

NSE ALUMINIUM
DERIVATIVES
Performance Review
2023-24

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Performance Review of Commodity Derivatives - FY 2023-24

Aluminium Futures & Aluminium Mini Futures

1. Background

a. Brief about the commodity such as sample picture, lifecycle and various varieties/grade of the commodity found in India

Aluminum is the second most abundant metallic element in the Earth's crust after silicon, yet it is a comparatively new industrial metal that has been produced in commercial quantities for just over 100 years. It weighs about one-third as much as steel or copper; is malleable, ductile, and easily machined and cast; and has excellent corrosion resistance and durability. Measured either in quantity or value, aluminium's use exceeds that of any other metal except iron, and it is important in virtually all segments of the world economy. Some of the many uses for aluminum are in transportation (automobiles, airplanes, trucks, railcars, marine vessels, etc.), packaging (cans, foil, etc.), construction (windows, doors, siding, etc), consumer durables (appliances, cooking utensils, etc.), electrical transmission lines, machinery, and many other applications. Aluminum recovery from scrap (recycling) has become an important component of the aluminum industry. A common practice since the early 1900s, aluminum recycling is not new. It was, however, a low-profile activity until the late 1960s when the recycling of aluminum beverage cans finally vaulted recycling into the public consciousness.

b. Commodity fundamentals and balance sheet as per the following format (to be prepared based on publicly available information on best effort basis):

Table – Fundamentals & Balance Sheet (Thousand metric tons)

Global Scenario	2022	2023
Opening Stocks	-	-
Production	68,400	70,000
Consumption	-	-
Closing Stocks	-	-

Source: MCS USGS 2024

Table - Indian Balance Sheet (In Tonnes)

Indian Scenario	2022-23	2023-24
Aluminium (Bauxite) Production	2,38,31,706	2,39,30,000
Aluminium Ores and Conc Export	1,77,536	1,64,177
Aluminium Ores and Conc Import	35,96,099	45,04,112

Source: Ministry of Mines, Government of India (mines.gov.in), Ministry of Commerce and Industry

Top 10 major producing countries (Thousand metric tons)

Countries	2022	2023
China	40200	41000
India	4100	4100
Russia	3780	3800
Canada	2770	3000
United Arab Emirates	2650	2700
Bahrain	1600	1600
Australia	1510	1500
Norway	1400	1300
Brazil	811	1100
Malaysia	900	980

Source: MCS USGS 2024

Top 10 major consuming countries (Thousand metric tons)

Country wise consumption data is not available in public domain.

Top 10 major exporting countries (in US \$ million)

Name of Country	2022	2023
China	42109.01	19425.19
Germany	21422.90	14277.98
USA	14511.11	12586.34
Canada	14131.72	8692.18
Italy	9546.41	7333.06
India	9597.95	6501.62
France	6938.55	6438.22
Netherlands	7857.01	5953.68
Malaysia	7434.05	5356.52
Poland	6092.18	5318.48

Source: UN Comtrade Database, HS Code: 76

Top 10 major importing countries (in US \$ million)

Countries	2022	2023
United States	USA	36664.81
Germany	Germany	26747.81
Japan	China	11685.87
Netherlands	Mexico	11640.04

Turkey	France	9861.35
China	Italy	10719.14
South Korea	Japan	10573.50
Mexico	Netherlands	9085.66
Poland	India	7234.17
Spain	Türkiye	7683.17

Source: UN Comtrade Database, HS Code: 76

Top producing states in India

Aluminium is the fastest growing non-ferrous metal in India and the same is evident by its growing and widespread use. Most of the Aluminium Smelter are located near their respective alumina refineries. Ten aluminium smelters are operated by four companies viz. NALCO, BALCO, HINDALCO & VEDANTA. NALCO is the only company in the Public Sector with installed capacity of 4,60,000 tpy. BALCO, earlier a Public Sector company, is now under Private Sector. The aluminium plants of NALCO and BALCO have their alumina-aluminium complexes at Damanjodi-Angul (Odisha) and Korba (Chhattisgarh), respectively.

c. Major changes in the policies governing trade in the spot markets of the commodity

