

# Tiralis Global

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## AIRLINE FUEL HEDGING

A thankless but valuable task?

Mark Hackforth-Jones, Head of Risk Management Services at Tiralis Global, discusses airlines' sensitivity to fuel price and the arguments for and against fuel price hedging.

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### Size of Fuel Bill

Almost everyone involved with airlines agrees that one of airline management's biggest headaches is the cost of jet fuel. Not only is it by far the largest component of airlines' cost base, currently amounting to about 24% of their turnover or about 5 times as much as their combined net profit, but it is also one of the most volatile. Tiralis' Airline Insights database of some 150 airlines shows that in the most recent 12-month period for which data is available as of end '18 there was a total spend of \$153 billion on fuel, compared with IATA's latest 2018 estimate of \$180bn for the entire industry.

Given the size of the fuel bill it is important in the view of many airline industry professionals for airlines to fix or at least cap the cost of part or all of this enormous cost. Airline fares are typically set and sales made well in advance of travel. Those that do not adopt dynamic pricing can alter their posted fares and all normally have the option to impose fuel surcharges on pre-booked flights, although competitive pressures usually make such surcharges (when allowed by government regulators) a last resort measure. The physical fuel suppliers rarely agree to fix prices more than 30 days forward, which means airlines have to take out separate derivative contracts to address this issue. This process is known as fuel hedging.

### What is hedging and how does it work?

Common sense and of course normal business practise in all types of business suggest that airlines should hedge some or all of their fuel cost to avoid extraordinary movements in their P&L, yet many airlines do not hedge their fuel cost. How can this be?

To get to the bottom of this, it is helpful to understand how hedging transactions work and their limitations. Essentially what they seek to achieve is a smoothing of the volatility of the overall fuel cost, and airlines who hedge know perfectly well that they are as likely to lose money on the hedging transaction as to make it. What matters is of course the end result, when the results of the hedges are put together in the P&L with the actual price paid for the jetfuel. Hedging the forward price of any item can be done in two main types of transaction, both of which of course have a cost and importantly may give rise to major credit exposures for both parties.



The size of these exposures is one of the principal reasons why many airlines do not hedge. Many hedging agreements are secured by mutual margining agreements, obliging either counterparty to post cash or similar collateral to the extent that the Mark to Market value of the hedge exceeds an agreed threshold. An outright forward purchase of the item can be agreed for a specified delivery date, with the contract settled for the difference between the pre-agreed price and the then spot price (generally referred to as “swaps”). The cost of this approach is mainly driven by the client’s cost of credit and the supply/demand situation for the commodity.

Alternatively, an option can be purchased by the client entitling it to purchase (“call”) the item if the spot price is higher than the option price, or to let the contract expire if it is lower. Options are of course much more expensive than swaps driven mainly by the volatility of the underlying commodity, so many clients offset the cost of the call by selling a “put” obliging it to take the item in case the price of the commodity falls below a lower level, which means it is covered for the price risk in a band rather than at an outright single level.

Any of these contracts other than an outright call option give rise to counterparty credit risk in the amount of the likely difference between the pre-agreed strike price and the actual spot price at maturity. This difference can be estimated based principally by reference to the price volatility of the item and the length of time until maturity.

### Derivative Cost Considerations

The volatility of the oil price is relatively high, for periods of around a year the credit risk factor counterparties may use to estimate this can be as high as 50%. So, for a major airline a major decline in the price of oil could lead to a massive margin call. At the extreme, lets take Delta Airlines, annual fuel bill to 9/18 of \$12bn. If fully hedged for 12 months and a large say 50% fall in the oil price occurred, they could be obliged to make margin calls on one day of say \$6bn. Their current cash balance is \$836m, so they would have an issue, even though of course in the next period their fuel price would have halved.



### Policy not to Hedge

Despite their much improved credit standing over the last decade, most US airlines still do not hedge because of credit constraints, the notable exception being investment grade Southwest Airlines. The US airlines make no secret of their unhedged position, so investors are fully forewarned. Because most airlines in the US market are unhedged, it is easier for airline managements to make the case for their unhedged stance, and indeed a key part of any hedging strategy is to ensure your cost base is not dramatically out of line with that of your competitors. Emirates also make no secret of their lack of fuel hedging, they stopped hedging several years ago after it was necessary for the shareholder, the Dubai Government to step in and take over the offending contracts when Emirates itself was in danger of being unable to meet margin calls following a steep decline in the fuel price. But their lack of hedging compares unfavourably with the hedging carried out by most of their competitors. Luckily for them, they have a supportive 100% shareholder who stands fully behind their strategy even though their recent margins have been hard hit.

