MCX
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MCX INVESTOR PROTECTION FUND

COPPER

HEDGING BROCHURE







From the beginning of civilization copper has been used by various societies to make coins for currency. In addition, in areas known to have copper-deficient soil, copper is used by farmers as a supplement in livestock and crop feed. It can also kill or inhibit health threatening fungi, bacteria, and viruses, including water-borne organisms. Copper's excellent heat transfer capabilities make it an ideal choice for heat exchange equipment, pressure vessels and vats. It is used for gears, bearings and turbine blades. Aesthetically appealing, copper and its alloys, such as architectural bronze, are used in roofing, and as facades, canopies, doors and window frames. Copper's excellent corrosion resistance make it essential for seawater applications, including vessels, tanks, piping, propellers, oil platforms and coastal power stations and roofing.

Copper, a versatile, beautiful metal, is one of the world's most useful natural resource.



INTRODUCTION

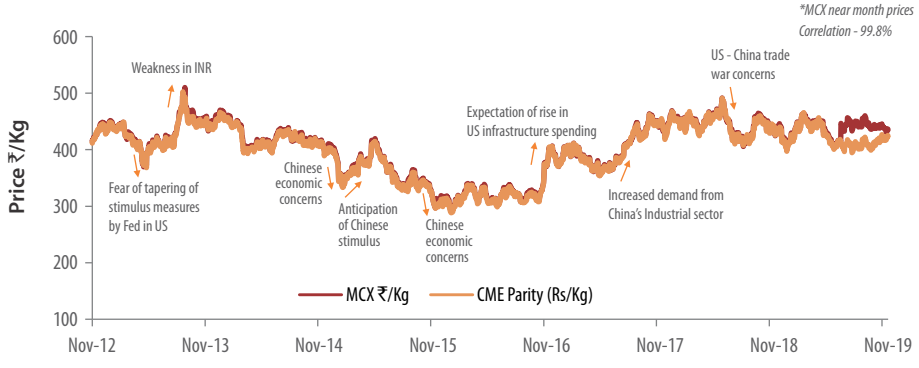
Copper is one of the first metals used by humans and used at least 10,000 years ago for items such as coins and ornaments. Copper is a ductile, corrosion-resistant, malleable, metallic element that is an excellent conductor of heat and electricity. It is also corrosion resistant, antimicrobial and eminently recyclable. The versatility of this beautiful metal makes it one of the world's most useful natural resources. Alloyed with other metals, it can acquire additional invaluable characteristics such as hardness, tensile strength and even greater resistance to corrosion. Copper and copper-based alloys are used in a variety of applications that are necessary for a reasonable standard of living. Its continued production and use is essential for society's development.

PRICE RISK MANAGEMENT

Risk management techniques are of critical importance for participants, such as producers, exporters, marketers, processors, and SMEs. Modern techniques and strategies, including market-based risk management financial instruments like 'Copper Futures and Options', offered on the recognized and well-regulated platforms, such as MCX, can improve efficiencies and consolidate competitiveness through price risk management.

The importance of risk management cannot be overstated; risk management through hedging enables the hedger to mitigate the risks arising from uncertainty and volatility in copper prices and focus on their core business activity.

COPPER PRICE MOVEMENT*



IMPORTANCE OF HEDGING

Hedging is critical for stabilizing incomes of corporations and individuals. Reducing risks may not always improve earnings, but failure to manage risk will have direct repercussion on the risk bearers' long term income.

To gain the most from hedging, it is essential to identify and understand the objectives behind hedging. A good hedging practice, hence, encompasses efforts by companies to get a clear picture of their risk profile and benefit from hedging techniques.

HEDGING MECHANISM

Hedging is the process of reducing or controlling risk. It involves taking equal and opposite positions in two different markets (such as physical and futures or options market), with the objective of reducing or limiting risks associated with price change. It is a two-step process, where a gain or loss in the physical position due to changes in price will be offset by changes in the value on the derivatives platform, thereby reducing or limiting risks associated with unpredictable changes in price.

In the international arena, hedging in Silver derivatives takes place on a number of exchanges, the major ones being London Metal Exchange (LME), Chicago Mercantile Exchange (CME) and Shanghai Futures Exchange (SHFE).

HEDGERS

Commodity exchanges offer a transparent hedging platform, besides bringing about economic and financial efficiencies by de-risking production, processing, and trade. Exchange's engagement has led to large efficient gains in supply chains, with exporters gaining a larger share of global prices, and producers getting better prices and much better access to markets.

All those who have or intend to take positions in physical copper are participant hedgers. These are:

- Importers
- Exporters
- Refiners
- Processors
- Stockists
- Fabricators

FACTORS AFFECTING PRICE VARIATIONS

- Prices ruling in the international markets
- Fluctuations in USD-INR
- Economic factors: industrial growth, global financial crisis, recession and inflation
- Commodity specific events: construction of new production facilities or processes, new uses or the discontinuance of historical uses, unexpected mine or plant closures (natural disaster, supply disruption, accident, strike, and so forth), or industry restructuring, all affect metal prices
- Government trade policies (implementation or suspension of taxes, penalties, and quotas)
- Geopolitical events
- As societies develop, their demand for metal increases based on their current economic position, which could also be referred as 'National Economic Growth Factor'.

