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1. Introduction

Emergence of Risk Management and Corporate Treasury

The origins of risk management pre-dates the 1700s with the use of probability theory to solve puzzles and its use was largely limited for theoretical purposes – however, during World War II risk management began to be studied and implemented for various purposes. Traditionally, risk management in the market place was always associated with the use of insurance to protect institutions and individuals from bearing losses associated with accidents.

However, from the 1950s, there were other forms of risk management that emerged as alternatives to insurance – especially when insurance coverage became costly and did not cover the risk exposure expected by the institutions. Modern risk management practices began to emerge around 1955 and in the 1970s, the use of derivatives as

instruments to manage or ‘hedge’ against insurable or uninsurable risks began to be used – and went on to be widely used from the 1980s. The wide-spread use of derivatives naturally lead to the formation of various international regulations of using derivatives with financial institutions developing internal risk management models and capital calculation measures to protect themselves from unanticipated risks and reduce regulatory capital.

At the same time, in the corporate space as well, the governance of risk management became essential with the emergence of the enterprise risk management framework – a framework that helps identify the various risks affecting the institution (see figure 1) across its business and operations and measures and plans to address, mitigate and monitor its impact on the institution

Figure 1: A typical risk universe of a corporate as part of the enterprise risk management framework



At many of the enterprise risk management meetings, financial risk management became an important discussion point at the Board of Directors and senior management level due to the emergence of additional risks upon expanding business into new geographies, establishing trade relations with overseas buyers and suppliers and managing liquidity and cost of debt through effective funding and investment strategies. Accordingly since the late 1980s, several corporates began to establish a dedicated unit separate from the traditional financial & accounts department - which would manage these financial risks and supply chain costs for the institution - this would be known as the treasury department for a corporate.

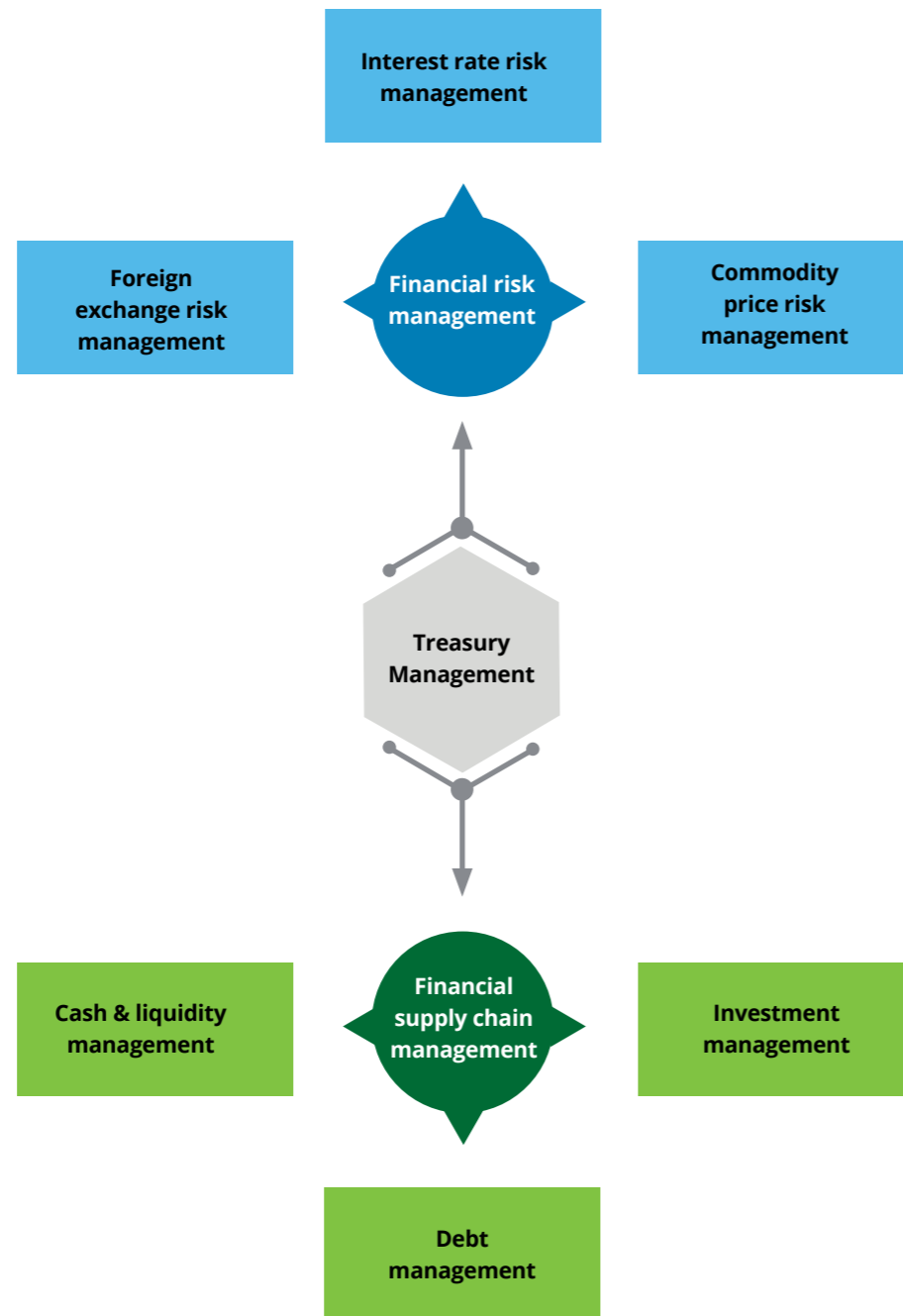
An Overview of Corporate Treasury Risk Management

Treasury management activities may be distinctly divided between the **financial risk management** and **financial supply chain management** functions respectively as highlighted in figure 2 below.

The objective of the financial risk management function of a corporate treasury is to **“protect and preserve”** the value generated from the underlying business against external market forces such as:

- Changes in the interest rates in the domestic or overseas geographies which may have an adverse impact on the interest charges on the existing domestic or foreign currency loan facilities undertaken by the group or its entities
- Foreign currency movements that may impact an entity in the following ways:
 - Gain/ loss on foreign exchange transaction within its trade cycle - mainly due to the fluctuation in currency movements resulting from the timing difference on recognizing the payable/ receivable for import/ export to actually paying/ receiving the foreign exchange amount

Figure 2: An illustration of the typical roles of the treasury department of a corporate

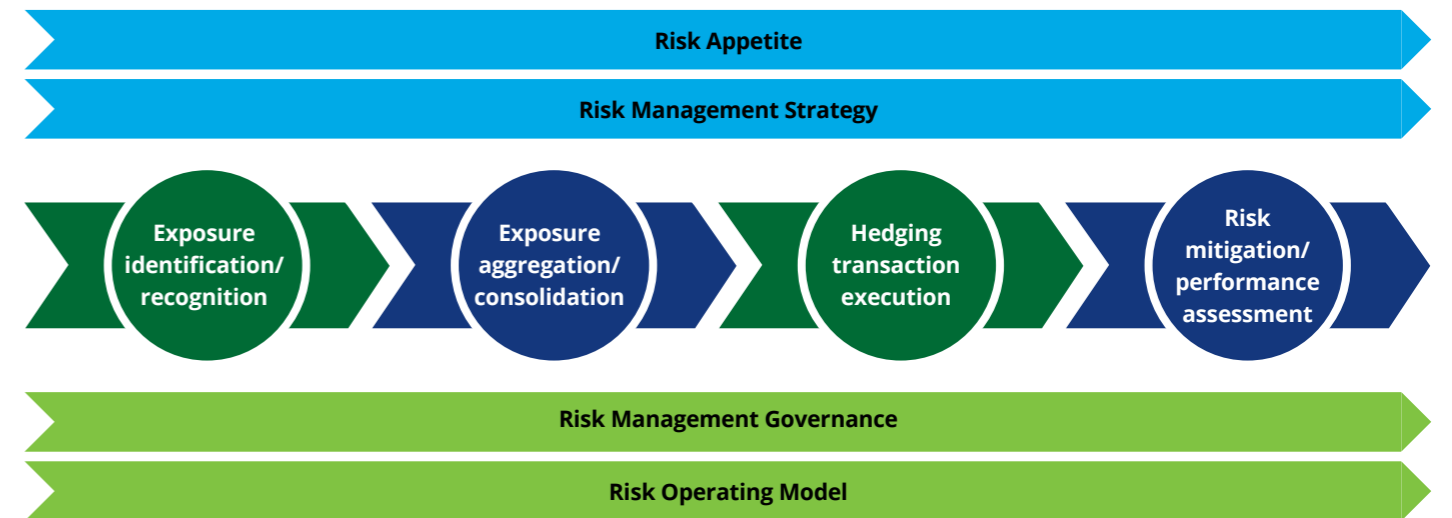


- Budget-to-actual variance - which may especially have a significant impact on the profitability of an entity that is either significantly dependent on purchasing from overseas suppliers or selling goods to overseas buyers
- Foreign currency translation with respect to consolidation of financial performance - limited to entities having subsidiaries outside of its country of domicile

- Commodity price fluctuations that may affect the price of the commodity procured, maintained as inventory (raw material or finished goods) or sold to overseas parties or even on domestic transactions - where the reference price of the commodity is affected by price fluctuations.

The objective of the financial supply chain management function of a corporate treasury is to **“ensure adequate liquidity”** to the underlying business functions either through cash or through the utilization of short term or long term debt facilities - and the optimization of the cost of financing by deploying surplus funds in those investment instruments that are permitted as per the risk appetite of the entity.

