# Hedging against ATF price volatility

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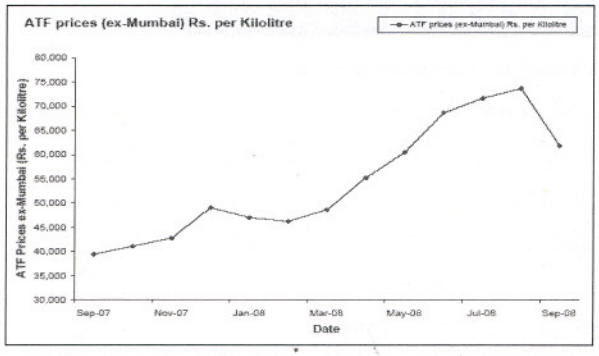
### The need to manage ATF price volatility

Until recently, the aviation companies in India were facing immense cost pressures as crude oil prices peaked to US$147.27 per barrel (11th July 2008), from a low of US$49.90 per barrel (18th Jan 2007). As a result, ATF (aviation turbine fuel) prices shot up sharply, adversely impacting margins of airline companies. The situation further exacerbated for some airline companies which had made grand efforts to enter the international sector (by purchasing more airplanes), resulting in significant losses.

However, from these peak levels, crude oil prices plummeted in the last quarter of 2008, and it has been quoting in a broad range of $30-50 per barrel since then. The impact of the fall reflected on ATF prices too, although the benefit was partially offset by the depreciation of the Indian rupee against the US dollar. Given the current low ATF prices, the airline companies are much better off today than what they went through about 3-4 months back.

Clearly, the industry developments last year highlight a key issue—to ensure cost control, it is imperative for airline companies in India to manage (or hedge) the ATF price volatility.

**Figure 1: ATF prices (ex-Mumbai)**




### Hedging against price volatility

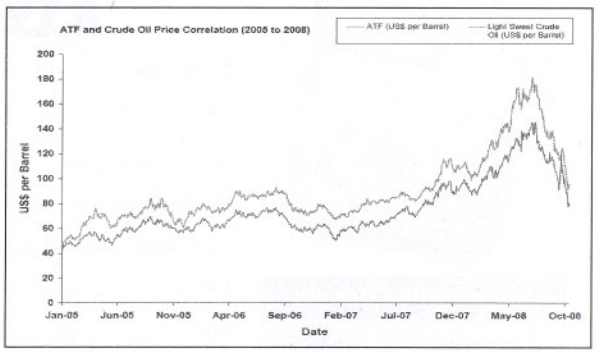
With the advent of commodity derivatives exchanges in India, it is possible for domestic aviation companies to adopt a two-pronged strategy to hedge against ATF price volatility.

⌘ The correlation between international light sweet crude oil prices and international ATF prices is as high as 98.78% (see Figure 2). However, rather than hedging their exposure in the international markets, Indian aviation companies can do so in, say, MCX crude oil futures contracts. The correlation between international ATF prices and MCX crude oil futures contracts is as high as 97.38% (see Figure 3). This ensures effectiveness in hedge positions using the MCX crude futures.

⌘ Simultaneously, in regard to depreciation of the rupee, it is possible for aviation companies to take a hedged position in USDINR futures contracts in the Indian currency derivatives exchanges.

This two-pronged strategy can prove to be an effective risk mitigation tool, insuring aviation companies from fuel price volatility. Hedging only in the international markets, however, does not protect aviation companies from rupee depreciation as the bulk of their ATF consumption in the domestic market come from the Indian oil refineries. Thus, hedging only in international markets would be ineffective, unless ATF is imported directly and paid for in US dollars or the hedge-denominated currency.

**Figure 2: ATF and crude oil price correlation(2005-08)**




Aviation companies issue flight tickets several weeks ahead of their customers' travel schedules. Due to competitive pressures, aviation companies are forced to

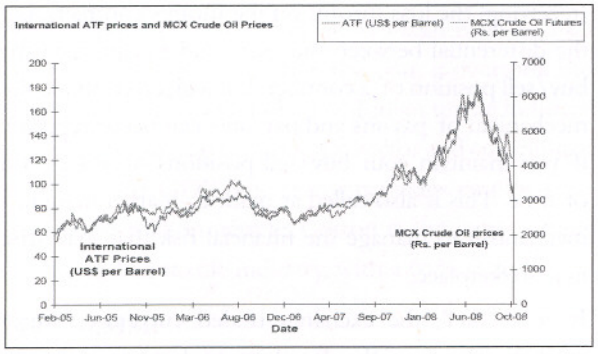
issue tickets at a discount, at least for their initial set of customers. The system of issuing flight tickets is based on a dynamic pricing strategy, depending on the demand for a particular flight. In spite of a cost-plus mark-up system for identifying prices for a particular flight, the unexpected volatility in fuel prices may result in losses.

### Hedge mechanism

In order to contain this volatility, it is essential for aviation companies to plan and estimate, months ahead, the procurement of ATF. Based on this expected demand, these companies can take a partial long hedge to lock into prices. The process of a long hedge involves taking a long (buy) position in crude oil or ATF futures contracts to protect against increase in fuel prices.

Hedgers can leverage on the high correlation and hedge effectiveness of MCX light sweet crude oil futures contracts to cross-hedge against their exposure to ATF. The hedger also needs to work out the number of futures contracts to hedge the physical exposure by calculating the hedge ratio. Hedge ratio takes into consideration the volatility of the changes in cash and futures prices as well as the correlation between the same. This also protects against an under-hedged or over-hedged scenario, thereby ensuring an optimal hedge position.

**Figure 3: International ATF prices and MCX crude oil prices**




Sophisticated treasury desks can ensure implementation of a dynamic hedge strategy, whereby the hedge is taken only when fundamental factors of demand and supply as well as technical analysis indicate an impending increase in ATF and crude oil prices. Otherwise, a static hedge can ensure that the aviation company can lock into ATF prices for a specific period, irrespective of the price volatility.

Usually the near-month futures contracts are highly liquid with minimal impact cost, thereby reducing the transaction charges. Hence, the hedge strategy can involve a stack rolling hedge, whereby the hedged position can be rolled over after expiry of the near-month contract. Rolling over of positions refers to closing out of positions in the near-month contracts and taking fresh hedge positions in the futures contract of the next immediate month. The hedger also needs to track the basis risk. Basis is the difference between the cash market price and the futures contract price. The uncertainty of this difference remaining the same is referred to as the basis risk. The extent of basis risk in contango (normal) and backwardation (inverted) markets needs to be analyzed.

### Cost of not hedging

Historical analysis of crude oil futures prices and ATF prices indicate that Indian aviation companies could have benefited immensely by hedging their exposure to the ATF price volatility. In the end, those companies that allow the vagaries of commodity price volatility to govern their financial performance would suffer huge losses. On the other hand, nimble-footed companies which are able to achieve savings through a robust hedge strategy can provide the extra cost benefit. However, in the process, corporates need to ensure that adequate risk management control systems are in place in their hedge-desk operations. This should ideally include effective decision-making systems and real-time monitoring of risk limits.

It remains to be seen which of the Indian airline companies survive this tumultuous period. Some of the world's most successful airline companies innovate and re-engineer their costs effectively by hedging against commodity price risk. In an age when the customer has a choice of brands to choose from, the ultimate winner would be the one that incorporates the best hedge practices to manage commodity and currency price volatility.

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