FACTS ON HEDGING

- Understand the risk profile and appetite while formulating clear hedging objectives.
- Hedging can shield the revenue stream, the profitability, and the balance-sheet against adverse price movements.
- Hedging can maximize shareholder value.
- Under 'International Financial Reporting Standards' (IFRS) beneficial options arise in case of effective hedges.
- Common avoidable mistake is to book profits on the hedge while leaving the physical leg open to risk.
- Hedging provides differentiation to companies in a highly competitive environment
- Hedging also significantly lowers distress costs in the event of adverse circumstances confronting a company.
- A properly designed hedging strategy enables corporations to reduce risk. Hedging does not eliminate risk it merely helps to transform risk.
- In order to gain the most from hedging, it is very essential to identify and understand the objectives behind hedging and get a clear picture of the risk profile.

In ancient India, copper was used in the holistic medical science Ayurveda for surgical instruments and other medical equipment.



APPRECIATING THE BENEFITS OF HEDGING

Situations prevailing in the Copper industry are given below, which will demonstrate how commodity exchange platform may be used by participants to manage price risk by entering into Copper Futures contracts. We will look at the impact of price movement in either direction.

THE SITUATION

Cool Fans is a company involved in the manufacture and retail sales of fans. Significant boom in housing segment has led to sharp growth in consumer durables segment in terms of volume and sales. Price volatility is of big concern to the company. A consultant appointed by the management has recommended that price risk should be managed by taking up position on futures market..

Hedging against domestic sales

GOING SHORT: Scenarios where prices either rise or fall

The company, Cool Fans has routine sales of 50,000 pieces of fans every month. Based on experience, the company has put forward the following facts

- The company purchases tonnes of Copper every week to conduct routine production.
- The processed material will be ready to be sold in 2 weeks.
- The sale price of finished goods will be as per prevailing price at the time of final sales.
- It is difficult to predict the sales price 2 weeks ahead.
- The company's objective is to lock prices.

SCENARIO 1: IF PRICES WERE TO FALL

DETAILS	FUTURES PLATFORM	PHYSICAL MARKET
12th July	SELL Copper Futures Contract	Raw material bought
30th July	BUY Copper Futures Contract	Processed material sold, at ruling price

The net position of the above transactions will negate price risk

(₹/Kg)

DATE	COPPER SPOT PRICE	COPPER FUTURES PRICE (expiry 31st August)
12-07-201X	405	406
30-07-201X	394	395

(₹/Kg)

MARKET	DATE	ACTION	PRICE	DATE	ACTION	PRICE	PROFIT/LOSS
Futures	12-07-201X	SELL	406	30-07-201X	BUY	395	**11 (profit)**
Spot	30-07-201X	BUY	405	30-07-201X	SELL	394	

Net selling price: ₹405, i.e. (₹394 + ₹11)

EXPLANATION

The Treasury Team of Cool Fans, short sells 1 lot of 31st August contract on 12th July and squares the contracts on 30th July. The value of raw material in the finished goods sale is ₹394 per Kg and cash inflow from futures market due to fall in prices is ₹405 (394+11) per Kg. Thus, the net value realized from the sale of finished goods is ₹ 405 (394+11) per Kg.

SCENARIO 2: IF PRICES WERE TO RISE

DETAILS	FUTURES PLATFORM	PHYSICAL MARKET
12th July	SELL Copper Futures Contract	Raw material bought
30th July	BUY Copper Futures Contract	Processed material sold, at ruling price

The net position of the above transactions will negate price risk

(₹/Kg)

DATE	COPPER SPOT PRICE	COPPER FUTURES PRICE (expiry 31st August)
12-07-201X	405	406
30-07-201X	416	417

(₹/Kg)

MARKET	DATE	ACTION	PRICE	DATE	ACTION	PRICE	PROFIT/LOSS
Futures	12-07-201X	SELL	406	30-07-201X	BUY	417	**11 (loss)**
Spot	30-07-201X	BUY	405	30-07-201X	SELL	416	

Net selling price: ₹405, i.e. (₹416 - ₹11)

EXPLANATION

The Treasury Team of Cool Fans, short sells 1 lot of 31st August contract on 12th July and squares the contract on 30th July, making a loss of ₹11 per kg. The value of raw material in the finished goods sale is ₹416 per Kg. on 30th July and cash flow outgo in futures market due to rise in prices is ₹11 per Kg. Thus, the net value realized from the sale of finished goods is ₹405 (416-11) per Kg.

Note:

The objective is to lock in prices, to obtain protection from unwanted price volatility, which impacts the balance-sheet of the company. This has been achieved, through hedgingin futures market in both the scenario of rising and falling prices, by which Cool Fans has been able to sell the finished material at the budgeted price itself.

THE SITUATION

Bharat Copper is a copper dealer, who buys, stocks and sells refined copper in various forms to a host of users. The Copper market has been extremely unpredictable due to the price volatility, which is a reflection of international and domestic factors. Bharat Copper enters into tenders to procure large quantities, which are then actually lifted based on the prevailing prices. The Company assumes procurement to be done "Just-In-Time" to meet production schedule - WHICH MEANS INPUT PRICES MAY CHANGE !!!

Tender is passed on 20th September to procure 150 tonnes of Copper.

- The tender is structured, such that 30 tonnes will be physically bought every week at the prevailing price.
- The first lot of 30 tonnes is bought physically on 20th September 201X. Thus, the first lot does not undergo any price change.
- The remaining 120 tonnes will be bought in subsequent weeks in lots of 30 tonnes, every week at ruling prices.
- The company hedges for 120 tonnes.

