FORTUNE BUSINESS INSIGHTS

REPORT

Metal Forging Market

India Market Analysis, Insights and Forecast, 2023-2030

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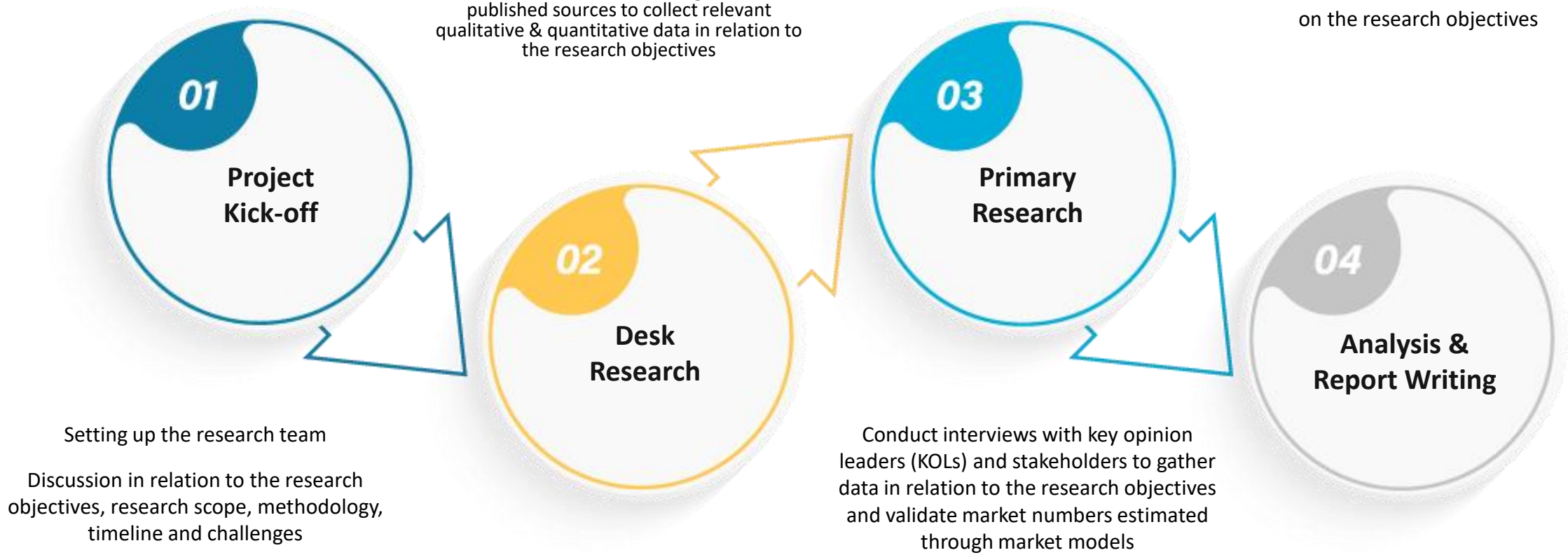
Section 1

FORTUNE BUSINESS INSIGHTS

Research Methodology – Research Process



Research Methodology – Data Triangulation

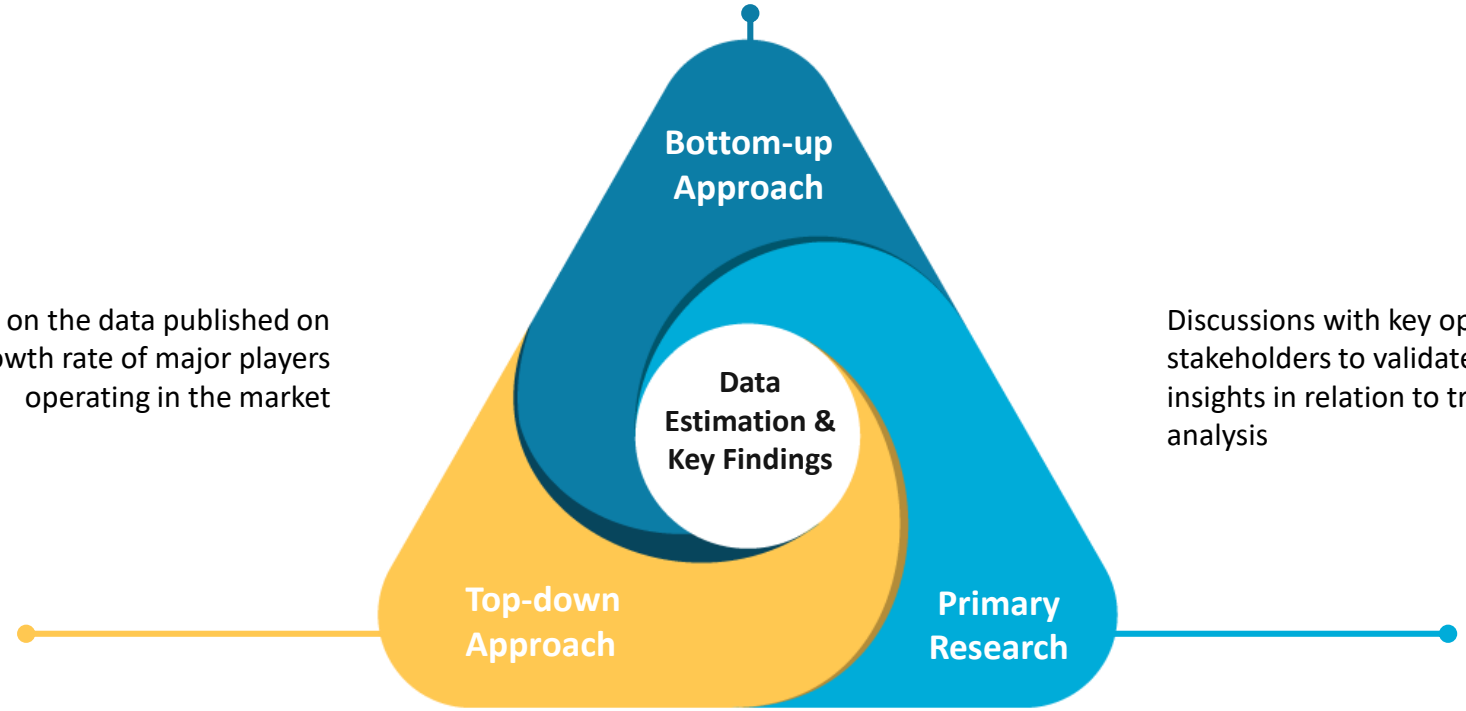
Detailed product mapping of all major and small players operating in the India Metal Forging market

