



AVIATION

Indian Aviation: Flying Through Turbulence

June 2008

ADVISORY

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Introduction

The aviation sector during the past six months saw dramatic changes that not only drove immense interest towards the sector from the investor community; it also presented enough reasons to stay away from it.

The airline business today is one of the most complex industries. Airlines operate on small margins so that any significant decline in revenue or increase in costs can cause dramatic changes. The challenge for airlines is achieving profit maximization through efficiently using their fleet, managing revenues and with cost optimization. Its profitability, revenue and yield are predominately driven by economic and external factors and this makes it most vulnerable to even the slightest variation in economic growth rates, national disasters, epidemic outbreaks, terrorism, war, currency fluctuations and most importantly oil prices.

In the following few pages, KPMG in India attempts to present the views and responses to the some of the recent issues faced by the airlines emanating from the rising aviation fuel prices and its impact on airline profitability and demand for air travel in general.

This point of view is centered on questions and stances taken during the recent past, which have placed immense concern on the very premise of the aviation sector.

We sincerely hope you find this informative as well as useful. Through this document KPMG by no way assumes any stance or position with respect to the financial performance, projected revenues or attempts to analyze the balance sheet of an airline, aircraft manufacturer or aviation holding company in any particular way either directly, indirectly or intends to make any binding disclosure with respect to the growth or the aviation sector or India's economy in general.

Raajeev B Batra

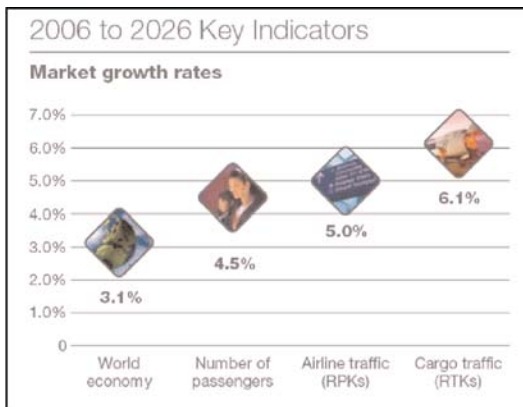
KPMG in India



1

Current Scenario

Growth in air traffic, rising oil prices and increased demand for airline services... Does it all make sense?



Source | Boeing Current Market Outlook 2007 © Boeing Commercial Airplane Co.

Air traffic is no longer a mere statistic, it's a phenomena that is based on the fact that people from every walk of life, demographic, ethnicity and culture have opted to travel because the world is increasingly getting smaller.

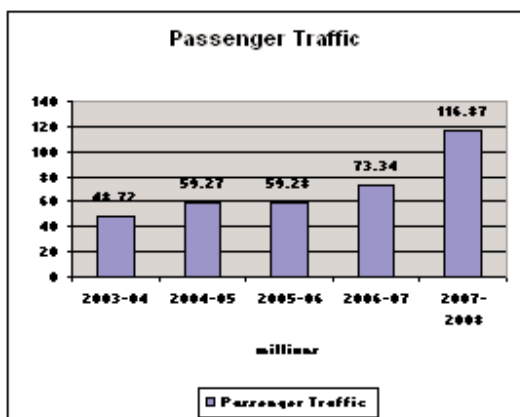
Interestingly, according to some industry estimates, South Asia (including India), South East Asia and the Pacific today accounts for the largest chunk of the total 6.8 billion passengers carried till 2007 and this clearly signals that the needs of travelers today be it for business, holiday, or visiting friends or relatives is dramatically different from what it was 25 years ago. This in fact has resulted in air transportation taking center stage in terms of consumer and industry interest.

Air travel is no longer considered an ordeal but an experience, which is why today increased emphasis is being made on travel time, quality of flight experience, sound levels and comfort, and this is due to the fact that air travel is becoming a preferred way to travel be it long, short or just plain intra-city distances.