Hedging against tenders

GOING LONG: Scenarios where prices either rise or fall

SCENARIO 1: IF PRICES WERE TO RISE

DATE	PHYSICAL MARKET	FUTURES PLATFORM	OPEN INTEREST in lots on FUTURES MARKET	DATE	COPPER SPOT PRICES	Copper Futures Prices (expiry 30th November)
20th September	BUY 30 Tonnes	BUY 120 lots of Copper Futures Contract of 1 Tonne each	120	20th September	405	406
27th September	BUY 30 Tonnes	SELL 30 lots of Copper Futures	90	27th September	408	409
4th October	BUY 30 Tonnes	SELL 30 lots of Copper Futures	60	4th October	401	402
11th October	BUY 30 Tonnes	SELL 30 lots of Copper Futures	30	11th October	413	414
18th October	BUY 30 Tonnes	SELL 30 lots of Copper Futures	0	18th October	402	403

DATE	SPOT MARKET ACTION		FUTURES MARKET ACTION		Profit/Loss per KG in FUTURES MRAKET	NET PURCHASE PRICE/KG
20th September	BUY	30 MT @ 405	BUY	120 lots @ 406		405
27th September	BUY	30 MT @ 408	SELL	30 lots @ 409	3 (Profit)	405(408-3)
4th October	BUY	30 MT @ 401	SELL	30 lots @ 402	4 (Loss)	405(401+4)
11th October	BUY	30 MT @ 413	SELL	30 lots @ 414	8 (Profit)	405(413-8)
18th October	BUY	30 MT @ 402	SELL	30 lots @ 403	3 (Loss)	405(402+3)

EXPLANATION

The Treasury Team of Bharat Copper, buys 120 lots (1 lot = 1 tonne) of 30th November contract on 20th September and squares the position in a staggered manner in subsequent weeks, whenever the Company lifts Copper from the physical market at the prevailing spot market price. The company by hedging its position and making a staggered exit from the futures contract makes the net buying price at ₹ 405 per kg, which is the budgeted price.

Note:
The objective is to lock in prices, to obtain protection from unwanted price volatility, which impacts the balance-sheet of the company. This has been achieved, through hedging futures market in both the scenario of rising and falling prices, by which Bharat Copper has been able to purchase at the budgeted price itself.

The scrap and alloy industry can also use the commodity exchange's copper futures contract very easily to hedge their raw material price risk as along as the price correlation of the physical market is in sync with the copper futures on commodity exhange platform. For example, a brass (alloy of copper and zinc) product manufacturer can easily hedge his copper requirement on futures market, to lock in his copper purchase price so that it doesn't have an effect on his final product price.

COPPER FACTS

Copper is one of the most recycled of all metals. It is our ability to recycle metals over and over again that makes them a material of choice. Copper stands at the third place after steel and aluminium, in the context of consumption. It is an important contributor to the national economies of mature, newly developed and developing countries.

APPRECIATING THE BENEFITS OF HEDGING – using Call options on futures

Copper stakeholders, such as risk averse manufacturers of products made using copper, on entering into an agreement with customers, often face the risk of an unexpected rise in copper price when they would procure copper for processing, which cannot be passed on to the customers. By buying a call option, they can hedge against such a risk, as the following example shows.

THE SITUATION

On 30th September, Mr. Archit Mittal, a cable and wire manufacturer got an order to be delivered in the 1st week of December, for which the selling price has been fixed based on current spot prices. On September 30, the spot price of copper was Rs. 448 per Kg. However, he had to purchase copper in the last week of November due to warehousing concerns, thus being exposed to a risk of rise in copper prices in the near future.

To hedge himself against the expected price increase, he buys Copper Call Option on future expiring on the November 27, at the strike price of 450 per Kg for a premium of Rs.3. The underlying to this option contract is Copper November Futures contract trading at Rs. 450 per Kg.

The following two scenarios are possible at options expiry:



SCENARIO 1: IF COPPER PRICES WERE TO RISE

PRICE & ACTION	Copper Spot Prices (₹/Kg)	Copper Nov. Futures Prices (₹/Kg)	Copper Nov. CALL options (Underlying: Copper Nov. Futures Contract)	CALL OPTION PREMIUM (₹)
Traded Price on October 25	448	450	450 (strike price)	Out:3
Action on October 25	-	-	Buy Call option contract by paying premium	
Position in market	Nil	Nil	Long 1 lot	
Close Price on November 27 (Option expiry day)	458	460	450 (strike price)	10
Action on November 27 after close of market hours	-	On exercise, the call options contract will devolve into a long position in the underlying Copper futures contract at 450 (strike price)		
Position on November 27 post-devolvement	-	Long 1 lot	Nil	-
Traded Price on November 28	460	462	-	-
Action on November 28	Buy in physical market	Sell the long open futures position		-
Flow of money	Out: 460	In: 12 (462 – 450)	-	Out: 3

Thus, the net purchase price of copper on November 28 is ₹460 (Physical market purchase) – ₹12 (gains in futures market on devolvement of options position) + ₹3 (option premium paid) = ₹451 per Kg, which is close to spot prices prevailing on October 25. Thus, by buying a 'Call' Option on future and allowing it to devolve into futures position on expiry, Mr. Archit was able to protect his business margins, in the event of a rise in prices.