Estimation of revenues/market size of all segments to arrive at the total market for Metal Forging sales across the region and courtiers covered under scope

Estimates based on product demand, number of manufacturers, product pricing, and average annual spending on the product.

Estimates based on number of end users and average consumption/spending by end users

Top-down approach based on the data published on revenues, market share and growth rate of major players operating in the market



Discussions with key opinion leaders (KOLs)and stakeholders to validate market estimates and get their insights in relation to trends, dynamics and competitive analysis

Research Assumptions (1/2)

1. We have taken into consideration the opinion of various domain experts from the primary interviews to solidify our assumption whenever necessary in the analysis.
2. The final estimate number of metal forging is derived from several steps of calculation, assumption and data points taken from various primary and secondary resources.
3. As the market numbers that we have derived were in USD Million, we have further converted USD values in Million for better understanding of the market.
4. There will be some deviation in the both approaches of the market size, as we follow top down approach for validation purpose only.
5. The top down approach comprises of total segmental revenue of the companies considered in the scope.
6. The impact of COVID-19 pandemic on the market is analyzed based on the data available under public domain from January 2020 to December 2021
7. In case of India level analysis, we have considered bottom up approach for the market scope. We have considered the points such as the number of key players in India, the presence of facilities in the country, number of employees, forging machines, customers, and the supply chain analysis of the companies.
8. The aspect of government regulations and policies of the countries is considered during the study of the market.

Research Assumptions (2/2)

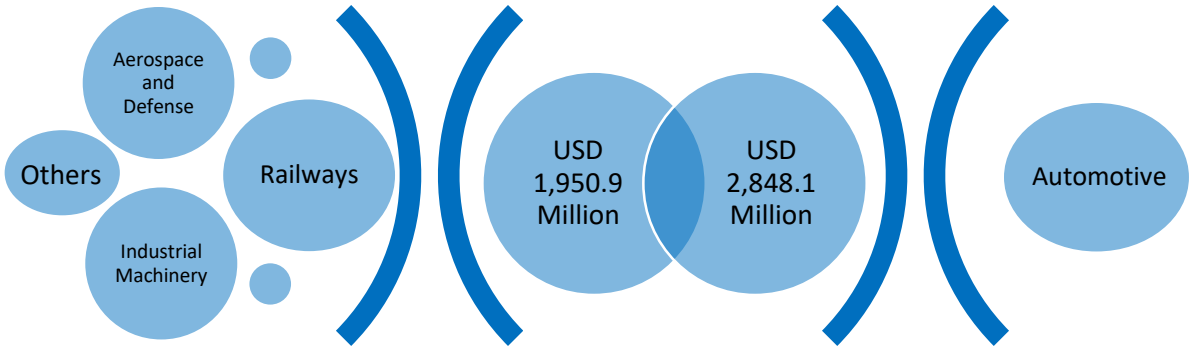
9. The overall economy of the country, investment by key players in the country economy, and forecast growth rate of the country is taken under considerations while analyzing the market.
10. The market share analysis of the companies is carried out with the information available under public domain. As revenues were not available for private companies, thus, we have considered the aspects such as employee strength, geographic presence, the product portfolio, and recent contracts of the companies.
11. The information unavailable is mentioned as Not Available (NA) in the report.

