body structure, suspension, powertrain	194#	▲ 49%
Copper	Radiators, tubes, seals	770	▲ 89%
Rubber	Tires, mats	171	▲ 48%
Crude Oil	Raw material for petroleum	69***	▲ 105%
LDPE	Interiors	137,145	▲ 59%
Ferro-Silicon	Body structure	116,950	▲ 38%
Palladium	Catalytic converters in car exhausts	2,896**	▲ 49%

All prices (except Palladium & Crude Oil) in Rupees per Tonne

*Steel prices displayed for En8 ***Crude Oil price in \$ per barrel

Aluminium (min 99.7%) Rs/kg **Palladium price in \$ per troy oz.

Source: SIAM, CRISIL, PwC Research


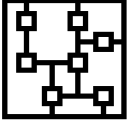



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Key Trends

- **Steel and aluminum** prices escalating at CAGR of 36% and 49% respectively ; Production decreased amidst second wave due to **oxygen diversion**
- Domestic demand for steel expected to grow ~ **11%** in FY22; **demand from Auto** (+Infra, Housing & Construction)
- **For aluminum, electronics – demand from other sectors** : Strong demand in China (White goods products, Automotive and Home appliances sectors)
- **Ferro silicon** price surged on the back of **supply constraints** in Meghalaya and Guwahati; labor shortage due to 2nd wave
- **Polymer prices** rose on demand on medical applications (gloves, PPE kits) amidst supply tightness during second wave of Covid-19.
- **High demand for Precious metals (Pt, Pd, Rh)** primarily from China and Europe due to **stricter emission norms. Supply side constraints** in South African mines
- **Supply constraints** from OPEC for **Crude oil**; Domestic & international demand expected to grow marginally barring a 3rd wave & subsequent lockdowns (e.g.. Saudi Arabia announced a *voluntary production cuts in Feb-Mar*)

In addition, trends in the auto-industry also show a *shift to new materials*; electronics the fastest growing category in the auto BoM¹...

TRENDS

-  **“Electronification”**
Sensors, interactive interfaces, Embedded Software and Electronic Content
-  **E-mobility**
Regulatory push, emergence of new materials (Ni, Co, Li)
-  **Sustainability**
Re-use (scrap), “C – Efficient” materials
-  **Vehicle safety**
High strength materials, Affordable, Regulations Complaint
-  **Light-weighting**
Strict emission norms, Better performance

NEW MATERIAL

Emerging component families

Cs & PCBs, LCDs/LEDs, Capacitors, Resistors, Diodes, Switches, Transistors, Connectors, Relays
Gallium : >95% demand in semiconductor and electronics

Reusable & Natural

Steel scrap, Aluminum scrap, Copper scrap, Bioplastics

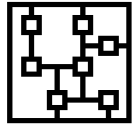
Mostly light weight, rare earth metals

Lithium, Cobalt, Nickel, Zinc, Magnesium, Cadmium, Silicon Carbide

High Strength Materials for Body/Chassis, Flexible, Light Materials for interiors Polymers, Plastics

HS Steel, Aluminum alloys, Magnesium, composites, RI Carbon Fibre

...which in turn have an impact on commodity prices.



E-mobility

(May FY20 vs May FY21)

	PRICE	Y-o-Y
Nickel	17,605	▲ 45%
Cobalt	42,110	▲ 42%
Lithium	42,513	▲ 52%

All prices displayed in \$/tonne

Key Trends

- RM used in batteries; prices rose sharply in the last year (In India itself, PVs grew ~60%, Globally 10X growth)
- Upsurge in domestic demand expected from **automotive** and **consumer electronics** industries; **30%** of all vehicles expected to be electric by 2030 (under FAME II)
- Investments into **EV battery manufacturing (e.g. plant set up in Karnataka by Epsilon Advanced Key materials)**



Light-weighting

(May FY20 vs May FY21)

	PRICE	Y-o-Y
Magnesium	17,850*	▲ 26%
Polypropylene	130,673	▲ 47%
PVC	144,000	▲ 39%

All prices (except Magnesium) displayed in Rs/tonne
Magnesium prices in CNY/tonne

Key Trends

- Stricter government policies on **emissions** and **vehicle safety**
- For Evs – differentiator is going to be the Range , focus on light-weighting
- Key metals: **Magnesium, Aluminium, Titanium**
- Key polymers: **Polypropylene, Polyurethane, Polyamides and PVC**

Source: Tradingeconomics, LME, InvestingIndia, PwC Research

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However, these new component sourcing strategies must safeguard against these *5 key challenges* ...