India's trade policies for the fiscal year 2023-24 saw significant changes, particularly in the aluminium sector. The government introduced measures to boost domestic manufacturing and reduce dependency on imports. The continuation of concessional duty on lithium-ion cells for batteries until March 31, 2024 indirectly supported the aluminium industry, as these batteries are integral to the growing electric vehicle (EV) market. The Union Budget for 2023 encouraged Indian manufacturers to increase EV production, which is closely tied to the aluminium industry due to its use in EV components. The focus was also on penetrating new export markets, with a modest increase in non-petroleum, non-gems, and jewellery exports. The amendments were part of a broader economic strategy to enhance India's export capabilities and foster self-reliance in key sectors, including metals like aluminium. Between April 2023 and March 2024, India revised its import policy for aluminium, adjusting import duties and quantities for Raw Petroleum Coke (RPC) and Calcined Petroleum Coke (CPC), which are crucial inputs in the aluminium manufacturing process. Industry bodies like FICCI advocated for an increase to at least 12.5% to curb dumping and support domestic manufacturing.

d. Geopolitical issues in the commodity and its impact on Indian scenario

Incorporating the relevant data into the analysis of geopolitical issues and their impact on Aluminium Import and Trade in India between April 2023 and March 2024, it is observed that India's imports of aluminium were valued at US\$7.23 billion during 2022. This figure is a critical indicator of the country's reliance on aluminium imports to meet its industrial and manufacturing needs. The data reflects the challenges faced by the Indian aluminium industry, including the need to navigate the complexities of international trade amid geopolitical tensions. The Press Information Bureau reported that overall imports in FY 2023-24 (April-March) are estimated to be USD 854.80 billion, exhibiting a negative growth of (-) 4.81% over FY 2022-23. This decrease in imports could be attributed to the disruptions caused by

geopolitical conflicts, which have led to a re-evaluation of trade partnerships and a push for self-reliance in critical sectors.

The aluminium industry, being integral to India's infrastructure and development goals, was significantly affected by these shifts. During the same period, merchandise exports began with strong growth, estimated at USD 64.56 billion in April 2024, a 6.88% increase over April 2023. This growth, despite the challenging global environment, indicates the resilience of the Indian economy and its ability to adapt to changing geopolitical landscapes. The aluminium sector, as part of this broader economic framework, had to align its strategies to capitalize on export opportunities while managing import dependencies. The data also highlights the role of non-petroleum and non-gems & jewellery exports, which registered an increase from USD 25.77 billion in April 2023 to USD 26.11 billion in April 2024. This sector's performance is crucial as it reflects the diversification of India's export base and the potential for growth in non-traditional sectors like aluminium, which is essential for various industries ranging from construction to electronics.

Furthermore, the negative growth in overall imports suggests a strategic shift towards reducing dependency on foreign aluminium, which aligns with India's vision of self-reliance and the "AtmaNirbhar Bharat" initiative. The focus on enhancing domestic production capabilities and encouraging the use of green aluminium is a step towards achieving sustainability and economic stability. In conclusion, the data from the period between April 2023 and March 2024 underscores the impact of geopolitical issues on India's aluminium imports and trade. The industry's response to these challenges, supported by government policies and a focus on sustainability and innovation, has been pivotal in maintaining the sector's growth trajectory.

2. Trading related parameter

NSE had the following Aluminium derivatives available for trading on its Commodity Derivatives Segment in FY 2023-24.

- Aluminium Futures
- Aluminium Mini Futures

a. Monthly and Annual traded volume (quantity in appropriate units)

The traded volume for Aluminium derivatives in FY 23-24 was NIL.

b. Annual traded volume as proportion of total deliverable supply (quantity in appropriate units)

The traded volume for Aluminium derivatives in FY 23-24 was NIL.

c. Annual traded volume as proportion of total annual production (quantity in appropriate units)

The traded volume for Aluminium derivatives in FY 23-24 was NIL.

d. Annual average Open interest as proportion of total production

The traded volume for Aluminium derivatives in FY 23-24 was NIL.

e. Annual average Open interest as proportion of total deliverable supply

The traded volume for Aluminium derivatives in FY 23-24 was NIL.

f. Monthly and Annual value of trade (in Rs. Crores)

The traded volume for Aluminium derivatives in FY 23-24 was NIL.

g. Monthly and Annual quantity of delivery (in appropriate units)

The deliveries for Aluminium derivatives in FY 23-24 was NIL.

h. Monthly and Annual value of delivery (in Rs. Crores)

The deliveries for Aluminium derivatives in FY 23-24 was NIL.

i. Monthly and Annual Average Open Interest (OI) (in appropriate units)

The traded volume for Aluminium derivatives in FY 23-24 was NIL.

j. Annual average volume to open interest ratio

The traded volume for Aluminium derivatives in FY 23-24 was NIL.

k. Total number of unique members and clients who have traded during the financial year

The traded volume for Aluminium derivatives in FY 23-24 was NIL.

l. Ratio of open interest by FPOs/farmers/Hedge/VCP positions to total open interest (Annual average as well as maximum daily value)

The traded volume for Aluminium derivatives in FY 23-24 was NIL.

m. Number of unique FPOs / farmers and VCPs/hedgers who traded in the financial year

The traded volume for Aluminium derivatives in FY 23-24 was NIL.

n. Algorithmic trading as percentage of total trading

The traded volume for Aluminium derivatives in FY 23-24 was NIL.

o. Delivery defaults

i. Number of instances

ii. Quantity involved

iii. Value involved

The deliveries for Aluminium derivatives in FY 23-24 was NIL.