SCENARIO 2: IF COPPER PRICES WERE TO FALL

PRICE & ACTION	Copper Spot Prices (₹/Kg)	Copper Oct Futures Prices (₹/Kg)	Copper Nov. CALL options (Underlying: Copper Nov. Futures Contract)	CALL OPTION PREMIUM (₹)
Traded Price on October 25	448	450	450 (strike price)	Out:3
Action on the October 25	-	-	Buy Call option contract by paying premium	
Position in market	Nil	Nil	Long 1 lot	-
Close Price on November 27 (Option expiry day)	438	440	450 (strike price)	0
Action on November 27 after close of market hours	-	As strike price of the Call option contract is more than the underlying futures prices, it expires worthless.		
Position on November 27 post - devolvement	-	-	-	-
Traded Price on November 28	436	-	-	-
Action on November 28	Buy in physical market	-	-	-
Flow of money	Out: 436	-	-	Out: 3

Net purchase price of copper on November 28 is ₹436 (Physical market purchase) + ₹3 (option premium paid) = ₹438 per Kg, much less than the spot prices prevailing on October 25.

Thus, by hedging risk of rise in copper prices using a Copper Call Options Contract, a manufacturer would just not be protected against price rise but would also benefit from fall in copper prices, if any, in form of lower net purchase price.

Copper: Global Mine Production

	2016	2017	2018#
United States	1430	1260	1200
Australia	948	860	950
Chile	5550	5500	5800
China	1900	1710	1600
Congo (Kinshasa)	846	1090	1200
Mexico	752	742	760
Peru	2350	2450	2400
Zambia	763	794	870
Other Countries	4160	4250	4400
World total (rounded)	**20100**	**20000**	**21000**

Source: USGS | #estimated



APPRECIATING THE BENEFITS OF HEDGING – using Put options on futures

Copper market stakeholders often store the commodity before processing and selling to prospective customers. They, therefore, face the risk of a fall in copper prices. By buying a put option, they can hedge against such a risk, as the following example shows.

THE SITUATION

On March 25th, the spot price of Copper is Rs. 458 per Kg. Bharat Copper has procured 1 kg of copper stock for sale at spot price. A regular customer of Bharat Copper agreed buy the stock by end of April at the then prevailing copper prices.

As a result, company faces a risk of fall in copper prices. Hence, to hedge against this, company buys Copper Put Options expiring on April 27th at the strike price of Rs. 460 per Kg for a premium of Rs. 3. The underlying to this option contract is Copper April futures contract trading at Rs. 460 per Kg.

Following two scenarios are possible at options expiry:



SCENARIO 1: IF COPPER PRICES WERE TO FALL

PRICE & ACTION	Copper Spot Prices (₹/Kg)	Copper Apr. Futures Prices (₹/Kg)	Copper Apr. PUT options (Underlying: Copper Apr. Futures Contract)	PUT OPTION PREMIUM (₹)
Traded Price on March 25	458	460	460 (strike price)	Out:3
Action on March 25	-	-	Buy Put option contract by paying premium	
Position in market	Nil	Nil	Long 1 lot	-
Close Price on April 27 (Option expiry day)	448	450	460 (strike price)	10
Action on April 27 after close of market hours	-	On exercise, the put options contract will devolve into a short position in the underlying Copper futures contract at 460 (strike price)		
Position on April 27 post-devolvement		Short 1 lot	Nil	-
Traded Price on April 28	446	448	-	-
Action on April 28	Sell in physical market	Buy, to Square off the short open futures position	-	-
Flow of money	In: 446	In: 12 (460 –448)	-	Out: 3

Thus, the net sale price of copper on April 28 is ₹446 (Physical market sale) + ₹12 (gains in futures market on devolvement of options position) – ₹3 (option premium paid) = ₹455 per Kg, which is close to spot prices prevailing on March 25.

Thus, by buying a 'Put' Option and allowing it to devolve into futures position on expiry of the Options contract, Bharat Copper was able to protect its business margins, in the event of a fall in prices.

SCENARIO 2: IF COPPER PRICES WERE TO RISE

PRICE & ACTION	Copper Spot Prices (₹/Kg)	Copper Nov. Futures Prices (₹/Kg)	Copper Apr. PUT options (Underlying: Copper Apr. Futures Contract)	PUT OPTION PREMIUM (₹)
Traded Price on March25	458	460	4600 (strike price)	Out:3
Action on March25	-	-	Buy Put option contract by paying premium	
Position in market	Nil	Nil	Long 1 lot	
Close Price on April 27 (Option expiry day)	468	470	460 (strike price)	0
Action on April 27 after close of market hours	-	As strike price of the Put option contract is less than that the underlying futures prices, it expires worthless.		
Position on April 27 post-devolvement		Nil	Nil	-
Traded Price on April 28	470	-	-	-
Action on April 28	Sell in the physical market	-	-	-
Flow of money	In: 470	-	-	Out: 3

Thus, the net sale price of copper on April 28 is ₹470 (Physical market sale) – ₹3 (option premium paid) = ₹467 per Kg, which is much more than the spot prices prevailing on March 25.

Thus, by hedging risk of fall in copper prices using a Copper Put Options Contract, Bharat Copper would just not be protected against price fall, but would also benefit from rise in copper prices, if any, in form of higher net sale price.

INTERVIEW WITH MR. DEVENDRA SURANA, MD, BHAGYANAGAR INDIA LTD.

Can you briefly explain your business operations?

Bhagyanagar India Limited (BIL) is primarily an auto component manufacturer that also caters to the electrical industry. Our principal raw material, copper, accounts for about 70 - 75 per cent of the costs. Hence, it is strategic for us to keep an eye on the copper price. We import copper on LME price basis.

Do you use any futures platform? If so, kindly explain.