Research Methodology By Supply Side

Detailed Research Methodology	
Step 1	To validate outcome that has been derived through demand side, we have calculated total revenue of the key companies (major 18 Key companies) & then calculated segmental revenue of all these major key companies. We have also considered the year-on-year growth in the company revenues, segmental revenue, the impact of COVID-19 on company's based operations, company's customers and product dealers, and recent contracts.
Step 2	To analyze percentage of metal forging in company’s revenue, we have consider the product line involved under forging systems and solutions business segment of particular group as well as primary insights and secondary insights are taken into consideration.
Step 3	To derive the final number of India metal forging market, we have sum up the segmental revenue of major companies. Let's consider, the sum up of segmental revenue of the company is "A".
Step 4	To analyzed the market further, we have mapped some other (small and medium scale companies) key companies that are involved in India metal forging market. We have mapped the segmental revenue of these companies & sum up there revenue. Let's consider, the sum up of segmental revenue of the other companies is “B".
Step 5	The final analysis in India metal forging market size includes the addition of the segmental revenue of the major companies (top 18 companies) and segmental revenue of others companies i.e. Market Size=A+B.
Step 6	We have taken into consideration the opinion of different industry experts from the primary interviews to solidify our assumption whenever necessary in the analysis.

Research Methodology By Demand Side

- Initially, we have considered the demand side analysis considering the technology and industry vertical segment. We have analyzed each segment based on the company profile and product based on the product range for forging products.
- Further, we have mapped the all the contracts, investments and key developments related to Indian companies.
- Based on contract mapping we have analyzed the capability, machines, type of forging, and other important aspects related to the companies based in India.
- Further we have mapped the import and export data related to forging and analyzed the market.
- Based on the above analysis we have calculated the market size of the year 2022. That is, USD 4,431.5 Million.
- In addition, we have considered the recent investment made during 2019-2022 in aforementioned industries specifically for adoption and deployment of new products offerings, R&D investment, user preferences. Further we have considered the spending on forging. We have also considered the country recent development, new polices with respect to all the industries considered in the scope.
- Automotive comprise of 64.3% market share in 2022 in Indian market. The growth in automotive industry will continue till 2024. However, post 2024 the rapid adoption of electro mobility is likely to hamper the growth of the market post 2024.