Figure 3: Key Components of the Financial Risk Management Lifecycle



Components of the Financial Risk Management Lifecycle

The most important element with respect to risk management to establish and assess the “**Risk Appetite**” of the entity. As per the Institute of Risk Management, risk appetite can be defined as the ‘the amount and type of risk that an organisation is willing to take in order to meet their strategic objectives’. It establishes the tolerance that the Board of Directors is willing to accept with respect to the impact of risk on the entity’s top-line (i.e. revenue) and bottom-line (i.e. EBITDA). Typically, the risk appetite of an entity is established as part of the enterprise risk management framework – based on which the financial risk management strategy can be established. Upon establishing the risk appetite, the “**Risk Management Strategy**” is the plan or strategic goals established for achieving the objectives within the boundaries of the risk appetite of the entity established by the Board of Directors. In case of financial risk management, the risk management strategy encompasses the strategic plan to address the aforementioned financial risks affecting the entity based on the level of impact it has on the Company’s financial performance.

With the risk appetite and risk management strategy established for financial risk management, the life-cycle cannot be established without having an effective “**Risk Management Governance**” by way of oversight by the necessary senior management and Board of Directors of the entity coupled with policies, guidelines and mandates which have been established for executing the risk management strategy within the appetite established by the entity’s Board of Directors.

The execution of the risk management strategy depends on the manner in which the “**Risk Operating Model**” has been established within the entity i.e. processes for executing the strategy (manual or automated), responsibilities and activities thrust on the personnel,

controls established for monitoring and flagging instances of potential breaches to the risk management strategy and most importantly, the information required to measure, monitor and report the effectiveness of the risk management strategy to the Board of Directors and senior management of the entity.

Keeping the above pillars in mind, a typical financial risk management lifecycle involves the following work-steps:

- **Exposure identification and recognition** – To assess which elements of the business value chain of the entity is affected by the specific area of financial risk i.e. interest rate changes, commodity price or foreign currency fluctuations. This helps establish the transactional information within the value chain that is exposed to the specific financial risk. For example, in case of a manufacturing company that’s primarily an importer of raw materials, financial risk exposure would include the following:
 - Foreign currency fluctuations between the currency of purchase (i.e. foreign currency) and currency of settlement (i.e. INR conversion) with respect to the time of obtaining the invoice for settlement up to the time of actually making the import payment
 - Commodity price fluctuation with respect to the commodity price at the time of structuring the purchase order till the time of receiving the L/C or invoice (as per the purchasing terms)
 - Interest rate fluctuations with respect to the foreign currency financing undertaken for the import purchase like the LIBOR rate at the time of receiving the borrowing to the interest rate at the time of repayment (assuming that the rate of interest is floating and not fixed)
- **Exposure aggregation and consolidation** – The combined transaction value that is exposed to the specific financial risk. Key terms



used here include ‘gross exposure’ which is the total value of exposures to a particular financial risk and position in the value chain. For example: total value of foreign currency imports of bauxite in case of an aluminium manufacturer. Another term used here is ‘net exposure’ which amounts to the total value of exposures to a particular financial risk after considering the offsetting impact of the same set of exposures. For example: the net exposure to USD for an entity that imports copper ore and exports copper wires will be the total value of imports in USD adjusted against the total value of exports in USD at a certain maturity period of settling the payment/ receipt of USD.

- **Hedging transaction execution** – Once the total value of exposure to a financial risk has been ascertained, the corporate treasury identifies a financial instrument that can be used to ‘hedge’ or offset the impact of the exposure to the financial risk. The execution cycle typically involves entering into a derivative contract with a financial counterparty (either an exchange or a bank) and settling the contract upon maturity of the contract.
- **Risk mitigation/ performance assessment** – This is the most important element of the financial risk management lifecycle as this assessment demonstrates the degree of success of the implementation of the financial risk management strategy based on the manner and level of meeting the desired financial risk management objective.

The next sections of this manual focus on applying the financial risk management elements to address commodity price risk – which has become a significant focus area within the field of financial risk management and the manner in which the derivative instruments provided by commodity derivative exchanges can help address a corporate’s commodity price risk issues.



2. Commodity Price Risk – An Overview

What is a Commodity?

If we look at the legal definition of a commodity, it is defined as **'a tangible item that may be bought or sold; something produced for commerce'**. Therefore, commodities are considered to be marketable goods or wares, such as raw or partially processed materials, farm products, or even jewellery. Intangibles, such as human labour, services, or marketing & advertising, are typically not considered to be commodities.

What is Commodity Price Risk?

Commodity price risk is the financial risk on an entity's financial performance/ profitability upon fluctuations in the prices of commodities that are out of the control of the entity since they are primarily driven by external market forces. Sharp fluctuations in commodity prices are creating significant business challenges that can affect production costs, product pricing, earnings and credit availability. This price volatility makes it imperative for an entity to manage the impact of commodity price fluctuations across its value chain to effectively manage its financial performance and profitability.

Origins of Commodity Price Risk¹

The roots of commodity risk management go back to the ancient times. Commercial transactions in the early markets often involved a sale agreement between two parties that were sometimes structured as a forward contract with various features/ options on the agreement. The contract could vary from loosely structured between two parties to a formal and notarized agreement based on established rules and even law. Unstated terms and conditions of such agreements were often governed by merchant convention. An agreement for a future sale would typically have a provision that would permit the purchaser to refuse delivery if the delivered goods were found to be of inadequate quality when compared to the original sample. As reflected in notarial protests stretching back to ancient times, disagreement over what constituted satisfactory delivery was a common occurrence.

The evolution of exchange trading derivative contracts for bulk commodities revolved around two important elements: enhanced securitization of the transactions and the emergence of speculative trading. Both these developments are usually connected with the increasing concentration of commercial activity, initially at the large medieval market fairs and, later, on the bourses and exchanges. Securitization of bulk commodity transactions was facilitated by applying trading methods that had been in use for centuries in the market for bills of exchange.

One of the first examples of exchange trading in commodities in a crude form emerged in Antwerp during the second half of the 16th century. The development of the Antwerp commodity market provided sufficient liquidity to support the development of trading in "to arrive" contracts associated with the rapid expansion of seaborne trade during the period.

In the 1840s, Chicago in the United States of America had become a commercial centre with railroad and telegraph lines connecting it with the eastern part of the USA. Around this same time, the McCormick reaper was invented which eventually lead to higher wheat production. Midwest American farmers came to Chicago to sell their wheat to dealers who, in turn, shipped it all over the country. Unfortunately, at the time, the city had few storage facilities and no established procedures either for weighing the grain or for grading it. In short, the farmer was often at the mercy of the dealer.

Then in 1848, a central place was established in Chicago where farmers and dealers could meet to deal in "spot" grain - that is, to exchange cash for immediate delivery of wheat. This central place was known as the 'Chicago Board of Trade' or 'CBOT'. The futures contract, as we know it today, evolved at the CBOT as farmers (sellers) and dealers (buyers) began to commit to future exchanges of grain for cash. For instance, the farmer would agree with the dealer on a price to deliver to him 5,000 bushels of wheat at the end of June. The bargain suited both parties. The farmer knew how much he would be paid for his wheat, and the dealer knew his costs in advance. The two parties may have exchanged a written contract to this effect and even a small amount of money representing a "guarantee" which was facilitated by the CBOT.

In 1864, the CBOT listed the first ever standardized "exchange traded" forward contracts, which were called futures contracts. In 1919, the Chicago Butter and Egg Board - a spin-off of the CBOT, was reorganized to enable member traders to allow future trading, and its name was changed to Chicago Mercantile Exchange (CME). This gave rise to the global commodity futures and derivative markets as we know today.

Price Discovery in Commodity Markets

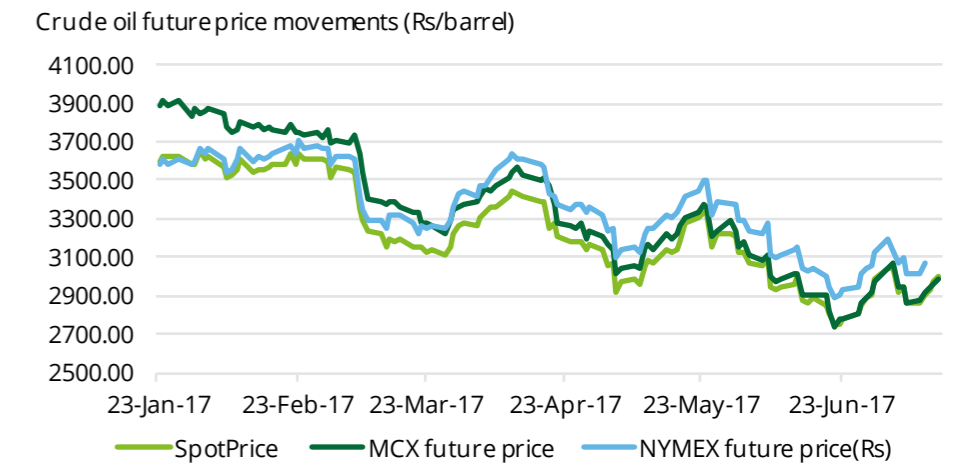
Price discovery is a process of determining the price of a specific commodity through basic supply and demand factors prevalent in the market place. The process of price discovery depends on several interrelated factors such as market structure (such as **number, size, location, and competitiveness of buyers and sellers**), market information (including amount, timeliness, and reliability of information), market behaviour (procurement/ sales and pricing methods), global linkages and prevalence of futures markets or alternate risk management instruments.

Physical markets in India are generally considered to be fragmented and impacted by information asymmetries and instances of intentional external influences leading to greater price discovery inefficiencies. However, prices discovered in the commodities exchange market are more efficient due to transparency where information flows and assimilation are instantaneous and more importantly, reliable.