Yes, we do. Since we are a listed company we need to report quarterly results. High price fluctuations in copper in the past used to result in high variations in the inventory valuation, thereby affecting quarter-on-quarter profitability. As a business requirement, we hold large quantities of copper to be used in various stages of manufacturing, which is usually around 400MT. Therefore, it is imperative that we hedge price exposures in our inventory holding and desensitise our P&L to the fluctuations in copper price. This has been the primary reason behind our decision to use the futures platform. We use copper futures contract to hedge (by selling futures contract) 60 - 70 per cent of our inventory exposures at all time.

In your experience, how closely does Indian futures exchanges track LME?

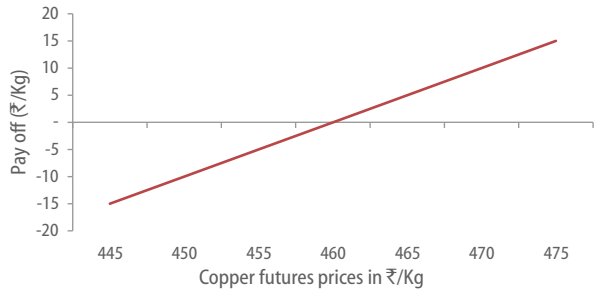
I believe there is a high degree of correlation between these two markets. I am also very happy to see the liquidity and depth of domestic copper contracts increasing day-by-day. Earlier, we use to see a divergence between Indian and LME prices around the settlement time (around 5 pm – 5:30 pm) every day. Of late, these divergences in prices have disappeared. Lastly, for us, Indian futures contracts priced in INR, is not only able to address the price fluctuation risk in copper but also the risk associated with the fluctuation in currency.

FUTURES AND OPTIONS PAYOFFS

A. Commodity Futures

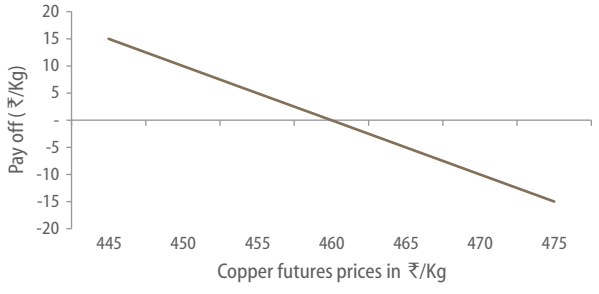
1. Assume a market participant ***buys a copper futures contract*** at ₹460 per Kg. His pay-off on his futures position with change in copper futures prices is as shown below.

BUYER OF COPPER FUTURES PAY-OFF



2. Assume a market participant ***sells a copper futures contract*** at ₹460 per Kg. His pay-off on his futures position with change in copper futures prices is as shown below.

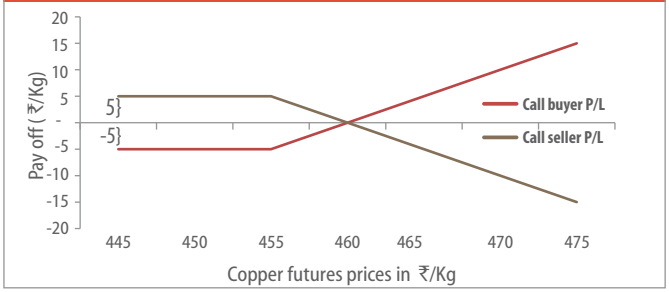
SELLER OF COPPER FUTURES PAY-OFF



B. Commodity Options on Futures

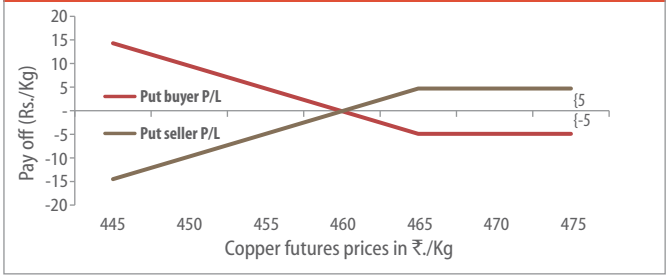
3. Assume a market participant ***buys*** a copper ***call*** option contract with a strike price at ₹460 per Kg at a premium of ₹5. His pay-off on his call option contract with change in the underlying copper futures prices is as shown below. Pay-off for call option ***seller*** is also shown in same figure.

COPPER CALL OPTION PAY-OFF



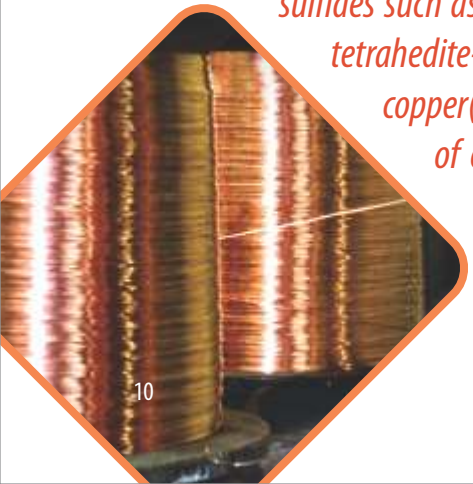
4. Assume a market participant ***buys*** a copper ***put*** option contract with a strike price at ₹460 per Kg and premium at ₹5. His pay-off on his put option contract with change in the underlying copper futures prices is as shown below. Pay-off for put option ***seller*** is also shown in same figure.