3. Price movements

a. Comparison, correlation and ratio of standard deviation of Exchange futures price vis-à-vis international futures price (wherever relevant comparable are available)

The traded volume for Aluminium derivatives in FY 23-24 was NIL.

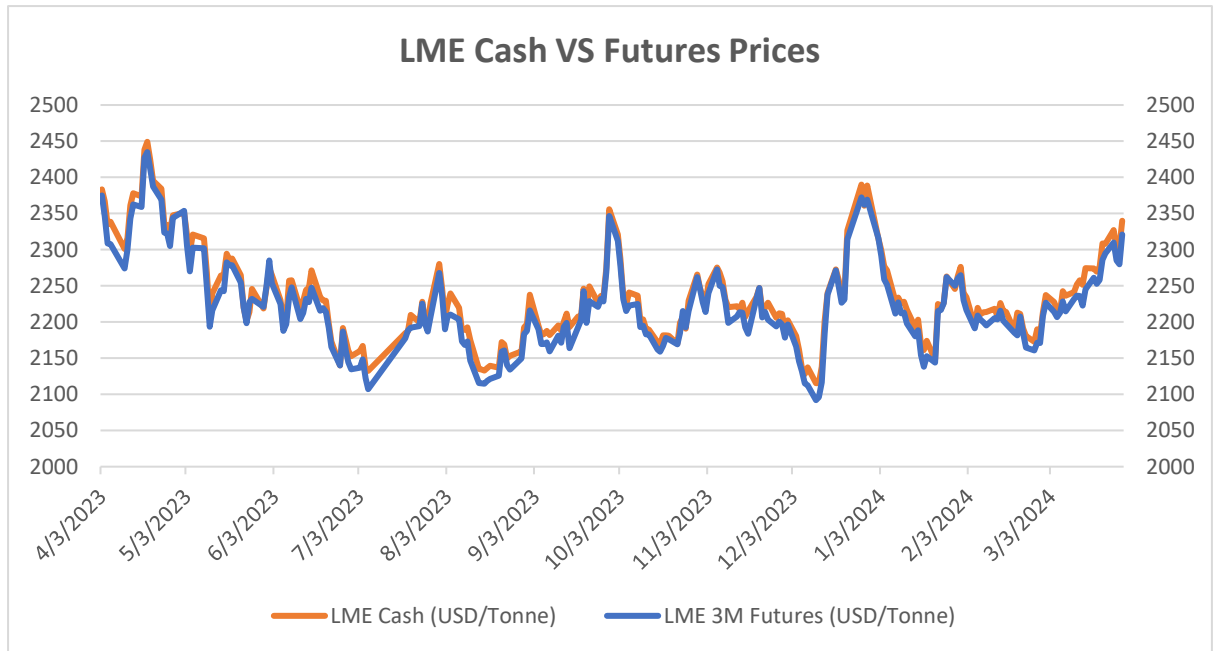
b. Comparison, correlation and ratio of standard deviation of Exchange futures price vis-à-vis international spot price (wherever relevant comparable are available) and domestic spot price (exchange polled price).

The traded volume for Aluminium derivatives in FY 23-24 was NIL.

c. Correlation between exchange futures & domestic spot prices along with ratio of standard deviation.