Trading by participants from across the commodity ecosystem on a commodity exchange encourages transparency by leading the market price of the commodity close to its 'fair value'. This enables companies and consumers to develop effective hedging strategies. Such price signals are essential for firms to take decisions on production, marketing, and processing of commodities, for example: farmers on expected returns among competing crops, small and medium enterprises and large corporates about the possible future trends in relation to their exposures, as well as consuming groups such as importers/ exporters/ traders/ consumers as to what will be the likely prices in the near future.



Figure 4: An illustration of price discovery in crude oil



The price discovery approach at Indian commodity exchanges have demonstrated their ability to align with the physical market prices as well as with international commodity prices, especially where India is a 'price taker' (see figure 4). Through price discovery at national and international levels, substantial benefits have been obtained where market participants are able to benchmark prices effectively with the available commodity price and evaluate their purpose in the business value chain.

The price of a commodity is also characterized by various other factors such as quality, region, delivery routes, geographical disparities, transportation pricing structure etc. For example, in its natural state, crude oil ranges in density, consistency and colour. This is due to the fact that oil from different geographical locations will naturally have its own unique properties. Approximately 160 types of crude oil are traded in the physical market and exchanges together - which vary in characteristics and quality. West Texas Intermediate ('WTI') and Brent are two crude oil markers which are either traded as per their quoted prices or whose prices form the basis of price or 'proxy' for other crude oils. WTI is a light crude with an API gravity of 39.6 degrees and contains about 0.24 percent of sulphur, marking it as "sweet" crude. In contrast, Brent is a combination of crude oils from 15 different oil fields in the Brent and North Sea areas. It is

also a "light" and sweet crude oil with API gravity of 38.3 degrees and about 0.37 percent of sulphur. These qualities determine the weight of the liquid and the costs associated.

Benchmark/ Reference Prices in Commodity Markets

In the commodities markets, a benchmark is defined as an external reference price (i.e. outside of the control of the contracting parties) that are acceptable to both the buyer and seller to be used directly or as a base for establishing the agreed price in the contract.

Crucially, for a benchmark to be recognised and adopted, it needs to reflect actual prices being agreed/ traded across the marketplace. Fluctuations in commodity prices most often has a direct impact on the structured margins i.e. profitability of an entity. Where pricing benchmarks are transparent and similar benchmarks are available in derivative markets, commodity price risk may be managed through hedging the exposures. Additionally, domestic paper markets may base the benchmark prices based on internationally available benchmarks, with due care on the use of conversion to INR and the metrics considered in the domestic markets. The table below provides a sample of benchmark physical/ paper prices typically used by commodity players and exchanges.

SNo	Commodity Group	Traded global benchmarks	Features of traded domestic benchmarks
1	Crude oil	Brent, Platt's Dubai, WTI	Indian crude oil futures benchmarked to CME WTI Crude Oil prices
2	Natural gas	Henry Hub, JCC	Indian Natural gas futures benchmarked to CME Henry Hub prices
3	Copper	LME, COMEX	Indian copper futures benchmarked to CME Copper prices. Domestic pricing based on import parity pricing linked to LME.
4	Aluminum	LME	Indian aluminum futures benchmarked to LME Aluminium prices. Domestic pricing based on import parity pricing linked to LME.
5	Zinc	LME	Indian zinc futures benchmarked to LME Zinc prices. Domestic pricing based on import parity pricing linked to LME.
6	Lead	LME	Indian lead futures benchmarked to LME Lead prices. Domestic pricing based on import parity pricing linked to LME.
7	Nickel	LME	Indian nickel futures benchmarked to LME prices. Domestic pricing based on import parity pricing linked to LME.
8	Crude Palm oil	BMD	Indian CPO futures are highly correlated with international benchmarks like BMD
9	Cotton	ICE - US	Indian cotton (29 mm) futures have a high correlation with Indian physical market prices
10	Gold	CME Group (COMEX), LBMA	Indian gold futures bear strong correlation with COMEX prices, as also Indian physical market prices
11	Silver	CME Group (COMEX)	Indian silver futures bear strong correlation with COMEX prices, as also Indian physical market prices

Impact of Commodity Price Movements on Revenue and Profitability

Volatility in commodity prices can impact different players differently depending on where they lie on the value chain. Profitability of these players is also determined basis the variant of the commodity that the entity is dependent on within the value chain.

- Affect inventory management solutions as there is a direct impact on earnings in case of fall in the value of inventory. Inventory is valued at cost or net realizable value whichever is lower. Accordingly, where net realizable value falls below cost, there is a real impact to cash flows i.e., sales will realize a lower value

A rise in commodity prices can:

- Increase sales revenue for producers if demand is not impacted by the price increase. This in turn can lead to an increase in the value of the business.
- Increase competition as producers increase supply to benefit from price increases and/or new entrants seek to take advantage of higher prices
- Reduce profitability for businesses consuming such commodities (if the business is unable to pass on the cost increases in full), potentially reducing the value of the organisation

A fall in commodity prices can:

- Decrease sales revenue for producers, potentially decreasing the value of the organisation, and/or lead to change in business strategy
- Reduce or eliminate the viability of production — mining and primary producers may alter production levels in response to lower prices
- Decrease input costs for businesses consuming such commodities, thus potentially increasing profitability, which in turn can lead to an increase in value of the business

An example:

Domestic gold jewellery manufacturer

1. Value chain



2. Financial impact on commodity price movement

SNo	Price Movement	Impact			
		Inventory Impact	Sales	Purchasing	Earnings
1	Fall in commodity price	Higher cost of inventory which would lead to a constraint in cash flow.	Reduced sales values due to lower price - which impacts profitability	Increase in purchasing power leading to higher volumes purchased	Net realizable value is below cost and sales realizes at lower value thereby reducing earnings
2	Rise in commodity price	Lower cost of inventory which would lead to increase in cash flow	Increased sales values due to higher price	Decrease in purchasing power	Net realizable value is above cost and sales realizes at same or higher value thereby increasing earnings





3. How do Corporates Address Commodity Price Risk?

Commodity price risk intrinsically is the uncertainty faced by corporates to source or sell a product at a price. The nature & type of commodity price risk varies from industry to industry. Every company procuring a certain commodity will face the challenge of effective price management. Depending on the commodity, it can be treated as a **“procurement commodity risk”** or **“tradable commodity risk”**. Procuring risk is more focused towards the physical supply chain side of the business whereas tradable risk is on the financial risk & hedging of the business.

Within the commodity value chain, corporates are faced with different types of commodity risks including **‘inventory price risk’** with the risk of falling prices, **‘basis risk’** which is the difference in benchmark price of the physical commodity and the derivative instrument used to hedge the commodity price, and **‘margin risk’** which for a producer is on the risk of falling prices, and consumers on rising prices.

Corporates exposed on the procurement side of the value chain initially assess the feasibility of reducing the impact of

rising commodity prices by **‘passing it on to the customer on the finished goods’**. Alternatively, such corporates also tend to negotiate with their suppliers towards a fixed price agreement – which becomes a difficult ordeal where the price discovery and benchmark prices of that commodity are transparent and easily available to all market participants. Similarly, corporates exposed on the sales side of the value chain structure pricing barriers or through stepped-price bands within the sales contract which act as an embedded derivative. Alternatively, most corporates look towards hedging their sales should the commodity benchmark price be available to hedge through a derivative instrument.

Corporates on the global scale have evolved and today utilize the liquid benchmarks to trade on the exchange and hedge the commodity price risk using derivative products. Exchange traded derivatives has its advantages of transparent pricing, standardised contracts and no default risk. To a large extent Indian corporates continue to participate in the over-the-counter (‘OTC’)

derivatives markets as well as in the commodity exchanges. The OTC markets provide such corporates with the ability to customize the contract that best fits with the exposure profile of the Company - which is not available in the exchange market due to fiduciary requirement of the standardisation of contracts. Another proponent for participating in the OTC market usually stems where the benchmark prices available in the exchanges are not aligned to the price discovery procedure for procuring or selling the commodity by the corporate.

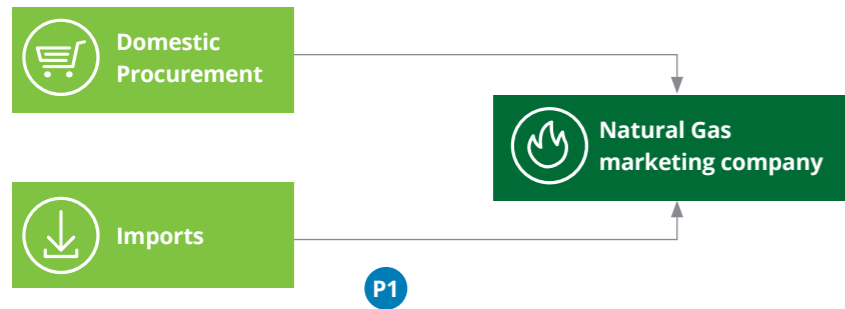
Example – A jewellery manufacturer

A domestic bullion/ jewellery manufacturer is involved in the industrial process of refining & converting bullion bars into jewellery. The manufacturer is worried on the procurement price and sale of the domestic bullion. To manage this exposure, the manufacturer may think of hedging the procured gold bars with hedging contracts that are available on exchanges such as MCX. This will help the manufacturer reduce the volatility and optimize costs on the procurement

side while passing on the cost of hedging to the customer. Secondly, for the sale price to be achieved on the jewellery products - the manufacturer can hedge this exposure with bullion futures or options available from exchanges like MCX. Given that the benchmark price will be the same with small variations in the way the end price for procurement

and sale is arrived at, a net exposure approach can be adopted, which reduces the overall risk on the manufacturer with respect to bullion price fluctuations. Price risk is therefore optimized by reducing the overall exposure using the net exposure approach as well as the ability of passing on the cost of hedging to the customer at the time of sale.