### Other Issues to Consider

Besides this important credit and volume constraint and the associated margining issue, there are several other difficult issues to overcome to achieve a cost-effective fuel hedging programme. These include:

**Hedge Effectiveness:** Airlines want to hedge jetfuel, whereas the most cost-effective market for hedging large volumes is found in crude oil. But the correlation between jetfuel pricing and crude oil (the “Crack Spread”) is not good, meaning hedging via crude oil can be inefficient. Delta Airlines have taken the unique step of actually buying an oil refinery to mitigate its exposure to the crack spread by ensuring an ample supply of jetfuel from amongst the refined products available.

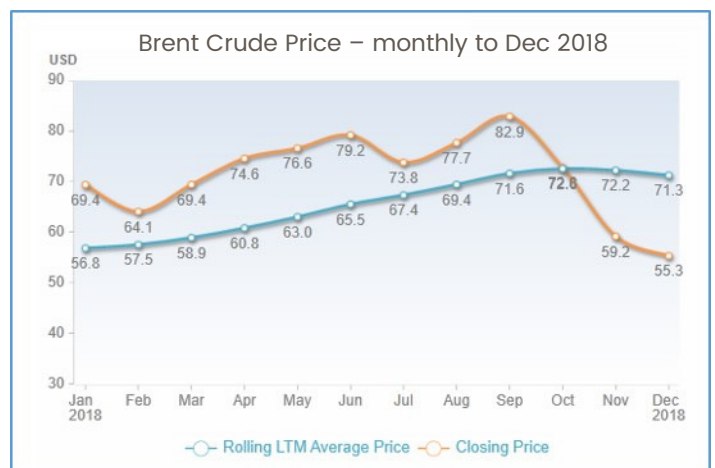
**Foreign exchange:** All oil and jetfuel transactions are priced in USD, whilst most non-US airlines keep their accounts in their own home currencies. So, the USD fuel hedging activity will likely need to be part of a foreign exchange programme as well, adding further to the cost and complexity of the hedging.



**Accounting issues:** Global accounting standards under IFRS9 require that hedging programmes be tested for effectiveness against the underlying exposure to entitle the hedging counterparty to postpone unrealised gains/losses from entering the P&L until actual maturity of the hedge by taking them straight to equity. But if any hedging structure does not pass the 95% effectiveness test, the unrealised gain/loss must be taken straight to P&L rather than deferred. Collar transactions and the like often struggle to pass hedge effectiveness tests, causing unwanted unrealised hedging losses to feature in the P&L ahead of the maturity of the underlying contracts.

### Recent Developments

2018 was a year with plenty of excitement on the fuel cost front. The good news was that the oil price unexpectedly fell sharply in the last quarter of the year, ending the year down 20% year on year at \$55 per barrel, and 33% down on the peak month end price of \$88. But this favourable development was accompanied by a dramatic increase in oil price volatility, ending the year at the highest levels seen for the last decade and more than twice the level seen earlier in 2018



Source: Chicago Board Options Exchange

Source: Investing.com & Airline Insights

High volatility naturally brings greater uncertainty about future prices and the cost of options to hedge future prices rises in step. .



### Hedging Correlation with Share Price?

During this last year when oil prices have fallen by about 20% you might reasonably expect airlines who have not hedged fuel to see share price rises on the back of this sharp fall in their biggest input cost.

We have done some research to see how true this is. We looked at the extent of fuel hedging amongst a sample of 48 airlines in our database as of y/e 2018 that disclose their current position on fuel hedging and the cost of fuel in their P&L. What we found surprised us; there was little difference in the share price performance to end '18 of the airlines that hedged fuel and those that did not, as shown in the table below.

**Brent Oil Price - 12 mth change to 12/18 vs airline & world share price**

Airlines with:	No. of airlines	1 year ch in average airline share price	1 year change in world stock market*	% ch in oil price	% ch in oil price volatility*
No Fuel Hedging	10	-28%	-11%	-21%	243%
< 20%	6	-24%	-11%	-21%	243%
20 - 35%	8	-20%	-11%	-21%	243%
35- 60%	15	-22%	-11%	-21%	243%
> 60%	9	-26%	-11%	-21%	243%
<b>Average</b>		<b>-24%</b>	<b>-11%</b>	<b>-21%</b>	<b>243%</b>

\*MSCI world stock index & Chicago Board crude 1 mo oil volatility

Source: Investing.com & Airline Insights

Needless to say, investors have a vast array of considerations in mind when assessing share prices, and they may well have judged as of year-end 2018 that the potential effect of the slowdown in world economic growth on demand for air travel may far outweigh the benefits of airlines' lower cost base. Doubtless they may also have been mindful of the extraordinary volatility of the oil price in recent months, or what comes down can go up too!



