

Southwest Airlines Fuel Hedging and Relations to Profitability

A Case Study in Cost-effective Fuel Management

Abstract

In order to stay airborne, a passenger airline has to consistently generate profits. Profits come only from paying passengers, hence all stratagems must be customer oriented. In a scenario where there are many airlines competing with each other, one way of attracting passengers is to keep the cost of flying low, while providing value for money. On the other hand, expenses must tightly controlled to reach and stay at the lowest possible. Certain expenses are unavoidable; however, one variable that can be kept low through decisive planning and foresight is the cost of fuel, which, at best, can be called volatile. A good way to achieve this is by hedging fuel cost, which is a complex, but rewarding process, as Southwest Airlines proves beyond doubt.

Southwest Airlines Company: A Case Study in Managing the Cost of Aviation Fuel**Introduction:**

Southwest Airlines Company, an American low-cost airline is the third largest airline in the world as well as the U.S.A. by the number of passenger aircraft among all of the world's commercial airlines (Arlene Fleming, About.com Guide; nationsonline.org), operating more than 540 Boeing 737 aircraft today between 67 cities in the U.S.A. (Southwest Airlines Fact Sheet of 2008). Today, Southwest operates approximately 3,300 flights daily and boasts of being the only major airline to post profits every year for the last thirty six years. It justifiably claims to be the United States' most successful low-fare, high frequency, point-to-point carrier (southwest.com).

Given the fact that it is a no-frills airline, it is still streets ahead of other low-cost carriers the world over and, in an atmosphere darkened by virtually global recession— where almost every airline is cutting back on staff, leased aircraft, number of sorties per day and skipping low or loss-making sectors— the fact that it has been rarely gone into the red is most impressive. It would be worthwhile examining its modus operandi and strategies employed to stay profitable every year, though it did suffer a minor hiccup when its nose just dipped under the waterline in two quarters in 2008. Southwest keeps its aircraft in flight for more than twelve hours a day, with carefully selected destinations that could be called secondary airfields (southwest.com), which facilitate fast turnaround averaging less than fifteen minutes from switching off and which charge low administrative fees. Using the same logic, they use only one aircraft type, the Boeing 737 which has a reasonable passenger capacity of around one hundred and twenty five to one hundred and fifty. These are fitted with the most fuel efficient engines and aerodynamically lowest drag wet wings available. (simaviation.com).

Strategies for Cost Control

Some facts need to be listed prior to studying Southwest Airlines' strategy in terms of cost cutting on fuel consumption. These are taken from its Factsheet 2008 (southwest.com):

- The Company's fleet has an average age of approximately 10 years.
- Southwest's average passenger airfare is \$113.97.
- The average aircraft trip length is 635 miles with an average duration of one hour and 55 minutes. It must be noted that such large averages are possible in North America only.
- Southwest aircraft fly an average of 6.2 flights per day, or almost 12 hours and 9 minutes per day.
- It has the lowest turnaround time after switching off, post flight, averaging fifteen minutes. Holding time on the ground is thus minimized.
- In 2008, Forbes magazine ranked the dependability of U.S.A.'s 10 major carriers and Southwest Airlines topped the list as the number one Most Reliable Airline.
- After soliciting feedback from almost 10,000 travelers, SmarterTravel recognized Southwest Airlines as 'Best Airfare Prices' in its Readers' Choice Awards in fall 2008.

This meant that more and more passengers flew with Southwest.

Hedging Fuel

Jet fuel represents a critical expense category for any airline that bears its own fuel costs and most airlines bear at least 80% of its fuel costs. Fuel has consistently been one of the largest expense categories for domestic airlines, ranking second only to personnel expenses. During 2003, fuel costs represented, on average, over 16% of the total operating expenses for all U.S. domestic airlines studied by Richard Cobbs and Alex Wolf (2004). Moreover, airlines are generally unable to increase fares to offset any significant increase in fuel costs. From 2001 to

2003, these same airlines experienced a 25.9% compound annual increase in jet fuel costs while average airline pricing decreased by 0.1%, as measured by revenue per available seat mile (Cobbs and Wolf, 2004). Jet fuel costs have substantially risen over the past several years putting consistent pressure on airlines to maintain positive cash flows. Any saving in fuel costs works out to profit earned.

In fuel-intensive arenas such as the Airlines Industry, high and volatile fuel prices can have a significant impact on the bottom line, not to mention adding to the difficult task of budgeting for future fuel expenditures. If fuel costs are not actively managed, they can lead a company into losses. Airlines can mitigate their exposure to volatile and potentially rising fuel costs, as well as natural gas and electricity costs, through hedging. Hedging allows the fuel market participants (companies that consume large quantities of fuel and other energy commodities, like airlines) to lock in prices and margins in advance, while reducing the potential impact of volatile fuel prices. (Corley, Rock Products, 2008).