Example: A natural gas marketing company



Price risk arises when:

P1 (Natural gas benchmark + fixed spread)

As an example natural gas marketing companies these days structure their deals on a formula pricing to attain physical gas in storages on a seasonal contract so they can utilize the seasonal benefits of lower prices and withdrawals at higher prices i.e. managing the procurement price of the physical gas being purchased. Hedging of the total quantities on the exchanges are then performed based on the company's risk appetite.

Although cost management by fixing prices is an important driver to manage prices, such companies have started to focus more on risk management & hedging of these prices. The gradual shift from the above only cost managed

approach to a combination of risk and cost based approach for the corporates is the real game changer. Corporates manage procurement pricing by 'opportunistic hedging' on international and domestic exchanges based on the management's view of the market and operate with pre-defined market risk levels on open positions. Hedging instruments like futures, swap and options play a big part in offsetting risk on commodity price fluctuations.



RISK

REWARD



4. What is Commodity Price Risk Hedging?

Hedging - A brief overview

Hedging is a method of strategically using financial instruments to offset the risk of any adverse price movements. Hedging plays a crucial role in the industry today for proper risk management and to protect shareholder value. Companies are assessed by shareholders and investors on the basis of how strong their hedging strategy is. Derivative instruments such as forwards, futures, swaps and options are examples of some of the instruments used by companies to mitigate the risk and hedge the physical positions/asset.

Hedging can be performed by taking a long or short position against the asset or physical product. Long hedge position is a strategy taken by generally producers or manufacturers of the commodity to protect from the prices going up in future when they have to source the asset at a future price, whereas short hedge is taken when you are already owning the asset and have to protect from the prices falling in future. In both cases the hedge will offset the loss of rising & falling markets and will protect the company from having diminished margins.

Commodity Price Risk Hedging - Origins

Hedging comes in various forms. Early U.S. commodity (grain) merchants concerns to ensure buyers and sellers purchased the produce with a certain fixed future price resulted in forming the forward contracts market. This acted as a hedging instrument. There concerns were still taking undue credit risks. The issue was resolved by the establishment of the Chicago Board of Trade (CBOT) in 1848 which provided a centralised location for standard contracts to be traded. This led to the concept of organised financial commodity hedging and the futures market.

Since the advent of the exchange and development of technology the financial market place for hedging has grown immensely. Hedging has become an important topic for overall risk management strategy of the organization. Although hedging was the primary reason initially for development of trade, we have had speculators entering the market place. This has additionally fuelled liquidity and helped the derivatives market grow.

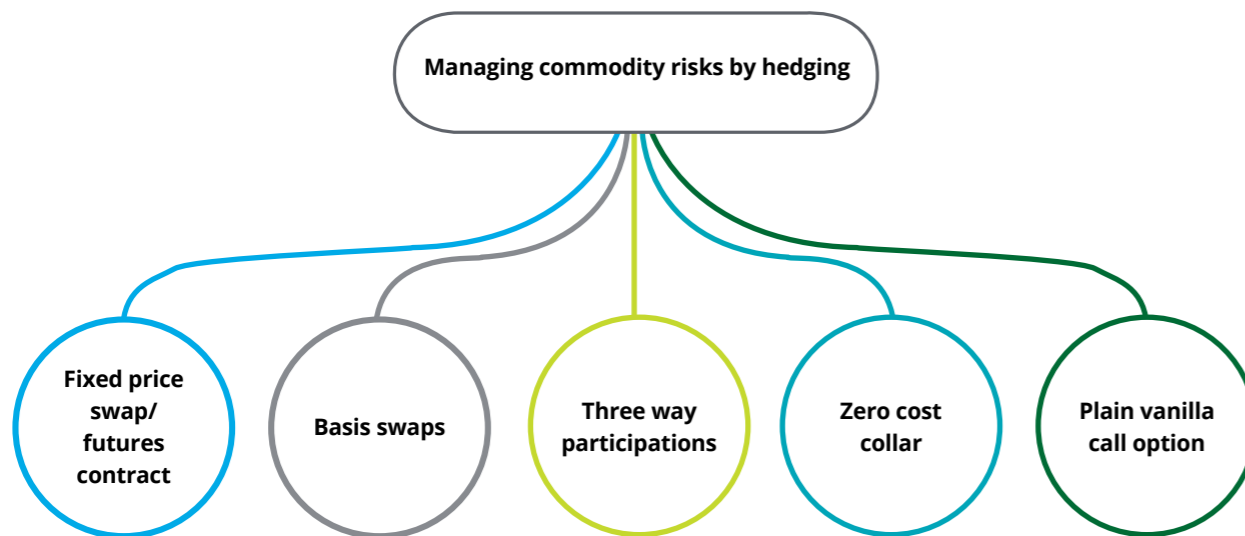
Commodity Price Risk Hedging - Methodology

An example of Hedging using Options -

A company needs to buy aluminium as a raw material - the company is exposed to the risk of price increasing at a certain future date i.e. commodity price risk on procurement. As a result, the company may decide to buy a plain vanilla call option to hedge this exposure for that tenor. As the prices are rising, they have to pay more for the aluminium raw material to the producer although this loss is offset by the gain they will realise on the long call aluminium option. Overall impact will be purchasing aluminium at a certain price which the company had envisaged.

In the commodity markets, some of the financial instruments available as hedging instruments has been summarized in figure 6.

Figure 6: Typical financial/ derivative instruments available to hedge commodity price risk. Future contracts are typically the most widely used financial/ derivative instruments



Hedging performed in an efficient way can lead to real value addition to the company, but there are risks associated which should be carefully considered and monitored. Tenor of the hedge is an important part. Corporates should revise the hedges closer to expiry. Liquidity and transparency of the instrument being used for hedging is another. This will have an effect on cost of hedging.

Another example: For an automobile manufacturer - the material costs amount to greater than 50% of the company's revenue. Pricing of material costs is directly linked to fluctuations in commodity prices. Therefore, one of the key objectives of this company would be to lock in prices for a commodity at a pre-determined fixed price either through exchange based derivatives or by arriving at a fixed price procurement contract with the supplier – the latter being difficult to usually achieve especially where the underlying commodity price volatility is high.

The company can hedge against any price fluctuation by opting for a listed fixed price swap or futures contract. The fixed price swap/ futures contract guarantees a fixed price of material (e.g. metal) over a predetermined period of time. The company locks in a fixed price on a fixed volume of material (e.g. metal in an automobile industry) over a predetermined period of time by purchasing a fixed price swap from the OTC counter party or by taking long positions in futures on an exchange. The swap price will reference LME (other pricing benchmark used for physical pricing). At the end of each period, the settlement price (as reported by LME) is compared to the swap price

If the settlement price > the swap/ futures price, hedging counter party pays company the difference between the settlement price and the swap price. However, if the settlement price < the swap price, the company pays the hedging counter party the difference between the swap price and the settlement price.

Commodity Price Risk Hedging – Markets

Managing commodity price risk is unavoidable for companies who have to create a niche in this sector. Every commodity/commodity group brings its unique challenges. For example crude oil and petroleum products have liquid benchmarks and products both in international and domestic exchanges, whereas most petrochemicals don't have developed global benchmarks. Essentially depending on the commodity, certain strategies need to be planned and executed to manage price risk. Most of the commodities these days are traded in international exchanges like ICE, CME, NYMEX, and LME – while in India, many commodities are traded in domestic exchanges like the MCX. One can also trade on the over-the-counter markets using forward contracts either with international or domestic counterparties.

For Indian companies, the Reserve Bank of India ('RBI') has formulated certain regulatory guidelines through the Master Direction reference no. RBI/FMRD/2016-17/31 and the FMRD Master Direction No. 1/2016-17. The guidelines for example state that Indian companies cannot hedge commodities like gold, silver and platinum on international exchanges unless specific approval has been obtained from the RBI.

Although international exchanges have highly liquid benchmarks, domestic exchanges have risen in stature. For example – the MCX provides hedging contracts for a variety of bullion, base metals, agro-commodities, and energy markets. Indian firms have also turned to local exchanges to hedge risks and take advantage of cheaper costs compared with international exchanges. Also when Indian companies participate in international exchanges, they additionally get exposed to currency fluctuation risks. As a result, domestic exchanges such as MCX provides contracts that are denominated in rupees to enable market participants to focus on hedging commodity risk only.

Hedging – Parameters to Consider

Liquidity management and working capital are of paramount importance for corporates. A company's business plan becomes difficult to sustain when it depends largely on working capital. Hence outlay of capital and cost of hedging is one of the most important factors for corporates selecting these derivative products.

Another important point for corporates to consider is the payoff of the hedging instrument. Depending on the compatibility of the commodity and the magnitude of hedge payoff corporates usually select the product.

Additionally, the liquidity of the traded derivative product becomes an important parameter for a corporate. A highly liquid product – that is a derivative product displaying significant trading volumes on the exchange will be cheaper and easier to execute. Corporates will also look at domestic exchanges for similar liquid instruments. There are cost and no currency risk advantages for corporates using domestic exchanges.

Basis risk also becomes an important consideration for corporates when they consider certain futures to hedge with. Paper based futures can differ to the physical benchmark price on a difference in grade, so a fixed spread is created.

Finally, most paper based markets settle on a net basis, and at times this is based on price assessment rather than traded price, there could be convergence risk vs the physical market. Significant convergence risk can enhance basis risk to a point where the hedging program becomes unviable which are lesser when trading on established exchanges trading liquid commodity derivatives.