Source: Fortune Business Insights Analysis

Global & India Market Analysis, Insights & Forecast

Section 02

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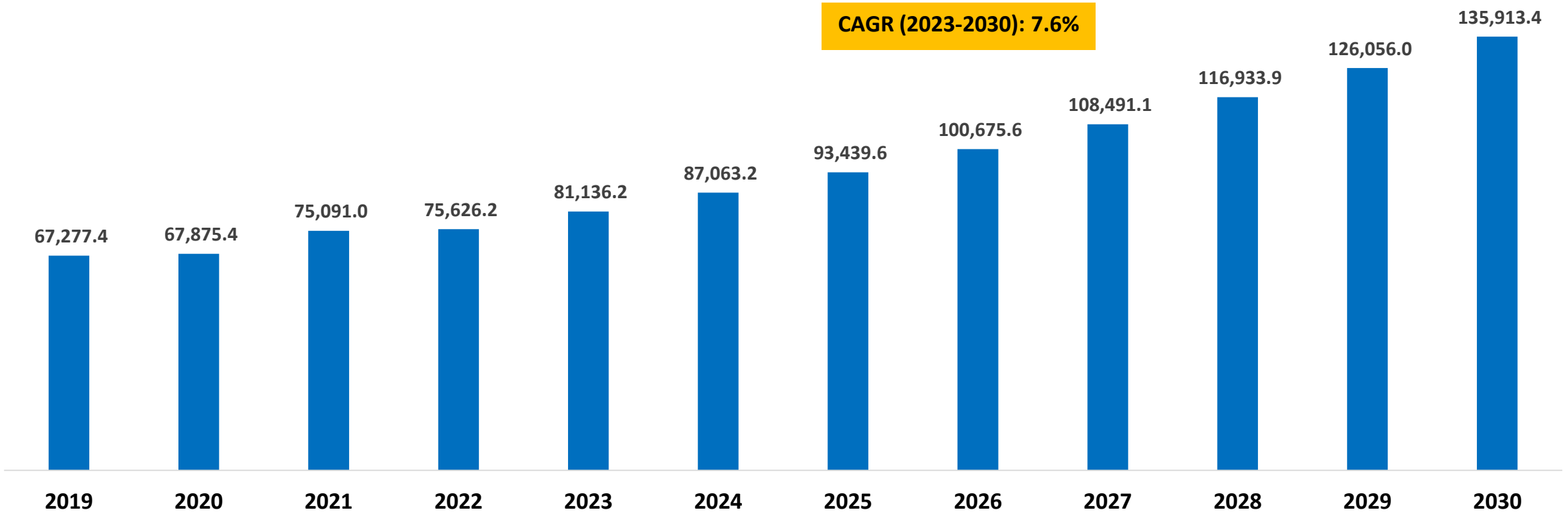
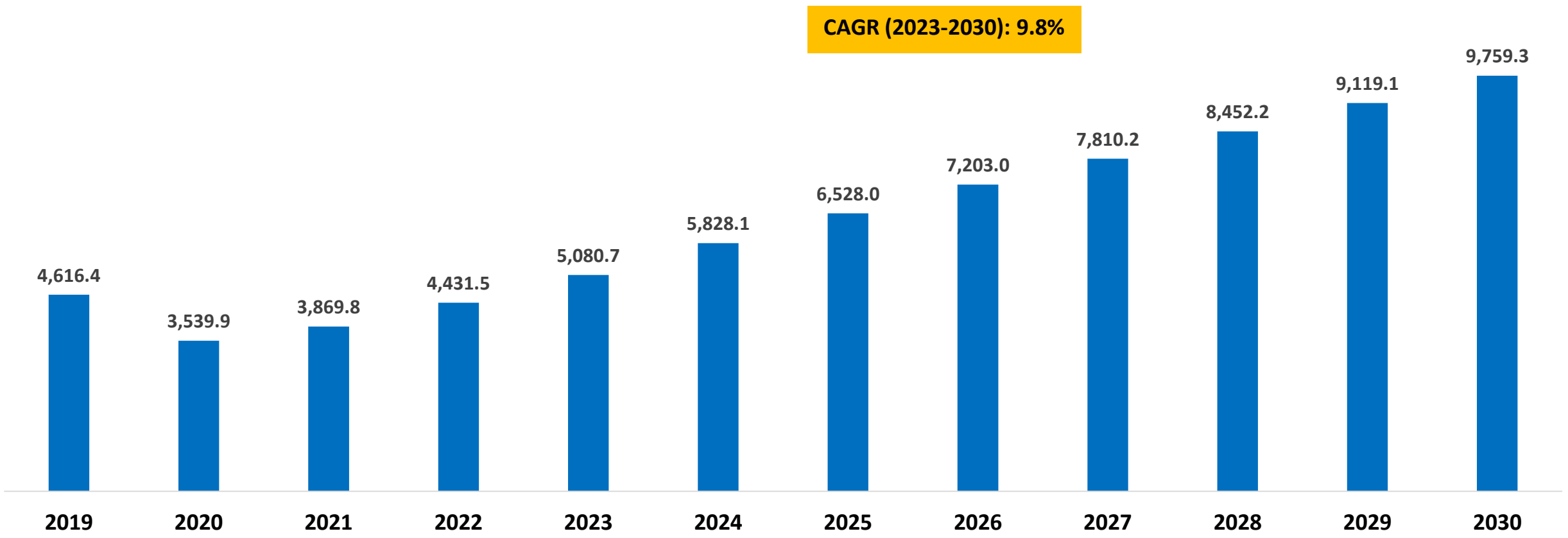
Global Market Forecast

Fig 1: Global Metal Forging Market Revenue (USD Million), 2019-2030



India Market Forecast

Fig 2: India Metal Forging Market Revenue (USD Million), 2019-2030



India Market Forecast, By Material

Table 1: India Metal Forging Market Revenue (USD Million) Forecast, By Material, 2019–2030													
Material	2019A	2020A	2021A	2022A	2023F	2024F	2025F	2026F	2027F	2028F	2029F	2030F	CAGR (2023-2030)
Carbon Steel	2,004.8	1,544.3	1,695.9	1,950.9	2,246.8	2,589.1	2,913.2	3,229.1	3,517.2	3,823.6	4,144.1	4,455.1	**10.3%**
Alloy Steel	750.4	575.8	629.8	721.7	827.9	950.9	1,066.4	1,178.1	1,279.0	1,385.8	1,497.0	1,604.0	**9.9%**
Stainless Steel	313.1	234.7	250.8	280.7	314.7	352.8	386.2	416.6	441.5	467.1	492.5	515.3	**7.3%**
Others (Titanium, Aluminium Alloys, and Nickel)	1,548.1	1,185.1	1,293.4	1,478.3	1,691.3	1,935.3	2,162.2	2,379.2	2,572.6	2,775.7	2,985.5	3,184.8	**9.5%**
Total	**4,616.4**	**3,539.9**	**3,869.8**	**4,431.5**	**5,080.7**	**5,828.1**	**6,528.0**	**7,203.0**	**7,810.2**	**8,452.2**	**9,119.1**	**9,759.3**	**9.8%**

