

LME Lead Stock Prices: Yearly and Quarterly Analysis

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Datasets used:

LME Lead Stock prices (Daily 2008 to 2021)

LME Lead Stock volume (Daily 2008 to 2021)

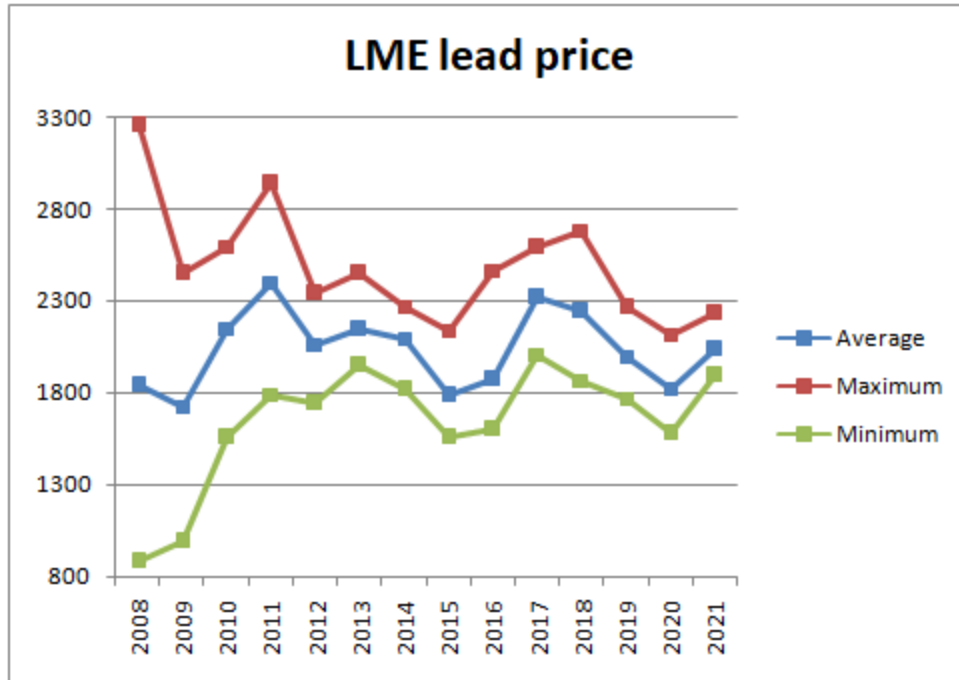
USD/INR Exchange Rate (Daily 2008 to 2021)

Yearly analysis:

LME Lead Price

For each year, the average, maximum and minimum value of **Lead price** was obtained, and the trend was visualised.

Year	Average	Minimum	Maximum	Max-min
2008	₹1,841.43	₹880.00	₹3,253.50	₹2,373.50
2009	₹1,723.72	₹991.50	₹2,447.50	₹1,456.00
2010	₹2,150.60	₹1,558.50	₹2,593.50	₹1,035.00
2011	₹2,399.45	₹1,791.50	₹2,939.00	₹1,147.50
2012	₹2,060.84	₹1,744.00	₹2,340.00	₹596.00
2013	₹2,140.96	₹1,949.00	₹2,448.00	₹499.00
2014	₹2,094.92	₹1,814.00	₹2,269.00	₹455.00
2015	₹1,785.49	₹1,555.00	₹2,140.00	₹585.00
2016	₹1,870.84	₹1,597.00	₹2,466.00	₹869.00
2017	₹2,317.65	₹2,007.00	₹2,586.50	₹579.50
2018	₹2,242.98	₹1,867.00	₹2,683.00	₹816.00
2019	₹1,997.09	₹1,768.00	₹2,267.00	₹499.00
2020	₹1,823.31	₹1,576.50	₹2,117.50	₹541.00
2021	₹2,038.24	₹1,896.00	₹2,228.50	₹332.50



Observations and Conclusions:

Low price in 2008: The global financial crisis of 2007-2008 (tied to the housing bubble in the US, and bail-outs of financial institutions) caused a drop in metal prices.

Price rises and peaks in 2011: Demand for industrial metals around the world increased as economies recovered. Chinese demand grew strongly due to its focus on public investment.