5. Methodology of Hedging Commodity Price Risk

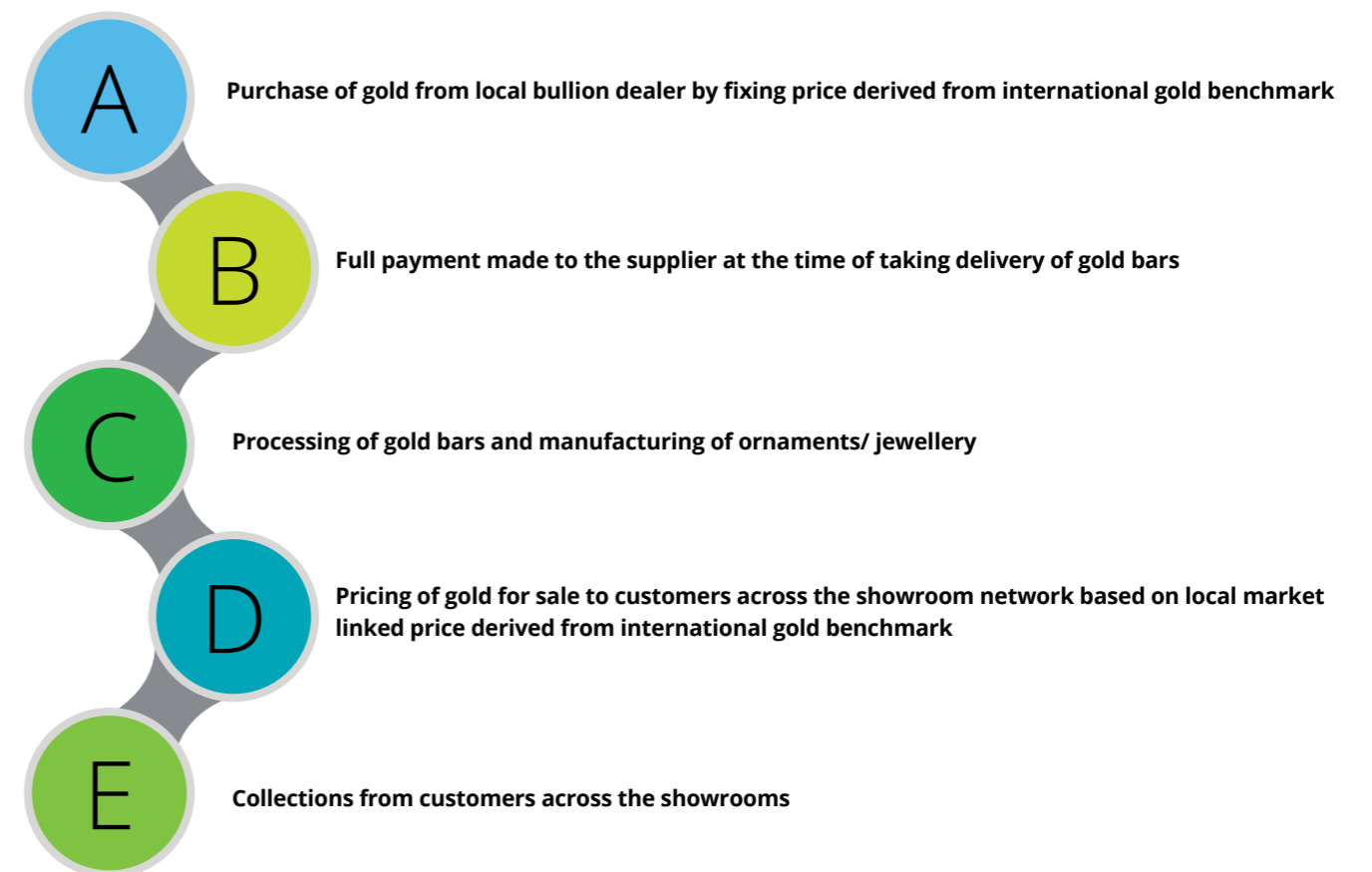
Value chain analysis and stages of considering entering into a hedging arrangement

Value chain analysis is typically defined as 'a process where a firm identifies its primary and support activities that add value to its final product and then analyze these activities to reduce costs, increase profitability or increase differentiation'. However, in the case of commodity price risk management, prior to undertaking the hedging activities, it is important for

the Company to understand its value chain with respect to its exposure to commodity price fluctuations i.e. on the procurement and storage of its raw materials to the storage and sale of finished goods.

Taking the example of a domestic gold jewellery manufacturer, as given above, the value chain can be summarized in the following diagram:

Figure 7: Value chain of a gold jewellery manufacturer



The above value chain explains that the Company sources its gold from local bullion dealers – where the price that is fixed at the time of procurement is derived from international gold benchmark prices – which is usually quoted by the London Bullion Market Association or ‘LBMA’.

Let’s consider stages A to B – in this case the price is fixed at the time of order with the bullion dealer, therefore the Company does not face any exposure to commodity price fluctuations till the time it fulfils the payment for the purchase. Another inference that can be made is that usually this would be a relatively low lead time from order to payment – typically a cash and carry arrangement. However, if there was a case where the price at the time of order was indicative for purchase and not fixed, then the Company would have been exposed to commodity price fluctuation until the time of fulfilling the payment for that purchase – and if the price of gold appreciated from order to payment, that would entail a higher purchase price onto the customer. Therefore this part of the value chain analysis indicates the potential need to consider a hedging arrangement to protect the Company from gold price fluctuations.

Let’s consider stages B to C – in this case, the Company has procured its gold and stored it in the vault until it’s time for processing and converting the gold bars into ornaments or jewellery. The time for storage in its inventory continues to expose the Company to gold price fluctuations therefore having an impact on the inventory value of procured gold. Therefore this part of the value chain analysis indicates the potential need to evaluate the tenor of the hedging contract to protect itself from gold price fluctuations.

Let’s consider stages C to D - Sale of jewellery will typically be done across the retail distribution network of showrooms of the Company in the

domestic market. However, the demand for gold is highly price elastic leading to difficulty in estimating demand and fixing of gold price. Moreover, fixing of price for gold sales is undertaken based on local benchmarks that are derived from the international benchmark prices. Therefore, this part of the value chain analysis indicates that the procured gold has been priced in and now profitability can only be realized if the fixed sale of gold is higher than the procured price of gold. As a result, the Company may have a potential need to enter into another hedge during the sale order time to protect itself from the risk of depreciated prices of gold.

If we consider the stages D to E – this has the final impact based on the demand exhibited by the end customers. The sale of jewellery will be based on the date on which the customer decides to purchase the jewellery – hence there may be a lag at the time of maintaining the priced in sale of jewellery at the showroom to the price at which the customer ultimately purchases the jewellery. However, given the difficulty in estimating the time of purchase of customers, hedging tenor may not be extended hence as a mitigation strategy, the Company focuses on streamlining its inventory and distribution arrangements so as to minimize the lead time of supplying the showrooms with the priced in gold jewellery up to the time of purchase by the end customer.

Therefore, value chain analysis summarizes the following:

01. Business value chain:

- The Company is involved in processing of gold and manufacturing of jewellery and directly selling the finished products through its showrooms.
- The Company procures gold on cash and carry basis from local bullion dealers where the price is also derived from international benchmarks



- Sale of jewellery is mainly done across the network of showrooms of the Company in the domestic market
- The demand for gold is highly price elastic leading to difficulty in estimating demand and fixing of gold price

02. Pricing environment:

- Gold price fixing of purchases takes place on the basis of international benchmarks
- Fixing of price for gold sales is undertaken based on local benchmarks that are also usually derived from international benchmarks
- The Company therefore operates in a pricing environment where it is not possible to avoid the exposure to commodity price risk

03. Business impact:

- The difference in timing of fixing gold prices for purchases and for sales leads to a risk on business margins for the Company on account of depreciation in gold prices
- The Company may not be able to successfully pass-on this market price risk to its customers since the pricing and business environment is highly competitive
- Thus, the Company is exposed to the volatility in the gold prices which can significantly erode the profitability of Company

04. Price risk considerations:

- The Company may be required to hedge the prices of gold to be sold at commercially acceptable levels
- Given that the Company cannot alter any of the business dynamics around the physical business, i.e.;

procurement of gold and sale of gold jewellery, in India, the Company is required to use exchange based derivatives such as futures and options to hedge the gold price risk.

Key considerations for hedging price risk

The value chain analysis provides the summary of the need to hedge price risk – however given regional market dynamics, an additional step is required so as to assess the ability to hedge the price risk of the commodity under considerations. Key considerations for this assessment include:

01. Available markets/ indices: Trading markets (exchange-based/ over-the-counter) available for hedging the price risk of the commodity in India or in special cases, in international markets as well as the feasibility of each market to complement the exposure profile of the Company for hedge consideration.

02. Hedging instruments: Hedging instruments available within each of the identified trading markets (futures/ options/ swaps etc...) as well as the feasibility of each hedging instrument to complement the exposure profile of the Company for hedge consideration.

03. Exchange trading volumes: Trading volumes prevalent in such hedging instruments at the identified exchange trading markets so as to assess the Company’s exposure vis-à-vis liquidity and risks thereon.

04. Pricing considerations: Price discovery methodology and quality of the underlying commodity of the derivative offered by the exchange along with the trading units so as to align with the Company’s pricing mechanism and benchmark price without creating additional basis and other risks.

05. Margin requirements: Margin requirements pertaining to initial margin and variation margins (for example: SPAN based margin v/s percentage of contract value for trading at the MCX) based on the contract size and volatility of the prices of the underlying commodity under consideration.