India Market Forecast, By End User

Table 2: India Metal Forging Market Revenue (USD Million) Forecast, By End User, 2019–2030													
End User	2019A	2020A	2021A	2022A	2023F	2024F	2025F	2026F	2027F	2028F	2029F	2030F	CAGR (2023-2030)
Automotive	2,923.1	2,252.6	2,474.8	2,848.1	3,281.6	3,783.0	4,258.4	4,722.0	5,145.6	5,596.3	6,067.7	6,526.0	**10.3%**
Aerospace and Defense	114.9	87.6	95.2	108.4	123.7	141.0	157.1	172.4	185.9	200.0	214.6	228.4	**9.2%**
Railway	266.8	197.3	208.0	229.7	254.1	281.1	303.6	323.0	337.8	352.6	366.8	378.7	**5.9%**
Industrial Machinery	225.4	171.3	185.6	210.7	239.5	272.2	302.2	330.6	355.3	381.1	407.6	432.3	**8.8%**
Marine	41.1	30.7	32.6	36.3	40.5	45.3	49.4	53.0	55.9	58.9	61.8	64.4	**6.8%**
Others (Agriculture, Power, Mining, and Construction)	1,045.2	800.5	873.6	998.2	1,141.3	1,305.4	1,457.4	1,601.9	1,729.7	1,863.3	2,000.6	2,129.4	**9.3%**
Total	4,616.4	3,539.9	3,869.8	4,431.5	5,080.7	5,828.1	6,528.0	7,203.0	7,810.2	8,452.2	9,119.1	9,759.3	**9.8%**

Market Dynamics

Chapter 03

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Market Dynamics

DRIVERS	• Increasing Export of Forging Products to Drive the Market Growth • Increasing Foreign Direct Investment (FDI) to Boost the Market Growth • Increasing Demand for Forged Products in Power, Agriculture, Aerospace, and Defense
RESTRAINTS	• Rising Steel Prices and Shortage of Raw Material are Anticipated to Limit the Market Growth • Electrification in Automotive Industry to Slow Down the Market Growth
OPPORTUNITIES	• Scope for the Diversification of Metal Forging Market from Automotive Industry to Non Automotive Industry Specifically Power, Agriculture and Aerospace • Rising Demand for Light Weight Aluminum Products in Electric & Hybrid Vehicles
TREND	• Rising Adoption of Automation in Manufacturing to Drive the Market Growth

Market Drivers

Increasing Export of Forging Products to Drive the Market Growth

- Globally, India is considered as one of the major manufacturing hubs. The increase in domestic manufacturing capacity and competitiveness is helping India's exports to grow at a record pace.
- According to the Engineering Export Promotion Council of India (EEPC) forging sector is identified as one of the key sectors for export growth.
- Additionally, government initiatives such as 'Make in India' has given a boost to the manufacturing industry in the region by creating a positive business environment. The key players operating in the Indian metal forging industry are bagging export orders from various economies, which is likely to drive the growth of the metal forging industry in India.
- For instance, in January 2022, Ramkrishna Forging bagged an export order of nearly INR 57.5 crore (USD 7.73 Million) to supply spindles over a period of three years from one of the largest TIER-1 manufacturers from North America in the commercial vehicle segment.
- India export forging to more than 143 countries. In the year 2020-2021 (April – November), India has exported forging worth USD 813.66 Million. The total volume of exports was nearly 957,447,114 units.
- The increasing demand for forged products across various industries worldwide is anticipated to boost the growth of the Indian metal forging market during the forecast period.

Source: Fortune Business Insights Analysis

Market Drivers

Increasing Foreign Direct Investment (FDI) to Boost the Market Growth

- FDI is one of the critical drivers of economic growth in India. It is a non-debt financial resource for industrial and economic development in India.
- Foreign companies prefer to invest in the Indian manufacturing sector to take advantage of the well-established manufacturing industry, special investment privileges like tax exemptions, lower wages, and other benefits.
- Additionally, government initiatives in recent years, such as relaxing FDI norms across various sectors, are expected to drive the FDI growth in upcoming years, which is likely to influence the growth of India's manufacturing and metal forging industries.
- According to the Department for Promotion of industry and Internal Trade (DPIIT), FDI equity inflow was USD 572.81 Million between April 2000 – December 2021. India witnessed growth in FDI inflow from USD 74.39 Million in FY 2019-2020 to USD 81.72 in FY 2020-2021, registering a growth of nearly 10%.
- In 2021-2022, India recorded India recorded highest ever FDI inflow of USD 83.57 Million. The FDI inflow for the manufacturing sector increased by 76% in 2021-2022, reaching nearly USD 21.34 Million from USD 12.09 Million in 2020-2021.
- Moreover, India is one of the leading steel producers in the world. Therefore, the availability of raw materials such as steel, iron and others in the region is further attracting foreign investors to invest in the Indian manufacturing sector.
- Therefore, surging FDI in the manufacturing sector is influencing the demand for forged products, which is likely to boost market growth in years to come.

Source: Fortune Business Insights Analysis

Market Drivers

Increasing Demand for Forged Products in Power, Agriculture, Aerospace, and Defense

- Indian metal forging industry majorly caters to the demand for forged products in the automotive sector. However, the recent slowdown in the automotive sector has diverted the focus of the leading metal forging key players on expanding their product portfolio for other non-automotive industries where demand for forged products is increasing.
- The non-automotive industries with a rapidly growing demand for forged products include agriculture, power, aerospace, and defense. Hence, increasing investment and expansion of these sectors is positively influencing the market.
- Aerospace and defense industries require various high-quality and lightweight metal forged parts. Therefore increasing demand for critical forged products in the aerospace & defense industry is likely to drive the market growth.
- For instance, In February 2021, Bharat Forge announced that it had bagged an order of INR 177.95 Crores (USD 24.08 Million) from the Ministry of Defense for the supply of Kalyani M4 vehicles.
- Similarly, companies are also bagging orders from other sectors such as power and agriculture due to fueling demand for forged products in these industries.
- Therefore, increasing demand for forged products in sectors such as power, agriculture, aerospace, and defense is likely to propel market growth in years to come.

