MUMBAI STEEL MANUFACTURERS

REPORT ON COVERING ASPECTS OF HEDGING

SUBJECT: FINANCIAL ENGINEERING-2,
RISK & INVESTMENT MANAGEMENT

ROLL NO: 712

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OUTLOOK

During the Investment Committee discussion, the various stakeholders discuss what they feel would emerge as key challenges in the implementation of this idea:

- ✓ Some of the stakeholders are not sure how Hedging would help the company since a fall in gas prices will not enable the company to gain if it has hedged its exposure. They felt that the idea would face resistance from the Board members as well since they seemed to be unsure of the benefits vis-à-vis the cost and risks

- ✓ The company has little or no knowledge about hedging and use of derivatives

- ✓ The current investment operations team has a front-office function responsible for dealings and a back-office function responsible for the documentation and day end tasks. Currently the company does not maintain any documentation of the processes in place and there is not much clarity on what would be the roles and responsibilities in the new framework

- ✓ The company has been using legacy systems for their investment operations and they are unsure of how they would be undertaking the automation since they do not have much experience with the same

ASSIGNED TASK

You are required to evaluate the benefits and concerns of using derivatives and provide an impartial view to the Investment Committee at its next meeting. You need to create a detailed document covering aspects of hedging and the need for the same and specifically covering the following aspects:

1. **What is the ideal plan for implementation of the Hedging program in a time bound manner?**

- Determine which risks and potential events are most concerning:

  A multi-asset portfolio with a target horizon over 20 years has a very dominant exposure to equity market risk. While returns to other holdings in a diversified portfolio can go down, public market equity has a greater impact on absolute portfolio risk than any other holding, due to large portfolio allocations coupled with high volatility. While other risks in a portfolio may also be material, and may certainly be worthy of hedging, this discussion is framed in terms of equity risks and solutions. With very subtle adaptation, this framework can also be applied to hedging risks stemming in the price of gas. Even in the case of equity market volatility, the investor must determine the type of market correction to protect against. Consider choosing between mild corrections and major tail events.

- Determine the time horizon for the hedge:

  A tactical hedge is one that has a short time horizon, but provides fairly solid protection. In addition to an accurate view on market direction, a tactical hedge to gas requires insight into the timing of a correction. A strategic hedging program is one that can be maintained on an ongoing basis. For this to be possible, the hedge cannot have an excessive time-value decay characteristic. If excessive time-value decay does exist, some sort of financing trade is usually needed to offset this loss characteristic. Find a provider that can help specify and manage solutions.

- Choosing suitable hedging instruments

  Listed futures - very low transaction costs make listed futures an attractive choice, and deep markets make them candidates for very large hedging needs. Available futures contracts can be blended in proper proportions to manage an ongoing hedge so that it matches the benchmark index underlying the equity mandates. Initial margin requirements are fairly low, so use of listed futures can be a very capital efficient solution.

Equity index options – Depending on the index, liquidity can vary for equity index options. Sensitivity to market declines or volatility increases can be useful, but upfront premiums and time decay are major considerations for investors choosing this type of hedge. Managing a basket of index options is more challenging than using futures, given that the sensitivity of each contract to the underlying market it represents (often referred to as the delta of the position) varies as markets move. Accessing several markets in listed options can be a challenge for documentation and operations. To mitigate these challenges, OTC equity index options are often more manageable.

Volatility-based instruments – The most liquid markets for volatility-based instruments are in the U.S. and Europe – so these instruments can result in an imperfect, cross-asset hedge. Still, these can be effective components of a tail-risk hedging solution for the total portfolio. These instruments are very volatile, compared to futures or index options, and they move dramatically within the day or the week; therefore, they are more suited to discretionary strategies run by an investment manager.

- Choosing where the hedging account fits into the statement of accounts

Generally speaking, hedge accounting should reside closest to what it is meant to protect. Equity-centric hedging should roll up in the equity composite. A multi-asset exposure management overlay should roll up at the total fund level. In a traditional defined benefit plan portfolio, or in other institutional portfolios without participant-level accounting considerations, reflecting impact at the total portfolio level often makes sense.

- Choosing required hedge precision:

Asset class hedges - Using a derivative based directly on the underlying asset is an obvious starting point. For example: hedge equity risk with equity index derivatives or hedge bond risks with interest rate and credit derivatives. Asset class hedges have a direct relationship and more consistent correlation to the holdings being hedged. This can be important in some jurisdictions, where regulations or tax laws require a minimum correlation test to allow for favourable hedge treatment.