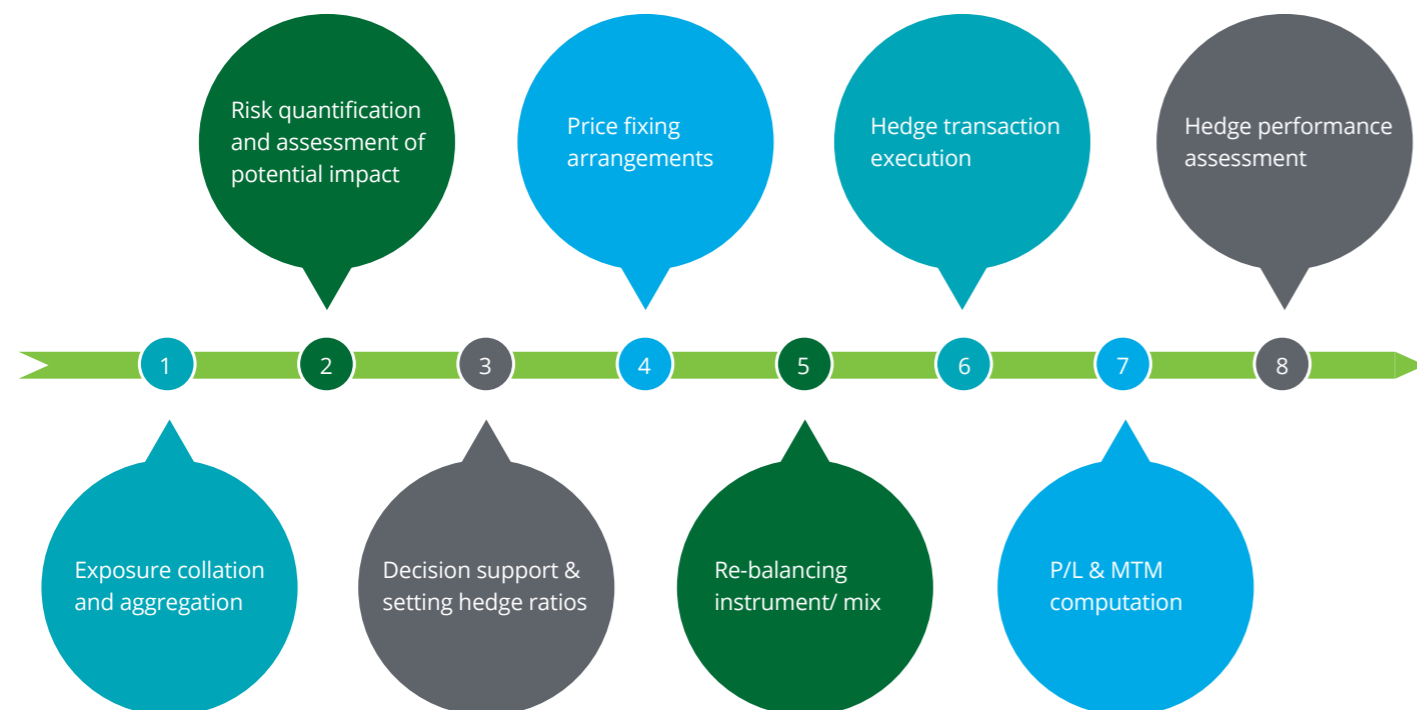
06. Regulatory considerations: Regulatory guidelines applicable for undertaking hedges for the selected hedge market (such as any commodity exchange) and hedging instrument/s.

Lifecycle of a typical commodity price risk and hedging framework

After assessing the business value chain to arrive at the price risk considerations and after assessing the considerations for hedging the underlying commodity that's causing the price risk issue to the Company, the next stage effectively forms the main part of the commodity price risk and hedging framework.

The following diagram provides the summary of the key stages of the commodity price risk and hedging framework. Each stage of this framework in this diagram is explained in the subsequent table.

Figure 8: The stages of the commodity price risk and hedging framework



SNo	Commodity price risk & hedging stage	Key activities
1	Exposure collation and aggregation	Identification and recognition of commodity exposures based on type for procurement or sales budgeting and maturity profile of the procurement/ sales
2	Risk quantification and assessment of potential impact	Quantification of risk based pricing and market movements and assessment of factors affecting off-set between hedges and underlying exposure
3	Decision support & setting hedge ratios	Limits to market operations and monitoring for the same and setting of the hedge ratios (Hedge ratio = Hedge value/ Exposure value) based on risk appetite
4	Price fixing arrangements	Lock-in of purchase/ sales price to minimize impact on inventory value and structured margins
5	Re-balancing instrument mix	Decision support to re-balance hedging instruments and pricing options based on market movements and hedging strategy
6	Hedge transaction execution	Entering into hedge transaction using exchange-traded futures/ options (or OTC hedging instruments), establishing hedge rationale & basic documentation support and linking hedges to underlying exposures
7	P/L and MTM computation	Mark to market (i.e. market value of hedge and exposure on a specific date) of hedges & exposures to track performance on an ongoing basis along with profit & loss computations to assess extent of off-set from underlying and hedge positions
8	Hedge performance assessment	Assess hedge performance based on degree of offset achieved on the underlying exposure along with other performance and risk indicators

Key documentation requirements for executing the commodity price risk and hedging framework

To enable the execution of the commodity price risk and hedging framework, the Company is required to maintain the following documentations:

01. Commodity price risk policy – The commodity price risk policy provides the principles and guidelines for the Company to facilitate its commodity hedging activities. This is usually signed-off by the Board of Directors of the Company. Salient features of the policy include:

- The risk appetite of the Company with respect to commodity price risk i.e. the degree of risk the Company is willing to expose its business margins to commodity fluctuations – this also determines the required hedge ratio to be maintained by the Company

- Risk management principles of the Company i.e. the salient philosophy and guidelines for facilitating the commodity hedging activities

- Authorized markets and hedging instruments i.e. the acceptable hedging markets (ex. List of exchanges) and hedging instruments (ex. Futures and options) that the Company has authorized to undertake in its hedging activities

02. Standard operating procedures – Key operating guidelines for undertaking the hedging activities which are supplemented with the internal controls maintained within the Company.

03. Reporting framework – MIS & reports to be provided to various levels of the Company's management with respect to the exposures, hedges, hedge performance and other aspects required from the Company's commodity price risk and hedging framework.



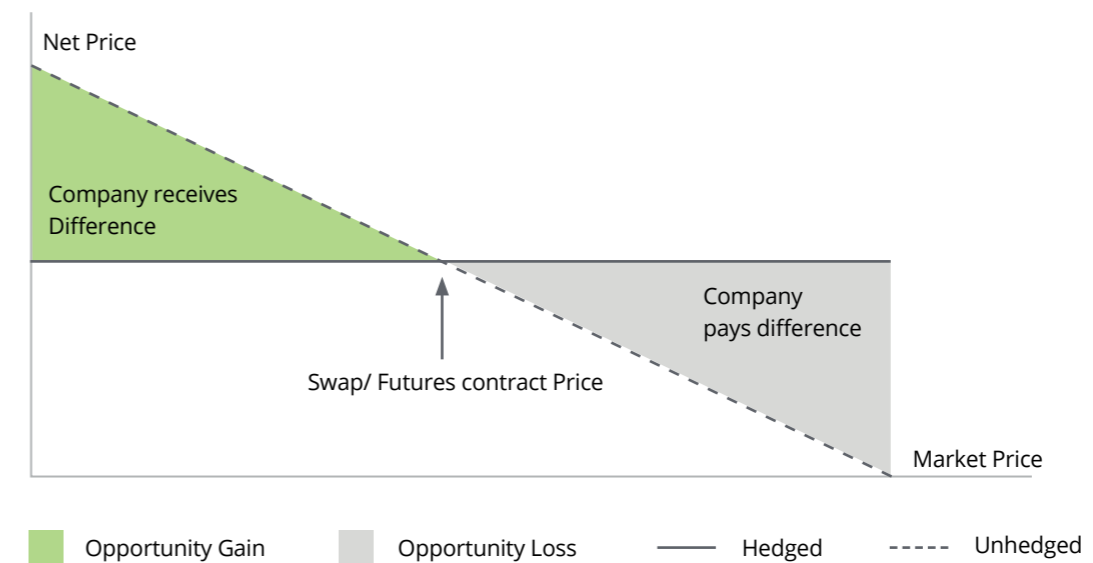
6. Using Futures and Options to Hedge Commodity Price Risk

Futures contract

A futures contract is a legal agreement, generally prescribed by a futures exchange, to buy or sell a particular commodity or financial instrument at a predetermined price at a specified time in the future. Futures contract executed in

commodity exchanges can be physically settled upon contract maturity or is cash settled (as mandated by the commodity exchange). The pay-off structure is linear with respect to the market price at the time of settlement.

Figure 9: Typical pay-off structure of a futures contract



Example: A Company that sells finished goods where the underlying commodity is linked to a specific pricing benchmark - and enters into a futures contract

Example: A gold manufacturer

- The Company locks in a fixed price on a fixed volume of gold over a predetermined period of time by taking short positions in futures on the commodity exchange like MCX.
- The futures price of the MCX futures contract reflects the Indian spot price, which typically has a high correlation with COMEX Gold futures as India is a 'price taker' for Gold. At the end of each period, the settlement price (as reported by MCX) is compared to the future price.
- If the settlement price < the futures price, the Company gains the difference between the future price and the settlement price.
- If the settlement price > the futures price, the Company is at a loss on the difference between the settlement price and the futures price.