1

Higher lead times & shortages

- Lack of investment by suppliers in new capacity
- Transition from lower margin mature parts to higher margins parts
- Consolidation of supply base; e.g. NXP /Freescale, Infineon / Rectifier& Innoluce
- Share of capital spend of top 5 semiconductor players increased from ca. 30% in the early 2000s to ~ 63% today

2

Supplier power in material contracting

- Contracts are driven by volume
- Higher consumption in alternate industries electronic goods, mobile phones, etc.
- Authorized distributors drive allocations

3

Compliance Cost Mgmt. & Sustainability

- Evolving environment compliances ROHS, EU REACH, etc.
- Risk of counterfeit
- Materials used for exports are subject to stringent compliances
- Recycling, Reuse of Materials, etc.

Restriction of the Use of certain Hazardous Substances in Electrical and Electronic Equipment (RoHS)

4

Cost Escalations

- Rising labor costs in LCC regions
- Commodity prices
- Growing need for substitute materials
- Escalating forex cost

5

Volatile Demand & Supply

- Impact of Trade Wars
- Escalating Tariffs
- Natural Disasters, etc.

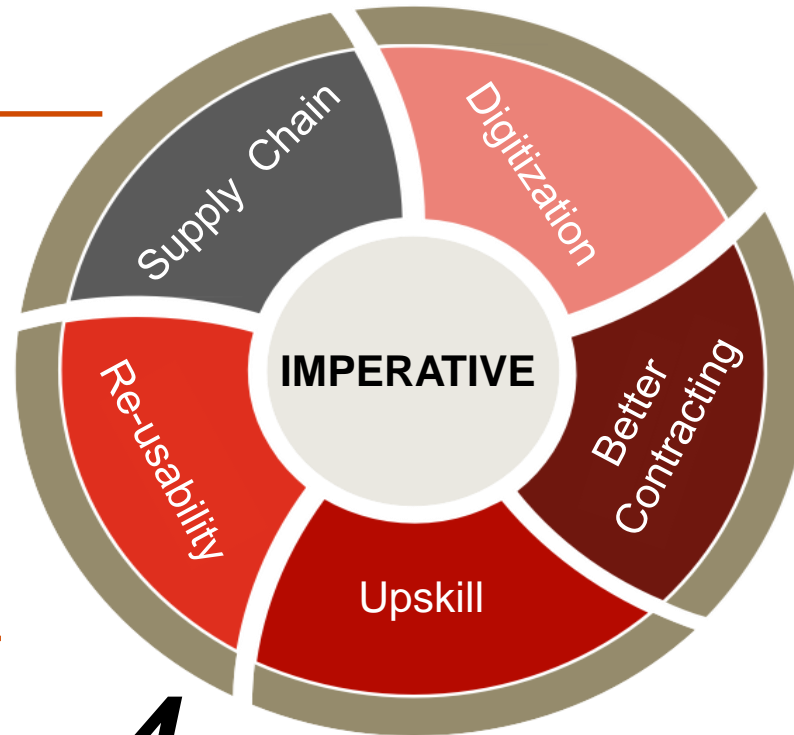
Key imperatives for auto component suppliers

1 Establish supply

- New supply chains safeguarding risk factors
- Develop commodity level playbook for sourcing and inventory management
- Batteries/ dense materials require newer logistics

5 Drive re-usability

- Materials get exhausted & hence, more expensive
- Re-usability ensures continued supply
- May help avoid environmental taxes, reduce labour costs, etc.



4 Reskilling Workforce

- Factors – New materials, increased automation
- Jobs shift from direct handling to allied services
- Determine role of different stakeholders

2 Digitization

- Spend analysis – manage procurement & drive down costs
- Build de-centralized sourcing models
- Switch to new materials should be accompanied by shift to analytics/data-based procurement

3 Superior contract terms

- Budget for material price volatility
- Include relevant indices for material procurement
- Develop risk hedging strategies through futures & forwards

Thank you

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