Price falls in 2015 and 2016: Prices of base metals dropped sharply in 2015 and hit multi-year lows at the start of 2016. A combination of a global surplus of output in many commodity markets and decreased demand drove prices down. The World Bank specifically cited demand weakness from China as a principle reason for the fall in metal prices in 2014.

Price rises in 2017 and 2018: The biggest cause for rise in base metal prices was the credit-fuelled construction boom in China. Other factors included strong demand for industrial metals, especially from China, and supply constraints, including mine disruptions in Chile, Indonesia and Peru.

Price falls in 2020: The global economic downturn due to the COVID-19 pandemic drove commodity prices down and thus lead prices reached a low in 2020. With relaxation of lockdowns and economic recovery, prices are following an increasing trend in 2021.

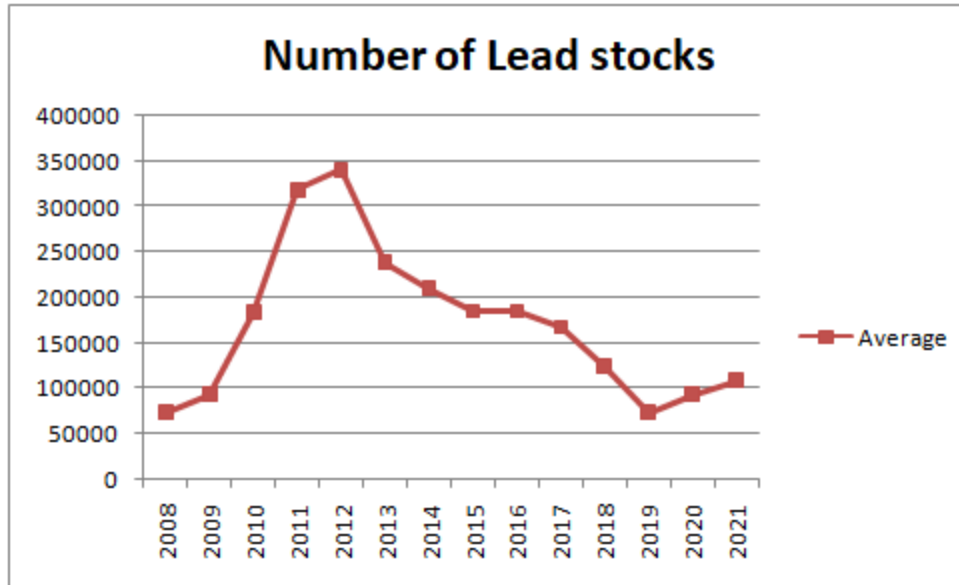
The (Max-Min) variation is decreasing over time as can be seen from the datatable.

From the visualisation above, the **safe average price range** to purchase Lead stocks lies within **₹1800 to ₹2300**. Purchase should be avoided when lead prices are **above ₹2300**.

Lead Stocks Volume

For each year, the average number of lead stocks was obtained, and the trend was visualised.

Year	Average
2008	73854.85
2009	93838.11
2010	184212.2
2011	318945.7
2012	340727.3
2013	238617.6
2014	210513.7
2015	185072.1
2016	184980.2
2017	167368
2018	124564.8
2019	74114.75
2020	93921.79
2021	109691.2



