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ABSTRACT

Airlines need an enormous range of expensive equipment and facilities more than any other service business, from fleet to flight simulators and maintenance hangars. Because of this, the airline industry is a capital intensive business requiring large amount of money to operate effectively. Most equipment are financed through loans or leasing. Due to financial burden of purchasing the aircraft, airlines are using leasing option. This paper analyses the decision made by government owned airline in India for buying/leasing an aircraft. Conclusion is drawn based on the high advantages with respect to purchase value and leasing value by applying Schall model.

Keywords: Aircraft, leasing, buying, NPV, NAL, cost, replacement.

INTRODUCTION

Now a days people travelling by air has greatly increased because of its comfort and fastness. The airtransport industry carry 2,225 million passengers and 54 million tonnes of freight and it is one of the world's most important industries. There are a lot of employment opportunities for millions of people in air travel industry like pilots, stewards, mechanic, customer service representatives and designers. Also travel industry offers indirect jobs like airline catering, car rental, airport retail services, financial services and security. Recent survey says that air transport industry generates 29 million jobs directly and indirectly all over the world and it contributes US\$ 2,960 billion that is equivalent to 8% of world GDP.

There is a saying in the transport industry that if it flies or floats, you should rent it. However, airlines have traditionally bought their planes, even if many purchases were arranged as 'leases', with the installments as rent payments so as to make them tax deductible.

The selection and purchase decision of new aircraft is directed by top management and it involves personnel from maintenance, finance, marketing and flight operations. There are several factors to consider when planning new aircraft purchases and clarify several points with regard to need of replacement, fuel requirement, maintenance cost, number of passengers to fly, usage of the aircraft, etc.

Generally newer aircrafts are more efficient and cost less to operate than older aircrafts. As aircraft get older, maintenance costs also rise appreciably. Modern aircraft achieves fuel efficiency of less than 3 litres per 100 passengers / km or 78 passengers / miles per gallon. For example Boeing 727 is less fuel efficient than the Boeing 757 that was designed to replace it. Here productivity gains must be calculated against the cost of acquiring a new aircraft. An airline considering expansion into international markets need long range, wide body aircraft. The right sized aircraft for the market is vitally important. Too large an aircraft can mean that a large number of unsold seats will be moved back and forth within a market each day.

Since the purchase of aircraft takes time, airlines before placing new aircraft orders must do some economic forecasting. This is the most difficult part of the planning process, because no one knows the future. An economic recession coinciding with the delivery of a large number of expensive new aircraft can cause major financial losses. On the other hand, an unanticipated boom in the travel market mean lost market share for an airline that held back on aircraft purchases.

OBJECTIVES

The main objective of the study is to analyse the financial performance and decision with regard to aircraft leasing/purchasing.

Air India

Air India is a state owned flag carrier and the oldest airline in India and it was founded by J.R.D. Tata in July 1932 as Tata Airlines became a public limited company on 29-7-1946 under the name Air India and in 1948, 49% of the airline was acquired by the Government of India. In 2007, the Government of India announced the merger of Air India and Indian airlines. The combined losses for Air India and Indian Airlines in 2006-07 were Rs.770 crores (7.7 billion). After merger of the airlines, this went up to Rs.7,200 crores (72 billion) by March 2009. This was followed by restructuring plans which are still in progress.

Fleet Operation

The airline operates fleet of Boeing and Airbus aircraft serving Asia, Europe and North America. It is the 16th largest airline in Asia. The airline used fleet under different categories as follows:

Table-1: Air India Fleet operation - 2013

| Aircraft type | Owned | Sale Lease Back | Dry Lease | Total |
|--------------------------------|-----------|-----------------|-----------|------------|
| Operational Fleet | | | | |
| Wide Body | | | | |
| B787 Dreamliner | 8 | 4 | - | 12 |
| B777-200LR | 8 | - | - | 8 |
| B777-300ER | 12 | - | - | 12 |
| B747-400 | 3 | 2 | - | 5 |
| A330-200 | - | - | 2 | 2 |
| Wide Body Total | 31 | 6 | 2 | 39 |
| Narrow Body | | | | |
| A319 | 9 | 10 | 5 | 24 |
| A320 (NEW) | 4 | - | - | 4 |
| A320 (CLASSIC) | 8 | 6 | - | 14 |
| A321 | 8 | 12 | - | 20 |
| Narrow Body Total | 29 | 28 | 5 | 62 |
| Regional Aircraft | | | | |
| CRJ-700 | - | - | 4 | 4 |
| ATR42 | - | - | 7 | 7 |
| Regional Aircraft Total | - | - | 11 | 11 |
| Total Fleet | 60 | 34 | 18 | 112 |

Aircraft lease is used by airlines and other aircraft operators mainly for the purpose of operating aircraft without any financial burden of purchasing them and providing temporary increase in capacity. Air India mainly uses two types of leasing, dry leasing which is more normal for the longer term lease without insurances, crew, maintenance, etc. and sale lease back which is they owned equipment previously but sold to someone else and leased back. Whatever arrangements an airline chooses to pursue, its capital needs require consistent profitability.

Schall Model - Lease vs. Purchase

Lawrence D. Schall, Professor of Finance and Business Economics, University of Washington, propounded a lease-purchase model. This model is familiar with its practical aspects that can easily be understood. The decision to purchase or lease the asset is based on two values, Net present value (NPV) and Net present value advantage of leasing (NAL).

The project's NPV is calculated and if it is positive, the purchase is justified. Even if NPV is positive, NAL is calculated. If NAL is positive leasing is preferred and purchasing is resorted to if NAL is negative. Otherwise if the calculated NPV is negative, NAL is calculated to explore the leasing possibility. Leasing must be resorted only if the NAL is a) positive and b) greater than the absolute value of NPV.

NPV:

$$NPV = \sum_{t=1}^n \frac{ACF_t}{(1+k)^t} - A_0$$

NPV Asset's net present value

ACF Expected annual cash flow after taxes in year t.

k Minimum acceptable rate of return to the firm given the project's riskiness (used firm's WACC)

A₀ -Initial cash outlay

n Life of asset

NAL:

$$NAL = \sum_{t=1}^n \frac{O_t(1-T) - R_t(1-T) - TI_t - T\partial I_t - TD_t}{(1+k)^t}$$

O_t - Operating expense flows in period t that are incurred only if the asset is purchased

T- Marginal tax rate

R_t - Annual rental for period t

I_t- Tax deductible interest expense foregone in period t if asset is leased rather than purchased

T∂I_t - Lost interest shelter on the repaid debt

D_t - Depreciation expense in period t for asset

r - Interest rate on borrowed funds (this rate is used to discount relatively certain contractual, tax shield and operating cash flows; this rate is not adjusted for taxes)

V_n - After tax salvage value of asset expected in year

k - Discount rate used for determining the present value of V_n (this rate should reflect risk inherent in estimated V; after tax cost of capital is often used as a proxy for this rate)

A₀ - Purchase price of the asset

Lease-Purchase analysis:

1. If NPV is positive, the asset should be purchased only if NAL is negative & leased if NAL is positive.
2. If NPV is negative, the asset should be leased only if NAL is large enough to offset the negative purchase NPV.

Statement of the problem

While there has been a significant improvement in lease rentals, there has also been some degree of artificial inflation in both lease rates and aircraft pricing as a result of sale and leaseback transactions. The airlines have long recognized benefits of buying aircraft at a discount, which still persists even during today's environment, and then selling them to financial institutions at a premium even if a higher lease rental, negotiated to some extent by the weakness of the dollar, has to be paid. The renewed enthusiasm for aircraft financing has the potential to lead to unrealistic values and rentals. The global growth of low cost carriers and the shortage of wide body equipment to serve a burgeoning international market and to replace an ageing fleet, should counter some of the negatives of the weaker market. In this regard, an attempt has been made to know the leasing calculations.