COPPER PUT OPTION PAY-OFF



Copper is produced in massive stars and is present in the Earth's crust in a proportion of about 50 parts per million (ppm). In nature, copper occurs in a variety of minerals, including native copper, copper sulfides such as chalcopyrite, bornite, digenite, covellite, and chalcocite, copper sulfosalts such as tetrahedite-tennantite, and enargite, copper carbonates such as azurite and malachite, and as copper(I) or copper(II) oxides such as cuprite and tenorite, respectively.] The largest mass of elemental copper discovered weighed 420 tonnes and was found in 1857 on the Keweenaw Peninsula in Michigan, US. Native copper is a polycrystal, with the largest single crystal ever described measuring 4.4×3.2×3.2 cm.

-Wikipedia



HEDGING EXPERIENCES

1. Siemens India Limited

The Company uses Commodity Future Contract to hedge against fluctuation in commodity prices. **(Source: Annual Report, 2018)**

2. Aurubis

(Aurubis is a leading integrated copper group and the world's largest copper recycler, with production sites in US, Europe and an extensive service and sales system for copper products in Europe, Asia and North America)

"As a result of business operations, the Aurubis Group is exposed to commodity price risks. Among other measures, non-ferrous metals futures contracts are entered into in order to mitigate these risks. The contracts are mainly focused on the hedging of the copper price. For this purpose, incoming and outgoing metal quantities from underlying ransactions are offset against each other each day and remaining open positions are squared by means of metal exchange transactions." **(Annual Report 2017-18)**

3. Antofagasta plc

Antofagasta is a Chilean copper mining group with significant by-product production and interests in transport and water distribution. "The Group considers exposure to ommodity price fluctuations to be an integral part of the business and its usual policy is to sell its products at prevailing market prices. The Group monitors the commodity markets closely to determine the effect of price fluctuations on earnings, capital expenditure and cash flows. From time to time, the group uses derivative instruments to manage its exposure to commodity price fluctuations, where appropriate." **(Source: Annual Report and Financial Statements 2018)**

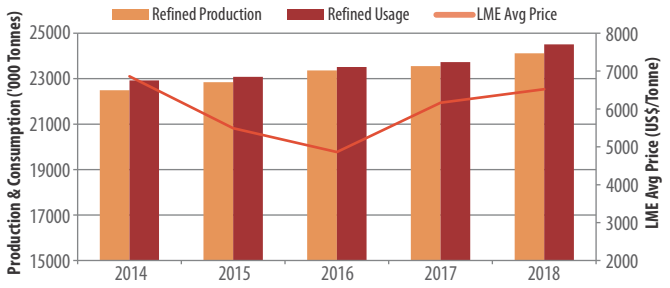
4. Hindustan Copper Limited

"The Company uses Commodity Futures Contracts to manage its commodity price risk. The Commodity Futures Contracts are not designated as hedging instrumnets and are entered into for periods consistent with commodity price risk exposure of the underlying transactions, generally from one to four months." (**Source: Annual Report 2018-19)**

5. Boliden

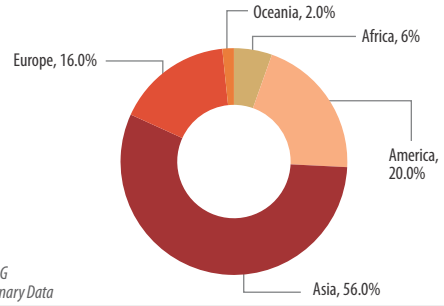
New Boliden is a Swedish mining and smelting company focusing on production of copper, zinc, lead, gold and silver. "The group's sales of metals are to a large extent priced in US dollars and sales are often made to predetermined price terms. Contractual prices are hedged for variations in metal prices and exchange rates. Boliden applies hedge accounting for financial derivatives acquired with a view to hedge the forecast currency, metal and interest flows. The Group can use contracts to hedge metal prices and/or exchange rates for the cash flows from forecast metal sales." **(Source: Annual Report 2018)**

World Refined Copper Production & Usage



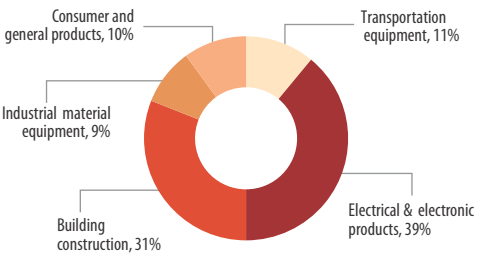
Source: ICSG | (P) Preliminary Data

World Refined Copper Production-2018 (P)



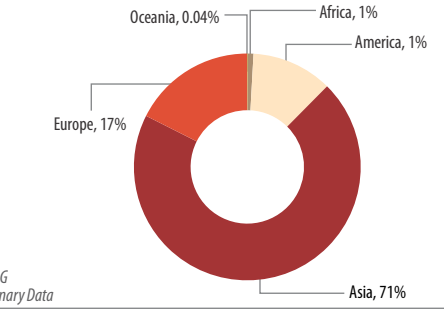
Source: ICSG
(P) Preliminary Data

Global copper consumption, by end Users



Source: Thomson Reuters, GFMS

Share in World Refined Usage-2018 (P)