Source: Fortune Business Insights Analysis

Market Drivers

Drivers	2016-2018	2019-2021	2023-2030
	Impact		
Increasing Export of Forging Products to Drive the Market Growth	●	●	●
Increasing Foreign Direct Investment (FDI) to Boost the Market Growth	●	●	●
Increasing Demand for Forged Products in Power, Agriculture, Aerospace, and Defense	●	●	●

High ● Medium ● Low ●

Market Restraints

Rising Steel Prices and Shortage of Raw Material are Anticipated to Limit the Market Growth

- Steel is a highly used raw material in the Indian metal forging industry. Therefore, rising steel prices due to the shortage of iron ore in India are anticipated to hinder market growth in the near future.
- Iron ore is the major raw material utilized in the steel-making process. Hence, the low production of iron ore during the pandemic has caused a shortage of iron ore in India. Additionally, a good number of mines that changed hands through auctions in February 2020 have not yet started production in Odisha at full capacity. Odisha auctioned 19 mines, out of which five were captive, and 14 were open category.
- Therefore, the shortage of iron ore, which is responsible for elevated iron ore prices, is directly impacting on rates of steel.
- The increased steel prices have leveled up the barrier for new entrances along with capacity and scope expansion for metal forging companies in India. Moreover, the forging companies were already experiencing setbacks due to low demand for forging products during the pandemic and this steel price hike further worsened the situation for all the small and medium-sized forging companies in India.
- The average domestic price of hot-rolled steel coil went up from INR 39,761 (USD 542.74) per tonne in CY2020 to INR 63,000 (USD 845.46) per tonne in December 2021, registering a nearly 58% rise in prices. The pre-pandemic average pricing in CY 2019 was INR 38,567 per tonne.

Source: Fortune Business Insights Analysis

Market Restraints

Electrification in Automotive Industry to Slow Down the Market Growth

- The domestic automotive industry in India is the leading customer for metal forged products and parts. Approximately more than 60% of the metal forging units in India are involved in automotive component manufacturing. Therefore Indian metal forging market is highly dependent on the domestic automotive industry.
- Currently, the automotive industry is going through once in century revolution. Rising environmental concerns, government initiatives to promote green mobility, an increasing number of stringent emission regulations, and rising fuel prices are driving electrification in the automotive industry.
- Nearly all the leading automakers are focused on developing electric vehicles as future mobility solutions. However, electric vehicles have fewer moving parts and forged components compared to conventional vehicles.
- Therefore, the growing popularity and adoption of electric vehicles and rising electrification in the Indian domestic automotive industry are likely to hamper the growth of the Indian metal forging market during the forecast period.
- For instance, in 2021, electric 4W sales increased by 206.3% to 14,218 in 2021. Moreover, electric bus sales were relatively neutral, and FAME II-backed electric bus deployment will support the strong growth of this segment.
- Electric vehicles are anticipated to penetrate deeper in total vehicle sales in India during the forecast period further hampering the Indian metal forging market.

Source: Fortune Business Insights Analysis

Market Restraints

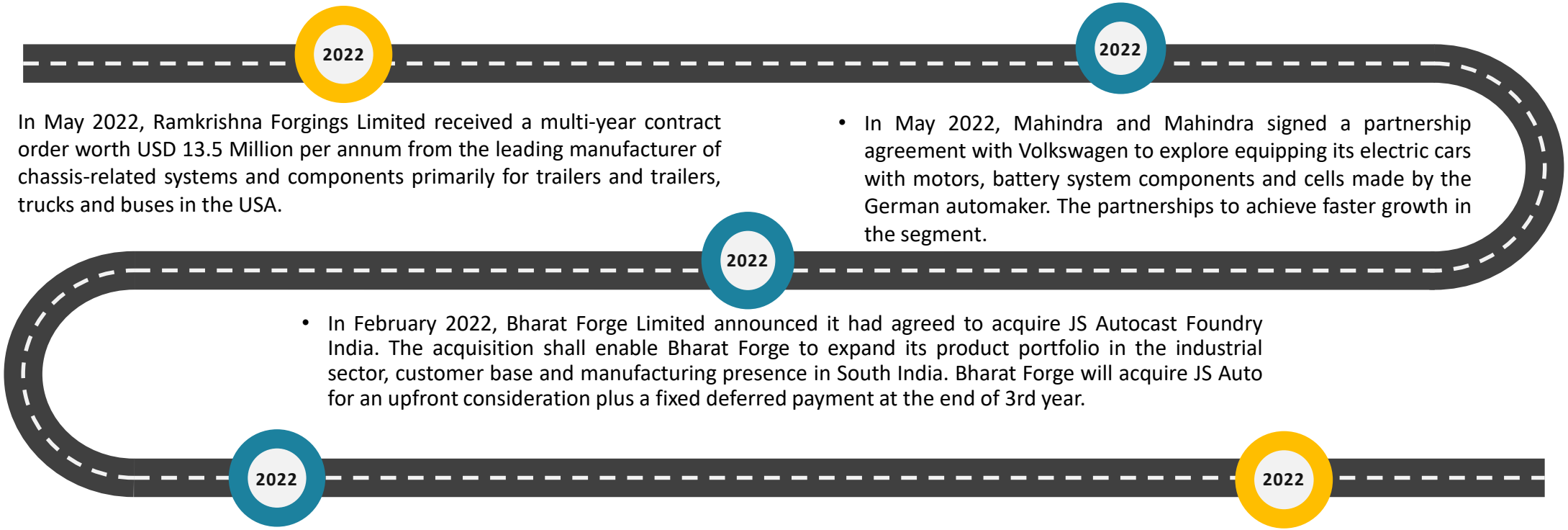
Restraint	2017-2019	2020-2021	2023-2030
	Impact		
Rising Steel Prices and Shortage of Raw Material are Anticipated to Limit the Market Growth			
Electrification in Automotive Industry to Slow Down the Market Growth			