Table-2: Purchasing Vs Leasing details for Boeing aircraft
(Amount in US\$).

| Boeing Aircraft | Aircraft Value | No of yrs | Lease rate | Bank borrowing rate % | Corporate Tax % | Rental cost % |
|-----------------|----------------|-----------|------------|-----------------------|-----------------|---------------|
| 747-400 | 85,000,000 | 5 | 20,000,000 | 15 | 25 | 8.58 |
| 777-300 | 56,000,000 | 5 | 15,000,000 | 15 | 35 | 8.68 |

Table-3: Aircraft Purchasing Vs Leasing for Boeing 747 - 400 (2009 - 2013)
(Amount in US\$).

| Year | Cost | Tax credit | Total Net Benefit | Discount Factor | Present value of Net Benefits |
|-------------------|------------|------------|-------------------|-----------------|-------------------------------|
| Purchasing | | | | | |
| 31/12/2009 | 85,000,000 | *** | 85,000,000 | 1.000 | (85,000,000) |
| 31/12/2010 | 85,000,000 | 8,228,000 | 8,228,000 | 0.909 | 7,479,252 |
| 31/12/2011 | 85,000,000 | 8,228,000 | 8,228,000 | 0.826 | 6,796,328 |
| 31/12/2012 | 85,000,000 | 8,228,000 | 8,228,000 | 0.751 | 6,179,228 |
| 31/12/2013 | 85,000,000 | 8,228,000 | 8,228,000 | 0.683 | 5,619,724 |
| | | | | NPV | 58,925,468 |
| Leasing | | | | | |
| 31/12/2009 | 20,000,000 | *** | 20,000,000 | 0.909 | 16,362,000 |
| 31/12/2010 | 20,000,000 | 7,000,000 | 13,000,000 | 0.826 | 10,738,000 |
| 31/12/2011 | 20,000,000 | 7,000,000 | 13,000,000 | 0.751 | 9,763,000 |
| 31/12/2012 | 20,000,000 | 7,000,000 | 13,000,000 | 0.683 | 8,879,000 |
| 31/12/2013 | 20,000,000 | 7,000,000 | 13,000,000 | 0.621 | 8,073,000 |
| | *** | 7,000,000 | 7,000,000 | 0.564 | 3,948,000 |
| | | | | NPV | 57,763,000 |

Table-4: Aircraft Purchasing Vs Leasing for Boeing 777 - 300 (2009 - 2013)
(Amount in US\$).

| Year | Cost or Rental | Tax credit | Total Net Benefit | Discount Factor | Present value of Net Benefits |
|-------------------|----------------|------------|-------------------|-----------------|-------------------------------|
| Purchasing | | | | | |
| 31/12/2009 | 56,000,000 | *** | 56,000,000 | 1.000 | (56,000,000) |
| 31/12/2010 | 56,000,000 | 5,420,800 | 5,420,800 | 0.909 | 4,927,507 |
| 31/12/2011 | 56,000,000 | 5,420,800 | 5,420,800 | 0.826 | 4,477,581 |
| 31/12/2012 | 56,000,000 | 5,420,800 | 5,420,800 | 0.751 | 4,071,021 |
| 31/12/2013 | 56,000,000 | 5,420,800 | 5,420,800 | 0.683 | 3,702,406 |
| | | | | NPV | 38,821,485 |
| Leasing | | | | | |
| 31/12/2009 | 15,000,000 | *** | 20,000,000 | 0.909 | 13,635,000 |
| 31/12/2010 | 15,000,000 | 5,250,000 | 9,750,000 | 0.826 | 8,053,500 |
| 31/12/2011 | 15,000,000 | 5,250,000 | 9,750,000 | 0.751 | 7,322,250 |
| 31/12/2012 | 15,000,000 | 5,250,000 | 9,750,000 | 0.683 | 6,659,250 |
| 31/12/2013 | 15,000,000 | 5,250,000 | 9,750,000 | 0.621 | 6,054,750 |
| | *** | 5,250,000 | 5,250,000 | 0.564 | 2,961,000 |
| | | | | NPV | 44,685,750 |

If the Boeing 747—400 aircraft is leasing, it will be highly advantageous to airline, because, while comparing the values, actual lease value (US\$ 57,763,000) is less than the purchase value (US\$ 58,925,468). So, it is preferable to lease the aircraft.