‘Hedging’ items is a standard practice in almost every field that involves finance, including market players in precious metals like Gold, Silver and Platinum. Other terms like ‘futures’, ‘derivatives’, etc. in the Stock Market have a similar connotation. Richard Cobbs and Alex Wolf, in their White Paper, ‘Jet Fuel Hedging Strategies: Options Available for Airlines and a Survey of Industry Practices (2004)’, say that while fuel costs may be hedged, there is no perfect hedge available in either the over-the-counter or exchange traded derivatives markets. Over-the-counter derivatives on jet fuel are very illiquid which makes them rather expensive and not available in quantities sufficient to hedge all of an airlines’ jet fuel consumption. Exchange-traded derivatives are not available in the United States for jet fuel, so airlines must use futures contracts on commodities that are highly correlated with jet fuel, such as crude and heating oil.

As such, airlines employ a variety of strategies ranging from not hedging to fully hedging using a combination of products. Domestic airlines have a variety of hedging strategies available to them. These include using both over-the-counter and exchange-traded derivatives and remaining unhedged.

Options, including collar structures and swaps are the primary derivatives used by airlines. Many airlines, including Southwest, stated that they prefer over-the-counter derivatives (OTC) to exchange traded futures because they were more customizable. (Presentation by Southwest, Dallas, U.S.A., 2003). OTC derivatives are traded directly between the airlines and investment banks, and as such have counterparty risk that must be considered. Therefore, airlines like Southwest prefer to trade with three or four different banks to diversify this risk and also to get the best pricing possible (ibid). Southwest Airlines evidently kept their ears close to the ground by going in for very high levels of futures before Iraq and Desert Storm drove oil prices upwards. The Airline went in for even more hedging in 2004, 2005 and early 2006 in anticipation of oil prices surging to unprecedented levels (buck.com).

Study of Annual Reports (K-10) 1999-2008

The annual report of Southwest Airlines was studied for every year from 1999 to 2008. Not much data is available for 2009, for evident reasons.

Aviation Fuel 2000: The cost of fuel impacts the Company's operating results significantly. The Company's average cost of jet fuel per gallon for scheduled carrier service over the preceding five years was as follows:

1995	\$.55
1996	\$.65
1997	\$.62

1998	\$.46
1999	\$.53
2000	\$.79

Prior to 1999, the Company's principal hedging program utilized the purchase of crude oil call options at a nominal premium and at volumes of up to 30 percent of its quarterly fuel requirements. However, in order to provide greater protection against increasing fuel costs, the Company significantly increased its hedging activities during the first half of 1999. During the second half of 1999, the Company did not have a significant portion of its fuel purchases hedged. As of February 24, 2000, the Company had hedged its exposure to fuel price increases for approximately 57 percent and 85 percent for first and second quarter 2000, respectively, and 100 percent for the third and fourth quarters (sec.gov/edgar.shtml, 2001). More details became available with each passing year and are reflected in the table below.

Table 1: Expenses, Operating Costs and Cost of Fuel

Year	Cost(\$ Millions)	Average Cost per Gallon	Percentage of Operating Costs
1998	\$388.3	\$.46	11.2
1999	\$492.4	\$.53	12.5
2000	\$804.4	\$.79	17.4
2001	\$770.5	\$.71	15.6
2002	\$762.1	\$.68	14.9
2003	\$830	\$.72	15.2
2004	\$1,106	\$.92	18.1
2005	\$1,470	\$1.13	21.4
2006	\$2,284	\$1.64	28.0
2007	\$2,690	\$1.80	29.7

Sources: sec.gov/edgar.shtml (2008), buck.com

Note:

1. Average cost of jet fuel is net of hedging gains and includes fuel taxes
2. From October 1, 2001 to December 31, 2001, the average price per gallon was \$.6030.

3. From October 1, 2002 to December 31, 2002, average cost per gallon was \$.71.
4. From October 1, 2003 to December 31, 2003, average cost per gallon was \$.74
5. Southwest reclassified fuel sales and excise taxes for the years 2004 through 2007 from “Other operating expenses” to “Fuel and oil expense” in order to conform to the current year presentation. Average fuel cost per gallon figures, as well as percentage of operating expenses, have also been recalculated based on the restated information.