Cross-asset hedges – When precise hedges for each asset class are not available, a single strategy can be used to more holistically hedge a multi-asset portfolio. Two common examples of hedges against general market risk are volatility-based derivatives and government debt derivatives (particularly in markets of major reserve currencies. With cross-asset hedges, the relationship between the asset and the hedge is less precise as the actual correlation between markets varies over any given time period.

2. **What type of derivatives can be used for commodity price risk management and why?**

   There are 4 types of derivates used to hedge the gas prices of sour steel company which are as follows:

- Forwards:

This is the simplest type of derivatives. A forward contract is a private agreement between a buyer and a seller where the buyer commits to buy — and the seller commits to sell — an asset on a specified date in the future at a presently agreed price. The parties involved can customize the terms of their agreement and settlement process as they want.

The underlying asset can be a physical asset or tradable equity, and price movement of the asset determines who gains and who loses in the transaction. If the price goes up, the seller loses while the buyer gains because he gets the asset at a lower price than the market value.

- Futures:

A futures contract is similar to a forward contract because it is also an agreement for the exchange of an asset (commodity, stock, index, bond, and others) on a future date at a presently agreed price. However, futures are traded in the secondary market — the exchanges — and are highly standardized, with rules and regulations backed by the clearinghouse.

In futures contracts, both parties interact through their brokers and the clearinghouse. In other words, the buyer and the seller don't enter into a private agreement. Instead, each party is in an agreement with the exchange. The exchange decides the size, format, and expiration of the contracts. So, the agreement is not customizable.

Furthermore, both the buyer and the seller provide initial and maintenance margin, which determines the amount of leverage, and the exchange enforces a settlement procedure that usually involves daily settlements of gains and losses by the parties involved. This helps to reduce the chances of counterparty credit risk.

Just like forward contracts, a lot of investors use futures to hedge against their risk exposures, and they may prefer futures because of the lower default risk. Some may be using it for speculation, while others may just be arbitrage traders.

- Options:

This is a contract which gives the investor the right to buy or sell a set amount of the underlying financial security at a pre-agreed price on or before the expiration of the contract. Options are mostly traded on the exchanges, although they can be traded over the counter.

The holder has the option to (or not) exercise the right, but the issuer is obligated to fulfil the contract if the holder chooses to exercise it. To have this special privilege, the holder has to pay the issuer a premium in advance. The amount of the premium is not directly related to the asset's price.

An investor can buy a call or put option. A call option gives the holder the right to buy an asset from the issuer at a specified price on a later date (prior to expiry) while a put option

allows the holder to sell an asset to the issuer at a specified price on a later date (prior to expiry).

- Swaps:

This is a type of derivative contract through which two parties can exchange their streams of cash flows within a specified period in the future. Swaps are about the most highly traded derivative and are mostly traded over the counter, making them highly customizable. But there are also standardized swaps that trade on the exchanges.

3. What are the points to be considered when deciding on the derivatives to hedge commodity price risk?

Key considerations for hedging gas price risk are as follows:

- 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.

- 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.

- 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-Avis liquidity and risks thereon.

- 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.

- Margin requirements:

  Margin requirements pertaining to initial margin and variation margins based on the contract size and volatility of the prices of the underlying commodity under consideration.

- Regulatory considerations:

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

4. How will you explain to the stakeholders that Hedging is indeed beneficial for the company rather than keeping its position open?

- Hedges are particularly popular with companies that have exposure to certain markets, such as commodities or interest rates. For instance, airlines and railroads spend substantial amounts for fuel for their operations, and so hedging future fuel costs can protect them against a spike in the market price for energy products.

- At the same time, commodity producers can open hedge positions that allow them to lock in fixed prices for their production in the future. If the price of that commodity goes down, then the hedge will protect the producer by rising in value to offset the commodity-price decline. Gas exploration and production companies provide a useful example of this use of hedging.

- Derivatives like Futures and options are very good short-term risk-minimizing strategy for long-term traders and investors.

- Hedging tools can also be used for locking the profit.

- Hedging enables the prices of gas to be prevented against the downfall/uprise of hard market periods.

- Successful hedging gives protection against gas price changes, inflation, currency exchange rate changes, interest rate changes, etc.

- Hedging can also save time as the long-term investor is not required to monitor/adjust his portfolio with daily market volatility.

- Hedging using options provide an opportunity to practice complex options trading strategies to maximize the returns on the gas price fluctuations.