While comparing both the values, purchase value is less than (US\$ 38,821,485) the lease value (US\$ 44,685,750). So, it is preferable to purchase and it is highly advantageous to purchase the Boeing 777-300 aircraft.

Other Financial Issues

CRJ fleet - lease rent payment

In 2010 acquiring 110 new planes may have made strategic sense for the national carrier. Air India did not have the financial health to sustain a speed of Rs.50,000 crore. The airline's total debt was Rs.48,000 crore; half of them are from long term loans for aircraft purchase. The Controller and Auditor General of India (CAG) reported that the purchases are 'receipt for disaster'. Further the CAG raised objection over its financial performance that the company had paid lease rent amounting to Rs.2.50 crore for the idle period of 136 days without earning any revenue. This is due to delay in completion of exterior / interior logo painting and livery change, etc. The management stated that the painting work of aircraft was delayed due to non-availability of paint with Air India stores department and there were procedural delays to follow in ordering the paints and other materials. The aircrafts were leased from third parties and guidance / support was required from the manufacturers. This is deficiency in planning and the company has been inactive in airline business with leased aircraft since 1996 and is expected to be aware of the formalities required to be carried out.

The company should have made all the arrangements before taking delivery of the aircraft and obtain the certificate of airworthiness from Directorate General of Civil Aviation (DGCA), so as to avoid payment of lease rent for idle period. Thus, the company incurred avoidable expenditure of Rs.2.50 crore on payment of lease rent before commencement of commercial operations of the aircraft due to not taking appropriate action.

New aircraft purchase - wrong decision

Further the management decided to buy 50 aircrafts from Boeing due to increased demand and the same was cleared by the government. CAG slammed the airline's management decision for a lack of foresight and was not based on due diligence. They observed 3 5 aircrafts would have sufficed with the defective contracts led to a loss of Rs.200 crore to the airline. The management defended that the decision was based on increasing demand and getting huge bulk discounts. Meanwhile nearly 40,000 employees have not received their salary for two months and performance linked incentives (PLI) for four months during this period.

Employee - Aircraft ratio

The Air India merger created a headache of jumbo sized staff that is high employee-aircraft ratio of 214 per aircraft compared with 161 in Singapore Airlines while British Airways has 178. This is expected to come down to 110 per aircraft, once 19,000 employees are transferred to other units like ground handling and maintenance, repair and overhaul (MRO) operations.

Even some of the issues are being addressed but the process has been very slow. Five years after the two airlines merged, staff below the level of DGM have still not been integrated. The airline has to cut layers of management, align staff by role, bring in lateral hires, overhaul customer facing functions, implement a massive training exercise, uniform working hours and pay scales, and rein in pilots and engineers, even if it means a partial lockout.

CONCLUSION

The airline did so well in the 1960s and 1970s that a certain fledgling airline from Singapore came visiting to learn from it and grew into the feted Singapore Airlines of today. Air India turning around will be a long haul. The government and the airline should be clear that the odds of its survival are slim. But together with a charismatic leader with good decision making skill and conditional support from the government, Air India could fly high again with right direction.

REFERENCE

- Air India Financial Statements. Accessed 22/02/2014 from <http://www.airindia.com/about-airindia.htm>.
- Schall, Lawrence D. (1974). The Lease or Buy and Asset Acquisition Decisions. The Journal of Finance. September. 1203-14.
- Vancil Richard F. (1961). Lease or Borrow New Method of Analysis. Harvard Business Review. 39.