Southwest reported a profit of \$235 million and saved approximately \$351 million during the first six months of 2005. If Southwest hadn't hedged, that profit would have been a \$116 million loss and the first time in 57 consecutive quarters that the company did not report a profit according to Andrew Samwick, writing at

voxbaby.blogspot.com/2005/09/should-airlines-hedge-fuel-costs.html (Grossman in USA Today, July 2005).

Fuel Price Impact in 2008

During 2008, the cost of fuel fluctuated greatly, as the price of a barrel of crude oil soared from near \$100 in January 2008 to almost \$150 in July 2008, then plummeted to below \$35 at one point during the fourth quarter of 2008, (sec.gov/edgar.shtml). The table below shows Southwest's average cost of jet fuel, net of hedging gains and including fuel taxes, over the past five years and during each quarter of 2008:

Table 2: Expenses, Operating Costs and Cost of Fuel per Quarter of 2008

Qtr	Cost(\$ Millions)	Average Cost per Gallon	Percentage of Operating Costs
1	\$800	\$2.13	32.8
2	\$944	\$2.42	35.5
3	\$1,051	\$2.73	37.5
4	\$918	\$2.49	34.5

Sources: sec.gov/edgar.shtml, buck.com

2008 was a bad year for the airline industry in general, but not too bad for Southwest. Mercurial fuel costs and the downward spiraling domestic economy had industry-wide ramifications. The pogo-stick price variations of a barrel of crude oil from almost \$100 to \$150 per barrel between January and July 2008 to below \$35 in the fourth quarter of 2008 hurt Southwest but the Airline's foresight kept it chin-high with cash savings of almost \$1.3 billion during 2008. 2009 is proving to be a tricky year for Southwest as fuel costs have dropped sharply; the Company had decided to reduce its hedging considerably, but full effects will only be seen early next year. Moreover, reading between the lines, it is less protected against future increases (sec.gov/edgar.shtml). The net income of the Airline for the period 1999-2008 is shown in Table 3 below.

Table 3: Net Income of Southwest Airlines 1999-2008

Year	Net Income \$ Millions
1999	0. 474,378
2000	0. 625,224
2001	511
2002	241
2003	442
2004	313
2005	548
2006	499
2007	645
2008	178

Sources: sec.gov/edgar.shtml, buck.com

Table 4 on the next page will show exactly how much Southwest Airlines resorted to hedging.

Table 4: Airline Fuel Expense and Hedging Summary

Airline Fuel Expense and Hedging Summary									
Fiscal 2003									
	Available Seat Mile	Per Available Seat Mile		Fuel as a % of Operating Expense	CURRENT RATIO	YEARS FUEL HEDGED	Max Maturity Of Hedged Fuel	Average % of Fuel Hedged	
Company	Millions	Revenue	Fuel Expense					FY 04	FY 05
Airtran Holdings	1 0,046	\$0.091	\$0.018	21.5%	2.61x	1999–2005	2.0	35.0%	12.0%
America West	2 3,373	0.096	0.016	16.4%	1.21x	1997–2004	1.0	11.0%	0.0%
American	1 65,209	0.106	0.017	15.2%	0.71x	1993–2005	2.0	12.0%	4.0%
Continental	7 8,385	0.113	0.016	14.5%	0.90x	1996–2003	1.0 0	.0%	0.0%
Delta	1 34,000	0.099	0.014	13.8%	0.75x	1996–2004	3.0	32.0%	0.0%
Midwest Air	2 ,968	0.073	0.027	19.6%	1.38x	1997–2003	1.0	0.0%	0.0%
Northwest	8 8,593	0.107	0.018	15.9%	0.93x	1997–2004	1.5	0.0%	0.0%
Southwest	7 1,790	0.083	0.012	15.2%	1.34x	1997–2007	4.0	82.0%	60.0%
United	1 36,630	0.100	0.015	13.7%	0.66x	1995–2003	2.0	0.0%	0.0%
US Airways	5 8,106	0.118	0.014	11.7%	0.80x	94–97 00–05	2.0	30.0%	5.0%

Source: Company SEC filings and Carter et al. (2002)

The amount of hedging done by Southwest is clearly evident from the table above.

Conclusion

With almost every airline left bleeding by vicious fluctuations in the price of fuel in 2008, only Southwest came out on the plus side, albeit with a reduced profit margin. Coupled with the analysis of its being the only airline in the world to stay out of the red for thirty-six years on the trot, re-enforced by a revised policy in the 1990s, it would be fair to say that its strategy of hedging fuel prices, to levels in sharp contrast with other airlines, contributed in no small measure to its continued success and profitability.

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