High Medium Low

Key Insights

Section 04

Key Industry Developments



- In May 2022, Ramkrishna Forgings Limited received a multi-year contract order worth USD 13.5 Million per annum from the leading manufacturer of chassis-related systems and components primarily for trailers and trailers, trucks and buses in the USA.
- In May 2022, Mahindra and Mahindra signed a partnership agreement with Volkswagen to explore equipping its electric cars with motors, battery system components and cells made by the German automaker. The partnerships to achieve faster growth in the segment.
- In February 2022, Bharat Forge Limited announced it had agreed to acquire JS Autocast Foundry India. The acquisition shall enable Bharat Forge to expand its product portfolio in the industrial sector, customer base and manufacturing presence in South India. Bharat Forge will acquire JS Auto for an upfront consideration plus a fixed deferred payment at the end of 3rd year.
- In March 2022, MM Forgings Limited has owned a subsidiary—Suvarchas Vidyut —as a strategic investment to strengthen its revenue stream. MM Forgings has created this new company with an authorized share capital of USD 0.6 Million to create electrical and electronic components and sub-assemblies for industrial, consumer, and automotive applications.
- In April 2022, Ramkrishna Forgings Limited and Euroasian OEM signed a contract with a valuation of USD 17.8 Million or the Heavy Duty Commercial Vehicle Crank Shafts Business to be executed in the next five years.

PORTER's Five Forces

Threat of New Entrants: Moderate

More than 80% of the market is occupied by small players in the industry catering to domestic and international demand for forged products. However, a new entrance into the Indian metal forging market requires substantial capital investment for the installation of forging machinery.

In addition, consistently increasing steel prices are further leveling up the barrier to the market entrance. Hence, the threat of new entrance is moderate.

Threat of Substitution: Low

Forging is one of the manufacturing process involved critical techniques in developing metal parts. It not only shapes metal matrix and metal composite material but also refines and transforms metallurgical structure as well. Hence forging provide both reliable and durable metal part of various shapes as per the requirements. No other process is as efficient as forging to gain these qualities. Therefore, the threat of substitution is low.

Competitive Rivalry: High

The Indian metal forging market is highly fragmented and occupied by various small players. However, the competitiveness in the market is maintained by the rivalry between certain large players such as Bharat Forge, Ramakrishna Forge, and others. Additionally, the company's strong focus on diversification of its products in non-automotive applications to generate future revenue growth opportunities is likely to drive the competitive rivalry in the market in the near future.

Bargaining Power of Buyer: Moderate to High

The Indian metal forging market is highly fragmented, with the presence of a large number of small and medium-sized players. Therefore, end-users or customers get the freedom to choose their supplier based on supply capacity, cost, location, and other parameters. Thus, the bargaining power of buyer is considered to be moderate to high.

Bargaining Power of Supplier: High

The rising inflation rate and rapidly increasing steel prices coupled with the presence of a large number of Forging product manufacturers in India and their increasing raw material requirement is fueling the bargaining power of suppliers. The cost of switching to forging companies is high due to the Covid-induced shortage of raw material. Therefore, the bargaining power of suppliers is likely to be high

Regulatory Overview

Environmental Regulation

- Adherence to environmental regulations set by the Central Pollution Control Board (CPCB) and state pollution control boards is mandatory. This includes measures air and water pollution control

Quality Standard

- The Burea of India Standard (BIS) sets quality standards for products; compliance with these standard is typically mandatory for all forging industry

Import and Export Regulation

- The Directorate General of Foreign Trade (DGFT) oversees import and export regulations. The industry must comply with guidelines related to international trade

Sources: Press Releases, Published Articles, Blogs

Regulatory Overview

Labor Laws

- Compliance with labor laws, including those related to working conditions, safety, and employment practices, is crucial. The Ministry of Labor and Employment governs these regulations.