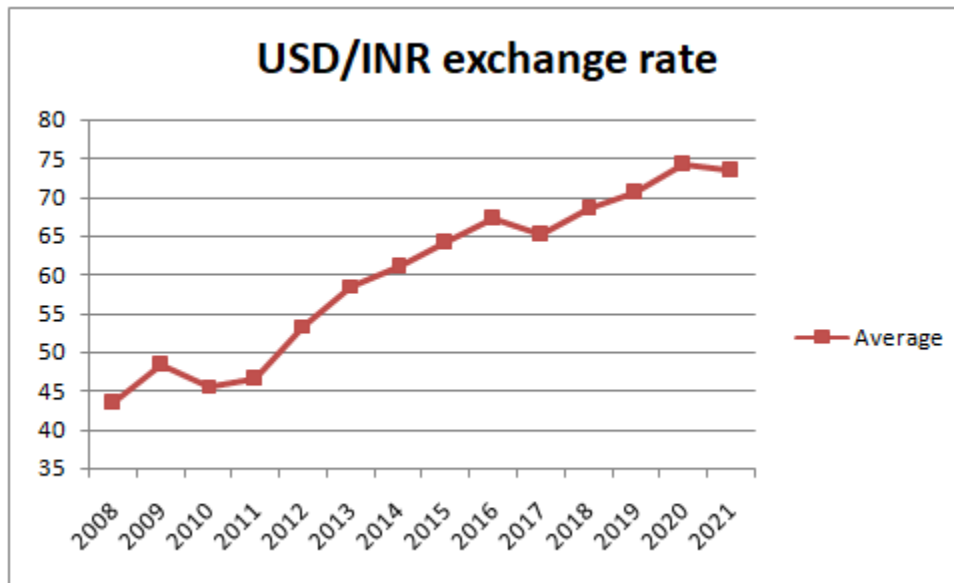
As we can see from the data, **the number of Lead stocks follows the same trend as the lead stock price** (low in 2008, high in 2011, low in 2015, stable in 2016 and 2017, low in 2019). When lead stocks are higher in number, price is higher. Similarly when lead stocks are lower in number, price is lower. High price corresponds to a higher inventory count, whereas low price corresponds to a lower inventory count. It can be thus concluded that the number of lead stocks affects the lead price.

USD/INR Exchange Rate

For each year, the average USD/INR Exchange Rate was obtained, and the trend was visualised.

Year	Average
2008	₹43.36
2009	₹48.26
2010	₹45.62
2011	₹46.55
2012	₹53.42
2013	₹58.54
2014	₹60.98
2015	₹64.12
2016	₹67.17

2017	₹65.11
2018	₹68.46
2019	₹70.57
2020	₹74.23
2021	₹73.34



Metal prices are tied to the global economy which is indicated via the exchange rate mechanisms, and thus metal prices change as the exchange rates fluctuate. The USD/INR exchange rate follows a continuously increasing trend over the last 14 years. As we can see from the data, the exchange rate has an **inverse relation with stock price**, i.e, higher the stock price, lower the exchange rate and vice versa.

Thus, the USD/INR exchange rate can serve as a good indicator of LME lead prices.

Quarterly analysis:

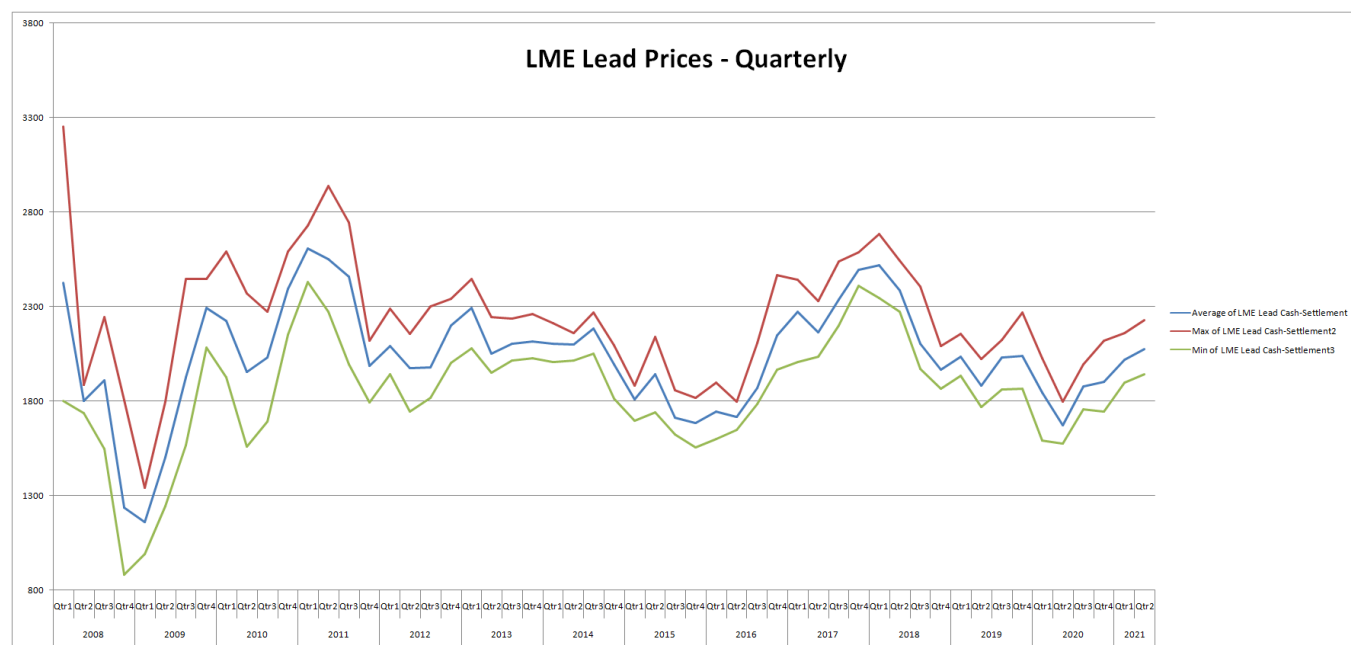
For each quarter over the last 14 years, the average, maximum and minimum value of **LME Lead price** was obtained, and the trend was visualised.