Source: ICSG
(P) Preliminary Data

REGULATORY BOOSTS FOR HEDGERS

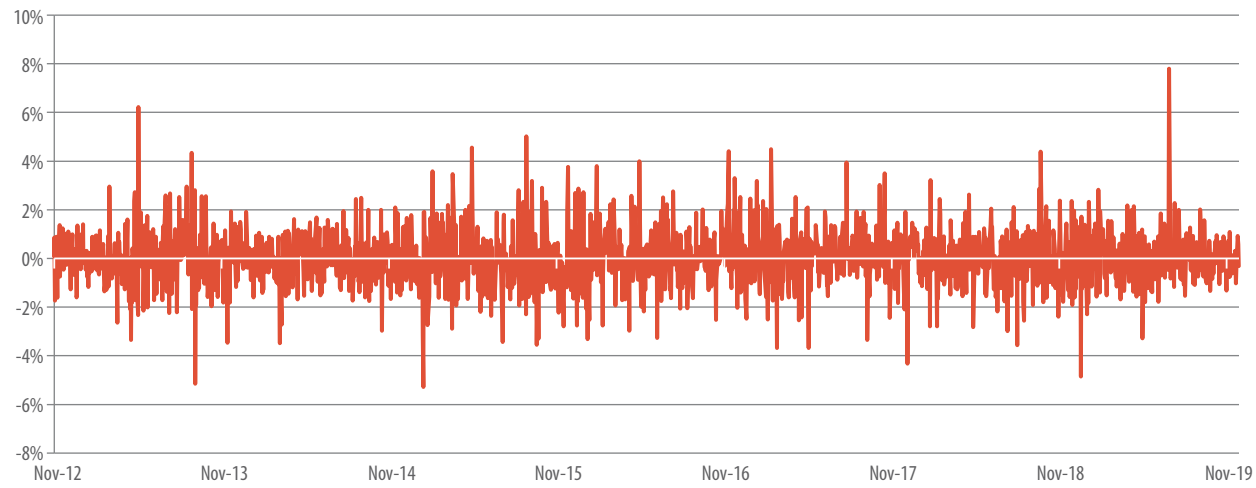
1. Income tax exemptions for hedging: Commodity derivatives transactions undertaken in recognized exchanges enjoy benefits under the ambit of Section 43(5) of the Income Tax Act, 1961 and the gains/ losses from such transactions are not considered 'speculative'. This effectively means that business profits/ losses can be offset by losses profits undertaken in commodity derivatives transactions. This enhances the attractiveness of risk management on recognized commodity derivative exchanges and incentivizes hedging. Hedgers are no longer forced to undertake physical delivery of commodities in order to prove that their transactions are in the nature of hedging and not 'speculation'.

2. Limit on open position as against hedging: This enables hedgers to take positions to the extent of their exposure on the physical market and are allowed to take position over and above prescribed position limits on approval by the exchange.

A comprehensive Hedge Policy Document is available at https://www.mcxindia.com/docs/default-source/market-operations/trading-surveillance/reports/hedgepolicy.pdf?sfvrsn=2

AVERAGE DAILY VOLATILITY OF COPPER PRICES*

* MCX copper futures near month prices



YEAR	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019#
ANNUALIZED VOLATILITY	20.76%	23.74%	14.44%	17.93%	14.36%	22.38%	19.42%	18.46%	18.63%	16.43%

#Till Nov. 2019



HOW MUCH VOLATILITY RISK ARE YOU EXPOSED TO?

- **Copper:** Witnessed annualized price volatility of 18.9% in 2018
- **Which means:** A firm in the copper business, with an annual turnover of ₹100 crores was exposed to a price risk of ₹18.9 crores in 2018;
- India with an annual copper market size of 6 lakh tons, worth about ₹25,500 crores is exposed to a risk on account of price volatility to the tune of ₹4819.5 crores. (i.e. 18.9% of the holding value)

ARE YOU PREPARED FOR VOLATILITY RISK?

Adoption of a risk management practice, such as hedging on the commodity derivatives platform can help shield against the perils of price volatility.

Copper has been in use at least 10,000 years, but more than 95% of all copper ever mined and smelted has been extracted since 1900.



SALIENT SPECIFICATIONS OF MCX COPPER FUTURES CONTRACTS

Symbol	**COPPER**
Trading Unit	2.5 MT
Contracts Available	February, April, June, August, November
Contract Start Day	1st day of contract launch month. If 1st day is a holiday then the following working day.
Last Trading Day	Last calendar day of the contract expiry month. If last calendar day is a holiday or Saturday then preceding working day.
Trading Period	Mondays through Friday : 9.00 a.m. to 11.30/11.55# p.m.
Quotation/ Base Value	1 kg
Maximum Order Size	70 MT
Price Quote	Ex-Warehouse Thane district (excludes only GST)
Tick Size	5 paise per kg
Daily Price Limit	The base price limit will be 4%. Whenever the base daily price limit is breached, the relaxation will be allowed upto 6% without any cooling off period in the trade. In case the daily price limit of 6% is also breached, then after a cooling off period of 15 minutes, the daily price limit will be relaxed upto 9%. In case price movement in international markets is more than the maximum daily price limit (i.e 9%), the same may be further relaxed in steps of 3% beyond the maximum permitted limit, and informed to the regulator immediately.
Initial Margin*	Minimum 4% or based on SPAN whichever is higher
Extreme Loss Margin	Minimum 1%
Additional and/ or Special Margin	In case of additional volatility, an additional margin (on both buy & sell side) and/ or special margin (on either buy or sell side) at such percentage, as deemed fit; will be imposed in respect of all outstanding positions.
Maximum Allowable Open Position	For individual clients: 7,000 MT or 5% of the market wide open position whichever is higher for all Copper contracts combined together. For a member collectively for all clients: 70,000 MT or 20% of the market wide open position whichever is higher for all Copper contracts combined together.
Delivery Unit	2500 Kilograms (2.5 MT) with tolerance limit of + / - 10%
Delivery Period Margin**	Delivery period margins shall be higher of: a. 3% + 5 day 99% VaR of spot price volatility or b. 25%
Delivery Centres	Ex-Warehouse at Thane district in Maharashtra
Quality Specifications	Grade A Copper Cathodes. Only LME approved brands will be accepted
Due Date Rate	The Final Settlement Price (FSP) shall be arrived at by taking the simple average of the last polled spot prices of the last three trading days viz.,E0 (expiry day), E-1 and E-2. On the day of expiry the trading shall be allowed up to 5pm.
Delivery Logic	Compulsory Delivery

Note: Please refer to the exchange circulars for detailed contract specifications. | #Based on US daylight saving time period.