### Correlation with Share Price Volatility?

We then focussed our research on airline share price volatility, asking ourselves the question “As airline fuel hedging is designed to smooth out the effect of the volatile oil price, do the share prices of airlines that hedge fuel display less volatility than those that do not?”

Here the results of our sample provided a welcome answer for those companies that devote substantial resources to fuel hedging.

Airlines with:	No. of airlines	Share Price Beta	Annual fuel bill as % LTM sales*
No Fuel Hedging	10	1.38	26%
< 20%	6	0.92	31%
20 - 35%	8	1.12	28%
35- 60%	15	0.94	23%
> 60%	9	0.76	19%
<b>Average</b>		<b>1.00</b>	<b>25%</b>

This analysis showed a definite positive correlation between those airlines that hedge their fuel and a less volatile share price. The Beta of a share price measures its volatility as against the principal index in the stock market in which it is listed, and here we see clearly that currently unhedged airlines tend to have a much higher Beta than those that hedge. A lower Beta is often associated with companies that have a more stable earnings outlook and will work through into a lower cost of equity.

\*Last 12 months reported figures as at 12/18

Source: Investing.com, & Airline Insights

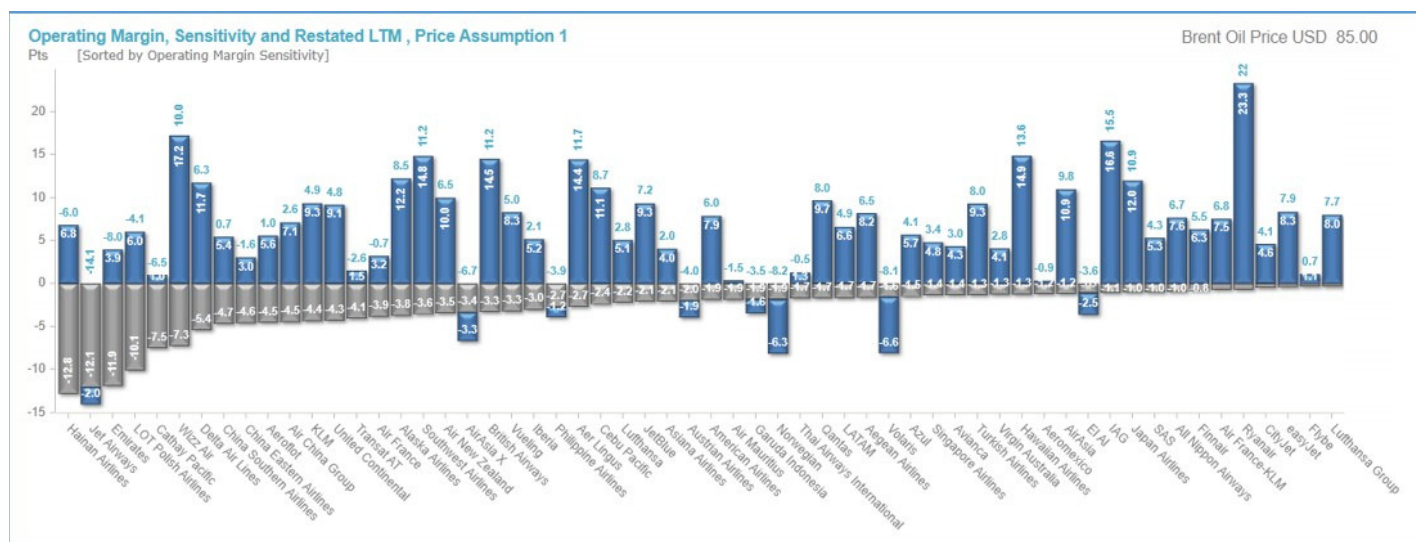
Amongst the airlines in our sample with low Betas were easyJet, IAG, Ryanair and Lufthansa, whilst the high Beta non-hedging airlines included American Airlines, China Southern Airlines and Air China.

We noted too that airlines that have hedged tend currently to have a lower level of fuel costs relative to turnover than those that have not, suggesting that likely the hedging has been paying off in P&L terms in the last 12 months.



Credit Risk assessment tends to be more favourable of airlines with a fuel hedging programme

Regardless of share price performance, there is absolutely no doubt that credit markets put a high value on the extra stability of earnings provided by a hedging programme. Like most credit analysts we at Tiralis do sensitivity analysis on key factors for airline credit health, and our database has useful features enabling us to analyse and benchmark airlines against each other, including operating margin sensitivity to fuel price changes. An illustration is in the table below, which identifies the impact on LTM operating margin if the Brent crude oil price had been \$85 per barrel.



Source: Investing.com & Airline Insights

The fact that, for now, the fuel price is down does not mean that one of airlines' biggest headaches has gone away for ever!



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