Quarter of the Year	Average price	Max price	Min price
2008			

Qtr1	₹2,425.64	₹3,253.50	₹1,802.00
Qtr2	₹1,801.74	₹1,886.00	₹1,735.50
Qtr3	₹1,908.69	₹2,245.00	₹1,546.50
Qtr4	₹1,235.54	₹1,806.00	₹880.00
2009			
Qtr1	₹1,158.19	₹1,341.00	₹991.50
Qtr2	₹1,503.65	₹1,796.50	₹1,242.00
Qtr3	₹1,926.64	₹2,447.50	₹1,567.00
Qtr4	₹2,291.70	₹2,445.00	₹2,085.00
2010			
Qtr1	₹2,224.44	₹2,591.00	₹1,925.00
Qtr2	₹1,954.68	₹2,368.00	₹1,558.50
Qtr3	₹2,030.26	₹2,272.50	₹1,692.50
Qtr4	₹2,392.51	₹2,593.50	₹2,150.00
2011			
Qtr1	₹2,608.13	₹2,730.00	₹2,428.50
Qtr2	₹2,550.52	₹2,939.00	₹2,272.00
Qtr3	₹2,460.29	₹2,745.00	₹1,994.00
Qtr4	₹1,985.05	₹2,119.00	₹1,791.50
2012			
Qtr1	₹2,090.01	₹2,288.00	₹1,942.50
Qtr2	₹1,975.89	₹2,156.00	₹1,744.00
Qtr3	₹1,976.56	₹2,300.00	₹1,816.50
Qtr4	₹2,200.30	₹2,340.00	₹2,002.00
2013			
Qtr1	₹2,293.33	₹2,448.00	₹2,078.00
Qtr2	₹2,052.27	₹2,246.50	₹1,949.00
Qtr3	₹2,103.48	₹2,238.00	₹2,016.50
Qtr4	₹2,117.13	₹2,259.00	₹2,027.00
2014			
Qtr1	₹2,104.38	₹2,212.00	₹2,008.00
Qtr2	₹2,097.97	₹2,160.00	₹2,016.00

Qtr3	₹2,182.46	₹2,269.00	₹2,050.50
Qtr4	₹1,995.09	₹2,095.00	₹1,814.00
2015			
Qtr1	₹1,807.69	₹1,881.50	₹1,696.00
Qtr2	₹1,941.23	₹2,140.00	₹1,741.50
Qtr3	₹1,710.49	₹1,857.00	₹1,625.00
Qtr4	₹1,684.73	₹1,816.50	₹1,555.00
2016			
Qtr1	₹1,746.12	₹1,896.50	₹1,597.00
Qtr2	₹1,717.87	₹1,795.50	₹1,646.00
Qtr3	₹1,870.08	₹2,105.50	₹1,784.00
Qtr4	₹2,146.28	₹2,466.00	₹1,965.00
2017			
Qtr1	₹2,274.16	₹2,442.00	₹2,007.00
Qtr2	₹2,162.86	₹2,327.50	₹2,036.00
Qtr3	₹2,335.60	₹2,538.00	₹2,200.00
Qtr4	₹2,495.36	₹2,586.50	₹2,409.00
2018			
Qtr1	₹2,520.07	₹2,683.00	₹2,345.50
Qtr2	₹2,387.10	₹2,545.00	₹2,274.00
Qtr3	₹2,104.96	₹2,405.00	₹1,970.00
Qtr4	₹1,967.38	₹2,091.00	₹1,867.00
2019			
Qtr1	₹2,035.99	₹2,154.00	₹1,934.50
Qtr2	₹1,882.54	₹2,022.00	₹1,768.00
Qtr3	₹2,030.12	₹2,123.50	₹1,863.00
Qtr4	₹2,039.32	₹2,267.00	₹1,866.00
2020			
Qtr1	₹1,844.47	₹2,027.00	₹1,589.00
Qtr2	₹1,671.64	₹1,796.50	₹1,576.50
Qtr3	₹1,875.70	₹1,994.00	₹1,756.00
Qtr4	₹1,900.03	₹2,117.50	₹1,742.50