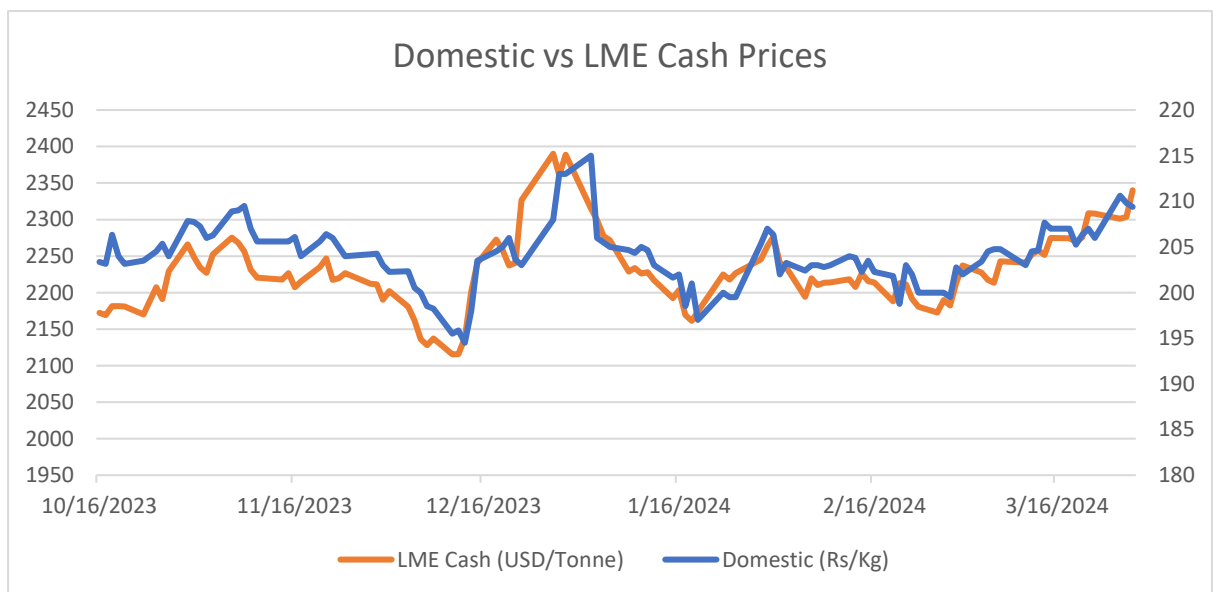
The traded volume for Aluminium derivatives in FY 23-24 was NIL.

d. Correlation between international futures & international spot prices along with ratio of standard deviation (wherever relevant comparable are available).



Correlation: 99% | Ratio of Std Deviation: 0.99

e. Comparison of Exchange polled price and mandi price (in case of agricultural commodities) / other relevant price (in case non-agricultural commodities) at basis centre.



Correlation: 79% | Ratio of Std Deviation: 1.02

f. Maximum & Minimum value of daily futures price volatility and spot price volatility along with disclosure of methodology adopted for computing the volatility.

The traded volume for Aluminium derivatives in FY 23-24 was NIL.

Commodity	Max Volatility in Futures Prices (%)	Min Volatility in Futures Prices (%)	Max Volatility in Spot Prices (%)	Min Volatility in Spot Prices (%)
Aluminium	NA	NA	4.18	0.02

Volatility calculation: $(\text{Day} - \text{Previous day's price}) / \text{Previous day's price}$

g. Number of times the futures contract was in backwardation/contango by more than 4% for the near month contract in the period under review.

The traded volume for Aluminium derivatives in FY 23-24 was NIL.

Sources for this section: Tradingview & NSE

4. Other parameters

a. Qualitative and quantitative measure for Hedge effectiveness ratio and basis Risk (Volatility of Basis) along with disclosure of methodology adopted for such calculations.

The traded volume for Aluminium derivatives in FY 23-24 was NIL.

b. Details about major physical markets of the commodity vis-à-vis market reach in terms of availability of delivery centers (information to be provided state-wise and UT-wise).

Aluminium is the fastest growing non-ferrous metal in India and the same is evident by its growing and widespread use across the country. Most of the Aluminium Smelter are located near their respective alumina refineries. The major physical markets of Aluminium are Raipur, Visakhapatnam, Delhi, Ahmedabad, Bhiwandi, etc. For NSE Aluminium derivatives, Raipur is the primary delivery center.

c. Details about major physical markets of the commodity and average Open Interest for each month generated from those regions.

Major physical markets data provided in the point 4b. The traded volume for Aluminium derivatives in FY 23-24 was NIL.

d. Details, such as number and target audience, of stakeholders' awareness programs carried out by the exchange.

For education initiatives, the exchange has conducted 411 awareness campaigns across INDIA covering all the commodities available on the NSE platform. These programs were attended by more than 15,000 stakeholders.

e. Steps taken / to be undertaken to improve hedging effectiveness of the contracts as well as to improve the performance of illiquid contracts

NSE is constantly striving to encourage hedgers to participate in the Aluminium contracts. We have value chain participants and associations such as Bombay Metal Exchange, Hindalco Ltd, Vedanta, Rashtriya Metal industries, etc. as part of our Base Metals PAC, who guide us on how to get more participation from physical market participants.

5. Any other information to be disclosed as deemed important by the exchange or as suggested by the PAC.