**The Margin Period of Risk (MPOR) shall be 2 days in accordance with SEBI Circular no. SEBI/HO/CDMRD//DRMP/CIR/P/2016/77 dated September 01, 2016 accordingly, the initial margin shall be scaled up by root 2. | ** As per SEBI directive SEBI/HO/CDMRD/DRMP/CIR/P/2016/77 dated Sep 01, 2016. | ^Genuine hedgers having underlying exposure that exceed the prescribed OI limits given in the contract specifications can be allowed higher limits based on approvals.*

SALIENT FEATURES OF MCX COPPER OPTIONS CONTRACT WITH COPPER FUTURES AS UNDERLYING

Symbol	COPPER
Underlying	Underlying shall be Copper Futures contract traded on MCX
Expiry Day (Last Trading Day)	Three business days prior to the first business day of Tender Period of the underlying futures contract.
Trading Period	Mondays through Fridays | **Trading Session:** Monday to Friday: 9.00 a.m. to 11.30 / 11.55# p.m.
Trading Unit	One MCX Copper futures contract | **Underlying Quotation / Base Value:** ₹/Kg
Underlying Price Quote	Ex-Warehouse Thane district (excludes only GST)
Strikes	7 In-the-money, 7 Out-of-the-money and 1 Near-the-money. (15 CE and 15 PE). The Exchange, at its discretion, may introduce additional strikes, if required.
Strike Price Intervals	₹ 5.00 | **Tick Size** (Minimum Price Movement): ₹ 0.01
Daily Price Limit	The upper and lower price band shall be determined based on statistical method using Black76 option pricing model and relaxed considering the movement in the underlying futures contract. In the event of freezing of price ranges even without a corresponding price relaxation in underlying futures, if deemed necessary, considering the volatility and other factors in the option contract, the Daily Price Limit shall be relaxed by the Exchange.
Margins	The Initial Margin shall be computed using SPAN (Standard Portfolio Analysis of Risk) software, which is a portfolio based margining system. To begin with, the various risk parameters shall be as under: A. Price Scan Range – 3.5 Standard Deviation (3.5 sigma) B. Volatility Scan Range – 3.5 % C. Short Option Minimum Margin – Minimum of 2.5% subject to Margin Period of Risk (MPOR) (i.e. 2.5% *$\sqrt{2}$ currently) D. Extreme Loss Margin – 1% (to be levied only on short option positions) E. Premium of buyer shall be blocked upfront on real time basis The Margin Period of Risk (MPOR) shall be at least two days.Parameters would be reviewed and changed, if required
Mark to Market	The option positions shall be marked to market by deducting / adding the current market value of options positions (positive for long options and negative for short options). Mark to Market gains and losses would not be settled in Cash for Options Positions.
Maximum Allowable Open Position	Position limits for options would be separate from the position limits applicable on futures contracts. **For client level:** 14,000 MT or 5% of the market wide open position, whichever is higher - For all Copper Options contracts combined together. **For a member level:** 1,40,000 MT or 20% of the market wide open position, whichever is higher - For all Copper Options contracts combined together. Upon expiry of the options contract, after devolvement of options position into corresponding futures positions, open positions may exceed their permissible position limits applicable for future contracts. Such excess positions shall have to be reduced to the permissible position limits of futures contracts within two trading days.
Exercise Mechanism at expiry	All option contracts belonging to 'Close to the money' (CTM)* option series shall be exercised only on 'explicit instruction' for exercise by the long position holders of such contracts. All In the money (ITM) option contracts, except those belonging to 'CTM' option series, shall be exercised automatically, unless 'contrary instruction' has been given by long position holders of such contracts for not doing so. The ITM option contract holders and the CTM option series holders who have exercised their options by giving explicit instruction, shall receive the difference between the Settlement Price and Strike Price in Cash as per the settlement schedule. In the event contrary instruction are given by ITM option position holders (other than those belonging to CTM option series), the positions shall expire worthless. All CTM positions which are not exercised shall also expire worthless. All Out of the money (OTM) option contracts, except those belonging to 'CTM' option series, shall expire worthless. In the event the OTM position holders, which are in CTM option series, exercise their option positions, shall be required to pay and settle the difference between strike price and settlement price as per the settlement schedule. All devolved futures positions shall be considered to be opened at the strike price of the exercised options. In case the DSP is exactly midway between two strike prices, then immediate two option series having strike prices just above DSP and immediate two option series having strike prices just below DSP shall be referred as 'Close to the money' (CTM) option series.
Due Date Rate (Final Settlement Price)	Daily settlement price of underlying futures contract on the expiry day of options contract.

*Note: Please refer to the exchange circulars for detailed contract specifications. \| *Option series having strike price closest to the Daily Settlement Price (DSP) of Futures shall be termed as At the Money (ATM) option series. This ATM option series along with two option series each having strike prices immediately above and below ATM shall be referred as 'Close to the money' (CTM) option series. \| # based on US daylight saving time period*

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