Key advantages

- Exchange traded hence no counterparty risk exposure
- Standardized contract applicable to all market participants
- Transparent pricing as per exchange quotes
- Contract can be closed out prior to its maturity

Key disadvantages

- Standardization of contract may not align well with the Company's exposure profile with respect to tenor of hedge
- May create basis risk where there is a difference in the pricing benchmark used in the future contract against the pricing benchmark considered for physical trade by the Company with its suppliers/ customers
- Involves continuous monitoring on margin maintenance

Contract specifications of commodity derivative contracts can be found on the websites of the exchanges where they

are traded. For instance, the contract specifications of a typical gold futures contract in MCX can be referred to the following link: <https://www.mcxindia.com/products/bullion/gold>

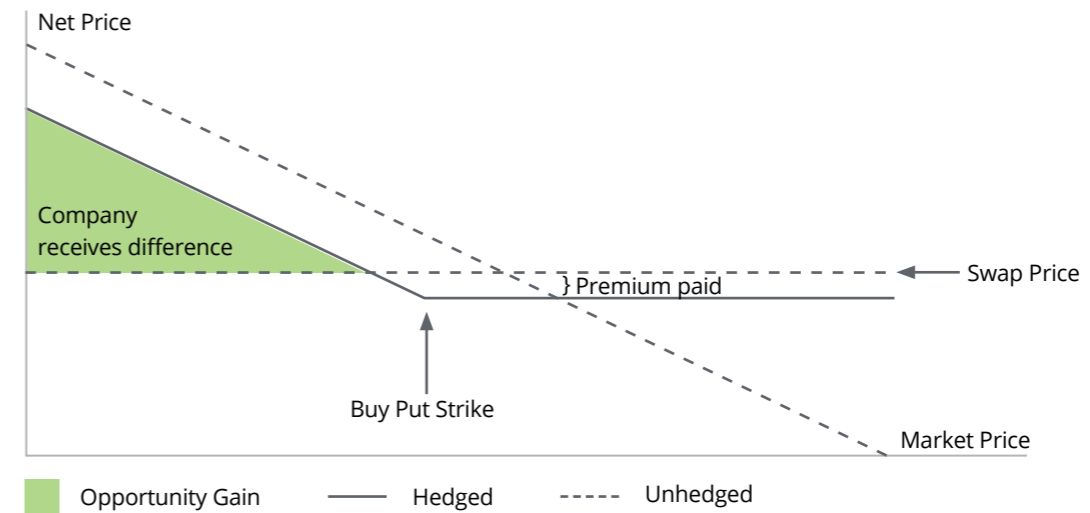
Plain vanilla option contract

An options contract is an agreement between a buyer and seller that gives the purchaser of the option the right to buy or sell a particular asset at a later date at an agreed upon price. Typically the underlying of an options contract listed on an exchange will be the futures contract for the same commodity. Option contracts are also termed as call and put options based on the position of the market participant when undertaking the contract.

Call option – A call option is an option contract between two parties where the buyer of the call option earns a right (not an obligation) to exercise the option to buy a particular asset from the call option seller for a stipulated period of time. Once the buyer exercises his option, the seller has no other choice than to sell the asset at the strike price at which it was originally agreed. The buyer expects the price to increase and thus earns capital profits.

Put option – A put option is an option where the buyer of the put option earns a right (not an obligation) to exercise his option to sell a particular asset to the put option seller for a stipulated period of time. Once the buyer of put exercises his option (before the expiration date), the seller of put has no other choice than to purchase the asset at the strike price at which it was originally agreed. The buyer of put expects the value of asset to decrease so that he can purchase more quantity at lower price.

Strike price is the pre-determined price at which the buyer and seller of an option agree on a contract or exercise a valid and unexpired option. While exercising a call option, the option holder buys the asset from the seller, while in the case of a put option, the option holder sells the asset to the seller.



Put options can be compared to buying insurance. The Company is protected against fall in price, but participate fully when price is rising

Example: A gold manufacturer

- A put option available in MCX effectively creates a floor price in exchange for an option premium. This premium reflects the likelihood that the option will be exercised. In other words, the farther the strike price is from trading levels, the lower the amount of premium paid upfront.
- The put option will reference to the underlying MCX gold futures price.
- At the end of each period, the price of the underlying is compared to the option "strike" price.
- If the price of underlying < the strike price, the Company can either square of the Options position and profit from rise in value of Option, as with the fall in gold prices, the premium for gold put option will rise. Given that option contracts traded in India are primarily European based options, on expiry of the options, the put buyer can exercise his option, which will result in creating a sell position in the underlying futures at the 'strike price', which can be squared off at the current market price, to realise profits.. This payment offsets lower prices in the physical market.
- If the settlement price > the strike price, the purchased option expires and is rendered worthless. But the Company benefits from higher prices in the physical market.



7. Benefits of Hedging Commodity Price Risk

Cash flow benefits

Working capital is the essence of any business and managing cash flow is a challenge for almost every company. Business owners as a result stay vigilant in order to keep the business financially viable. Fluctuating commodity prices especially on a significant part of the value chain can cause cash flow fluctuations in the business. Hence, forecasting and protecting future cash flows become vitally important. Difficulties in liquidity as a result force the company to undertake short-term financing arrangements to address the liquidity deficit – which increases the costs to the company.

One of the advantages of hedging commodity price risk is the ability to minimize cash flow fluctuations attributed by commodity price movements. Hedging insulates the company from such volatile price movements, and is poised to stabilize cash flow volatility by creating an offsetting impact in case of commodity price fluctuations – with the aim to almost achieve a zero-sum game for the commodity exposures covered under that hedge.

For those companies that are exposed to the same pricing benchmarks on its costs and revenue side, using a net exposure approach in its hedging program, if done correctly, helps mitigate the overall exposure to fluctuating commodity price with the net exposure being hedged – therefore additionally protecting that portion of the impact of the exposure from fluctuating commodity prices.

P/L offset and accounting benefits

The advent of Ind AS (as explained in the subsequent section) has allowed for Indian companies to realize the impact on their hedges and exposures on the P/L thereby offsetting the impact on the P/L – which as a result helps the company to reduce P/L volatility attributed to fluctuating commodity prices.

Furthermore, Ind AS allows for hedges undertaken against highly probable forecasted exposures – which are off balance sheet items, to not have their MTM impact realize on the P/L – till the time this exposure is recognized as a balance sheet item. Therefore, the lop-sided impact on hedges as done

earlier is now moved away from the P/L thereby adding additional stability to the P/L volatility attributed to fluctuating commodity prices. However, it is essential that the hedge-exposure relationship is based on offset and not on the same side.

Cost benefits

Hedging the commodity price risk using exchange traded derivative contracts tends to lower the cost of hedging as compared to undertaking an over-the-counter derivative contract for the purpose of hedging – especially where the traded derivative contract is highly liquid. This is largely attributed to the lower spreads on the quoted derivative prices as compared to the over-the-counter market which do not require any additional negotiation (again as done on the over-the-counter market) and the true cost is primarily attributed to margin maintenance. This is essential for those companies that do not have the necessary ability to pass on the costs of commodity price fluctuation and hedges on to the customer – due to competition and other market pressures.



8. Understanding Hedge Accounting

Hedging programs of companies have typically evolved with the dual objective of protection of cash flow margins and protection of reported earnings against price volatility in financial statements. Over the past few years, as the evolution in accounting standards didn't always keep pace with innovation in hedging strategies and financial instruments, the dual objectives of cash flow protection and reported earnings protection tended to be at cross purpose. This led to companies that structured hedging strategies that focused on achieving either one of the two objectives or at times wavering between these objectives. As a result, stakeholder confidence in hedging programs was challenged at each reporting date.

Until recently, under Indian GAAP, there wasn't any comprehensive literature for accounting for financial instruments. While AS-13 Accounting for Investments dealt with the accounting for investments in the financial statements and related disclosure requirements, it did not cover the classification and measurement of financial liabilities. While some other standards covered some other aspects of financial statements such as AS-11 Effects of Changes in Foreign Exchange Rates covered certain foreign exchange contracts – however these requirements were never as robust as per the International accounting standards. At that time, it was difficult to establish the relation between the hedged item/

exposure with the hedging instrument. Moreover, the ability of the offset on the P/L was not necessarily achieved through the hedging programs leading to a wide difference between the cash flow impact v/s the accounting impact from the hedging program.

Additionally, where hedges were taken on forecasted exposures, companies were unable to showcase the offset as the effect of change in the commodity/ currency rates on the forecasted exposure did not show on the P/L being an off-balance sheet item while the effect of change in the commodity/ currency rates (or MTM) on the hedging instrument had to be taken into P/L, especially in the case of MTM loss – therefore creating a lop-sided view on the profitability of the Company.

Upon transition to the new accounting standards – Ind AS, with respect to financial instruments (covering Ind AS 32: Financial Instruments: Presentation, Ind AS 107: Financial Instruments: Disclosures, Ind AS 109:

Financial Instruments and Ind AS 113: Fair Value Measurement), focus on hedge accounting is primarily on Ind AS 109 where a risk component of a non-financial item will be eligible as a hedged item, provided it is “separately identifiable and reliably measurable”. This criteria would generally be met if the risk component is contractually specified. It is also possible that non-specified risk components meet the criteria in some cases. Allowing a closer match between the hedged risk and the hedging derivative has resulted in more common risk management strategies to qualify for hedge accounting and therefore, lesser volatility (i.e., ineffectiveness) in profit or loss.

Example – Contractually specified risk components - Entity P is a large manufacturer with an extensive network of factories and distribution outlets. Fuel costs are significant. To reduce profit or loss volatility, the entity's risk management strategy allows it to hedge a component of the fuel price risk using futures and swaps for periods of up

to three years. Entity P purchases fuel under a five year contract which specifies the formula for diesel price per litre. The amount of fuel to be purchased is not specified but vehicles fill up diesel as required. The volume used is billed on a monthly basis. In this case, the diesel price risk component is separately identifiable as it is contractually specified and reliably measurable. Entity P can choose to apply cash flow hedge accounting for the highly probable forecast purchase of the first million litres of fuel during each calendar month.