Custom Duties

- The Central Board of Indirect Taxes and Customs (CBIC) governs customs duties. Companies involved in importing and exporting forged products need to be aware of application duties.

Industrial Licensing

- The Department of Promotion of Industry and Internal Trade (DPPIT) is responsible for industrial licensing policies. Depending on the nature of the forgoing business, a specific license may be required.

Sources: Press Releases, Published Articles, Blogs

Market Share Analysis

Section 07

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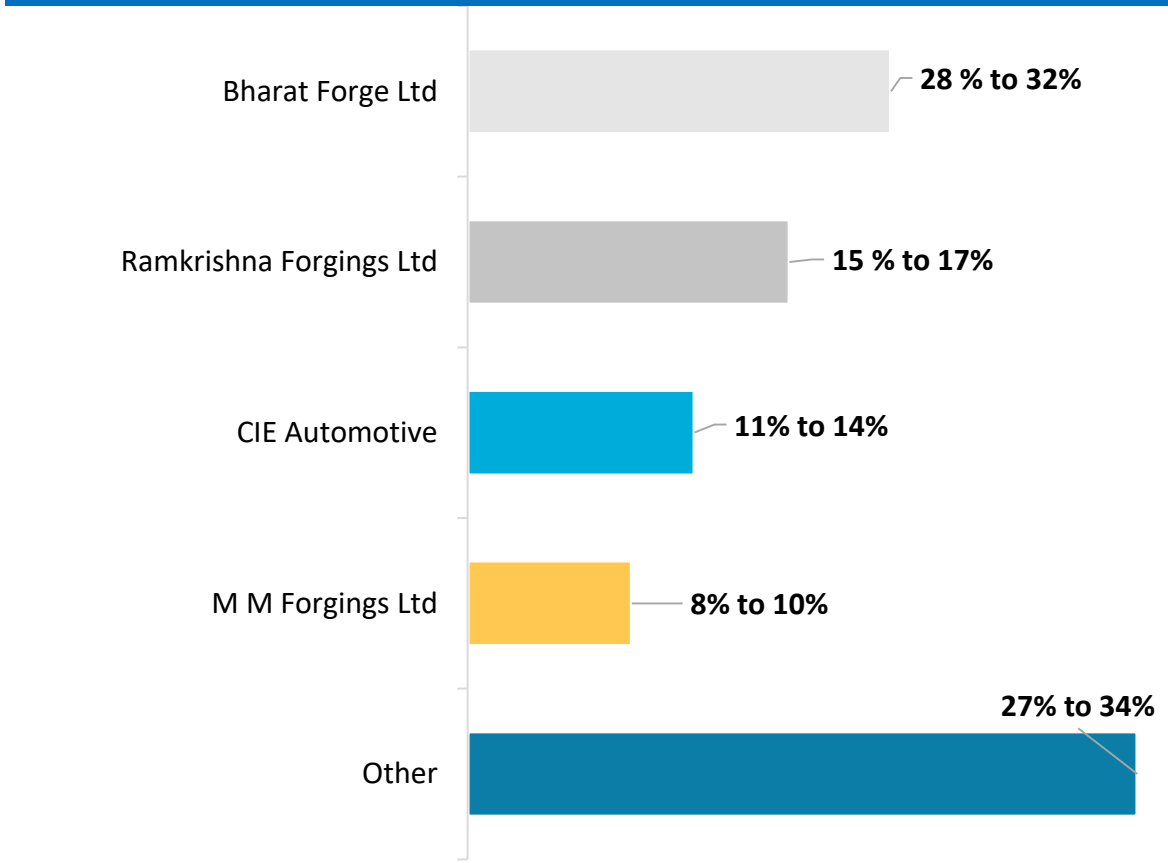
Market Share Analysis

Figure 3: India Metal Forging Market Share Analysis, 2019-2030



Analysis

- The figure besides highlights market share (%), by company, in the India metal forging market, 2022.
- The India metal forging market is consolidated with several players operating in this industry. It is observed that key players offers quality services by upgrading forging product capabilities to enhance performance of metal forging market
- Most of the players involved in the market are focused on
- The top four players in the industry are Bharat Forge Ltd, Ramkrishna Forgings Ltd , Mahindra CIE Automotive Ltd and M Forgings Ltd together comprises in between 56% to 62% of the total market
- The Bharat Forge, is a leader in the metal forging market and holds the market share in between 28% to 32%. The company offers services including Automotive, Railways, Aerospace, Marine, Oil & Gas, Power, Construction and Mining.
- Ramkrishna Forging Ltd Corporation with its machinery and vast product portfolio of forging product solutions is anticipated to register the market share in between 15% to 17%.
- Other prominent players involved in the market together holds in between 45% to 52% market share of the total market.

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