2021			
Qtr1	₹2,017.86	₹2,158.50	₹1,896.00
Qtr2	₹2,074.93	₹2,228.50	₹1,942.50



Observations:

The data visualisation follows a long term cyclic trend with alternating lows and highs over a period of approximately 7-8 years. For example - repeating **peaks in 2011 and 2018**, repeating **lows in 2008 and 2016**, and so on. There is no clearly increasing or decreasing trend which can be observed.

Favourable quarters for purchasing lead:

To determine the quarters which are favourable for the purchase of lead, I compared the quarterly averages of every year with the yearly average. The prices marked in green show the quarterly prices which were lower than the yearly average for that year.

Year	Quarter	Quarterly Average	Yearly Average
2008	1	₹2,425.64	₹1,841.42
	2	₹1,801.74	

	3	₹1,908.69	
	4	₹1,235.54	
2009	1	₹1,158.19	₹1,723.72
	2	₹1,503.65	
	3	₹1,926.64	
	4	₹2,291.70	
2010	1	₹2,224.44	₹2,150.60
	2	₹1,954.68	
	3	₹2,030.26	
	4	₹2,392.51	
2011	1	₹2,608.13	₹2,399.45
	2	₹2,550.52	
	3	₹2,460.29	
	4	₹1,985.05	
2012	1	₹2,090.01	₹2,060.84
	2	₹1,975.89	
	3	₹1,976.56	
	4	₹2,200.30	
2013	1	₹2,293.33	₹2,140.96
	2	₹2,052.27	
	3	₹2,103.48	
	4	₹2,117.13	
2014	1	₹2,104.38	₹2,094.92
	2	₹2,097.97	
	3	₹2,182.46	
	4	₹1,995.09	
2015	1	₹1,807.69	₹1,785.49
	2	₹1,941.23	
	3	₹1,710.49	
	4	₹1,684.73	
2016	1	₹1,746.12	₹1,870.84
	2	₹1,717.87	

	3	₹1,870.08	
	4	₹2,146.28	
2017	1	₹2,274.16	₹2,317.65
	2	₹2,162.86	
	3	₹2,335.60	
	4	₹2,495.36	
2018	1	₹2,520.07	₹2,242.98
	2	₹2,387.10	
	3	₹2,104.96	
	4	₹1,967.38	
2019	1	₹2,035.99	₹1,997.09
	2	₹1,882.54	
	3	₹2,030.12	
	4	₹2,039.32	
2020	1	₹1,844.47	₹1,823.31
	2	₹1,671.64	
	3	₹1,875.70	
	4	₹1,900.03	
2021	1	₹2,017.86	₹2,038.24
	2	₹2,074.93	

Observations and Conclusions:

In **57.143%** of cases (in 8 out of 14 years), the **second quarter** encountered the year-round **lowest price** of lead, and in **64.285%** of cases (in 9 out of 14 years), the price of lead in the **second quarter** was **lower than the yearly average**.

In **35.7%** of cases (5 out of 14 years), the price of lead in the **fourth quarter** was **lower than the yearly average** - these were usually periods immediately following a peak (price hike).

According to this analysis, the most suitable time to purchase lead would be in the **second quarter of the year (April, May, June)**, unless there is specifically a price hike in those months (price>₹2300). In that case (time periods directly following a peak), the best time to purchase lead would be in the **fourth quarter (October, November, December)**.