Example – Non-contractually specified risk components - Entity Q purchases coffee of a particular quality of specific origin under a contract with the supplier. The purchase price comprises (i) a variable element that is linked to the benchmark price for coffee which is of a different grade/quality; and (ii) a fixed spread to reflect the different quality that is being purchased. Entity Q enters into coffee futures to hedge its exposure to variability in cash flows from the benchmark coffee price and designates it as the hedged item. However, the changes in the fixed spread relating to different quality would be excluded from the hedge relationship.

With the advent of Ind-AS and the ability of applying hedging accounting under the Ind AS 109 in a comprehensive manner, companies now have an opportunity to align their commodity price risk management strategy with reported earnings. Additionally, companies also have an added opportunity for reducing hedging cost which had to be incurred to manage reported earnings. However, this will require companies to re-align their existing hedging strategies with the underlying fundamental business value chain of the company.

Accordingly the following principles are typically required to be adhered to by a Company using the hedge accounting approach:

- Link each commodity hedge to the commodity price risk strategy - Such linking has to be done at the inception of the hedge to prove intention at inception.
- Each hedge should be earmarked as a cash flow or fair value hedge at the inception of the hedge transaction. Cash flow hedges are those hedges where the underlying exposure is not yet considered as a balance sheet item while fair value hedges are those hedged where the underlying exposure has already been considered as a balance sheet item. It is important to differentiate between the two kinds of hedge given that the accounting treatment is different for the two. In case of cash flow hedges, the differential of the mark-to-market of the hedges and exposures will not enter the P/L but under the 'hedge fluctuation reserve' also wide known as 'Other Comprehensive Income'. However, in case of fair value hedges, the differential of the market-to-market of hedges and exposures will need to be considered within the P/L of the Company.
- All hedges are expected to be cash flow hedges if they are taken against budgeted exposures or orders which do not reflect on the books of accounts. It is important as part of the hedge accounting strategy to clearly earmark what constitutes a cash flow exposure and a fair value exposure.
- The hedge documentation should necessarily carry the deal rationale for each deal. Hedge effectiveness testing is required to be performed to offset principle for hedging – which is left to the discretion of the company's auditors. Hedge effectiveness testing shall be performed by assessing the cash flow offset from hedges and underlying exposures. The same method is required to be consistently followed irrespective of the hedging strategy or type of instrument.



Key disclosures for commodity price risk

Disclosures related to hedge accounting– With respect to disclosures under Ind AS 107 for hedging the commodity price risk in line with the Ind AS 109 accounting standard, a company is typically required to disclose the following:

Significant accounting policies –

Derivatives and Hedge Accounting Hedge accounting activities are disclosed in the significant accounting policies of a listed company's annual reports. The following components enumerates the various aspects covered in the disclosure:

- **Brief insight on the hedging framework:** For example, a company may provide an insight such as:

'At the inception of a hedge relationship, the Company formally designates and documents the hedge relationship to which the Company wishes to apply hedge accounting and the risk management objective and strategy for undertaking the hedge. The documentation includes the Company's risk management objective and strategy for undertaking hedge, the hedging/ economic relationship, the hedged item or transaction, the nature of the risk being hedged, hedge ratio and how the entity will assess the effectiveness of changes in the hedging instrument's fair value in offsetting the exposure to changes in the hedged item's fair value or cash flows attributable to the hedged risk. Such hedges are expected to be highly effective in achieving offsetting changes in fair value or cash flows and are assessed on an on-going basis to determine that they actually have been highly effective throughout the financial reporting periods for which they were designated.

- **Initial recognition and subsequent measurement of financial instruments** i.e. financial instruments used to hedge commodity, interest rate and foreign exchange risk. For example, the disclosure for an oil refiner may be:

'The Company uses various derivative financial instruments such as interest rate swaps, currency swaps, forwards & options and commodity contracts (such as futures and options) to mitigate the risk of changes in interest rates, exchange rates and commodity prices. Such derivative financial instruments are initially recognised at fair value on the date on which a derivative contract is entered into and are also subsequently measured at fair value. Derivatives are carried as financial assets when the fair value is positive and as financial liabilities when the fair value is negative.

Any gains or losses arising from changes in the fair value of derivatives are taken directly to Statement of Profit and Loss, except for the effective portion of cash flow hedges which is recognised in Other Comprehensive Income and later to Statement of Profit and Loss when the hedged item affects profit or loss or treated as basis adjustment if a hedged forecast transaction subsequently results in the recognition of a non-financial assets or non-financial liability.'

- **Explanation of the criteria for recognizing the treatment of a hedge as a cash flow and fair value hedge:** For example, the disclosure for an aluminium manufacturer may be:

'Fair value hedge - Changes in the fair value of derivatives that are designated and qualify as fair value hedges are recorded in the statement of profit and loss, together with any changes in the fair value of the hedged item that are attributable to the hedged risk. Hedge accounting is discontinued when the Company terminates the hedging relationship, when the hedging instrument expires or is sold, terminated, or exercised, or when it no longer qualifies for hedge accounting.'

'Cash flow hedge - The effective portion of changes in the fair value of derivatives that are designated and qualify as cash flow hedges is recognised in other comprehensive income and accumulated under the heading cash flow hedging reserve. The gain or loss relating to the ineffective portion is recognised immediately in the statement of profit and loss, and is included in the 'other gains and losses' line item. Hedge accounting is discontinued when the hedging instrument expires or is sold, terminated, or exercised, or when it no longer qualifies for hedge accounting. Any gain or loss recognised in other comprehensive income and accumulated in equity at that time remains in equity and is recognised when the forecast transaction is ultimately recognised in the statement of profit and loss.'

- **Re-classification of cash flow hedges to fair value hedges:** For example, a company may disclose the following:

'Amounts previously recognised in other comprehensive income and accumulated in equity are reclassified to the statement of profit and loss in the periods when the hedged item affects the statement of profit and loss, in the same line as the recognised hedged item. However, when the hedged forecast transaction results in the recognition of a non-financial asset or a non-financial liability, the gains and losses previously recognised in other comprehensive income and accumulated in equity are transferred from equity and included in the initial measurement of the cost of the non-financial asset or non-financial liability

- **De-recognition of financial instruments:** The Company derecognizes a financial asset when the contractual rights to the cash flows from the financial asset expire or it transfers the financial asset and the transfer qualifies for de-recognition

under Ind AS 109. A financial liability (or a part of a financial liability) is derecognized from the Company's Balance Sheet when the obligation specified in the contract is discharged or cancelled or expires.

Disclosures in Statutory Reports for listed companies

As per the SEBI (Listing Obligations and Disclosure Requirements) Regulations, 2015 (Notification dated September 2, 2015) for commodity price risk, a listed company is required to disclose the following in their corporate governance report:

- **General shareholder information/ other disclosures:** Information on exposure of the company to commodity price risk and hedging activities/ approach. For example, for a jewellery manufacturer, the disclosure of commodity price risk under the corporate governance report may be:

'Disclosure of commodity price risks and commodity hedging activities:

The Company uses financial derivative instruments to manage risks associated with gold price fluctuations relating to highly probable forecasted transactions and currency fluctuations relating to certain firm commitments. The Company has designated derivatives undertaken for hedging gold price fluctuations as 'cash flow' hedges relating to highly probable forecasted transactions.'

Risk Disclosures

A listed company also provides the associated risk related disclosures affecting the business performance within its annual report – in the Financial Instruments section in the notes to accounts/ financial statement part of the report. In case of commodity price risk, a risk disclosure for companies having significant exposure to commodity price fluctuations will capture this as a component of 'Market Risk' – usually termed as 'Price risk' in their disclosure.



As per Ind AS 107, providing qualitative disclosures in the context of quantitative disclosures enables users to link related disclosures and hence form an overall picture of the nature and extent of risks arising from financial instruments. The interaction between qualitative and quantitative disclosures contributes to disclosure of information in a way that better enables users to evaluate an entity's exposure to risks.

- Entities are required to disclose the exposure to risk and how they arise as well as the risk management objectives, policies and processes and methods used to measure the risk as part of their Qualitative disclosures
- Entities are required to provide a summary of the quantitative data about its exposure to that risk at the end of the reporting period based on the information provided internally to the key management personnel of the entity as part of their Quantitative disclosures
- Additionally, where commodity price risk is a part of market risk, the risk disclosure may also include a sensitivity analysis, such as value-at-risk, that reflects interdependencies between risk variables (ex. commodity prices and exchange rates) and uses it to manage financial risks – with respect to its methods and limitations.

For example – in the case of a jewellery manufacturer having a significant exposure to gold price fluctuations, a typical disclosure will look like the following:

Qualitative disclosure

'The Company is exposed to fluctuations in gold price (including fluctuations in foreign currency) arising on purchase/sale of gold. To manage the variability in cash flows, the Company enters into derivative financial instruments to manage the risk associated with gold price fluctuations relating to all the highly probable forecasted transactions. Such derivative financial instruments are primarily in the nature of future commodity contracts, forward commodity contracts and forward foreign exchange contracts. The risk management strategy against gold price fluctuation also includes procuring gold on loan basis, with a flexibility to fix price of gold at any time during the tenor of the loan. As the value of the derivative instrument generally changes in response to the value of the hedged item, the economic relationship is established.

Quantitative disclosure

Alternative 1: Exposure to one commodity

Particulars	Value*
Total exposure as on March 31, 20xx	INR 5,000 cr
Sensitivity to net profit at 10% movement	16%

Alternative 2: Exposure to two commodities

Particulars	Value*
Total exposure of commodity 1 as on March 31, 20xx	INR 5,000 cr
Total exposure of commodity 2 as on March 31, 20xx	INR 400 cr
Sensitivity of commodity 1 to net profit at 10% movement	16%
Sensitivity of commodity 2 to net profit at 10% movement	5%
Or Combined sensitivity of commodity 1 & 2 to net profit (using value-at-risk)	14%

*Illustrative value for representative purposes only



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