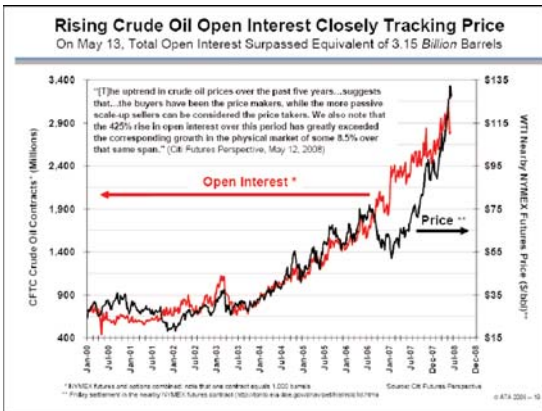
According to estimates released by aircraft manufacturer Boeing, strong economic growth mostly driven by intra & inter region trade and liberalized markets has generated robust demand of air travel, while airline efficiency improvements have been offsetting high fuel prices enabling overall industry profitability.

World economies since 2004 is growing at a stable 3.4 percent and this is expected to continue through to the end of this decade.

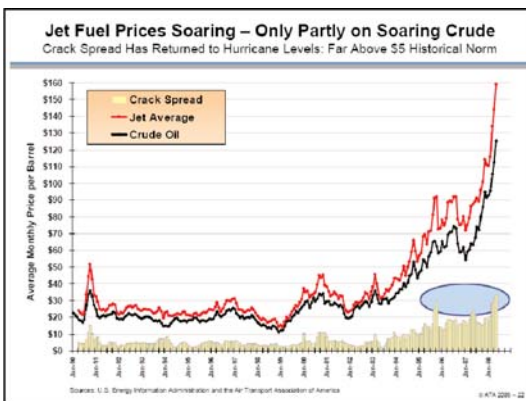
The growth of world air traffic today is predominately fueled by strong economic growth combined with increasingly liberalized and competitive markets and this in essence is expected to drive above-trend traffic in turn outpacing airline capacity expectations.



Source | Airports Authority of India | 2008



Source | Air Transport Association of America | John Heimlich “Coping with Sky High Jet Fuel Prices”



Source | Air Transport Association of America | John Heimlich “Coping with Sky High Jet Fuel Prices”

Growth in air travel globally, as well as in India, will continue to be adversely influenced by epidemic outbreaks, economic recession, terrorism, shifts in policy and regulations, and competitive markets, but not by oil prices.

Air traffic to India, as in the case of global air traffic, too is greatly influenced by economic growth, liberalized and competitive markets. The upswing in India's economy in 2003 was in part led by renewed global investor interest, clubbed with the rise in disposable incomes. In addition to this, the buying power of India's middle class also helped influence purchases in becoming more and more fragmented. All of this helped to fuel air traffic significantly.

India up till 2004 handled roughly 48 million passengers and this figure now has increased to 116 million which indicates that economic growth has been one of the most influential factors to drive the increase in air travel in India.

The year 2007 marked a turning point in India's aviation sector. The sector surpassed growth expectations fueled by a sharp rise in domestic passenger and cargo traffic. This led to the industry witnessing 34 percent growth for the third quarter of 2007. India's passenger traffic is growing at a CAGR of 25.4 percent a year, which today is amongst the highest in the world. In contrast, world air traffic is reportedly growing at a steady 5 percent according to projections released by Boeing. With six low cost carriers catering to a population of 1.1 billion people, the Indian airline sector is expected to outpace the global average by 2025.

Growth in air travel globally, as well as in India, will continue to be adversely influenced by epidemic outbreaks, economic downturn, terrorism, shifts in Government policy and regulations, and competitive markets, but not by oil prices.

The rise in world oil prices can be traced back to 2001 and began shooting up after the invasion of Iraq and gradually with supply, demand and refining concerns increasingly cropping up; oil trade began taking the limelight amongst the investor community. The futures market is particular led oil prices to double year on year.

Further context, it may be interesting to note that jet prices too gained significant trading interest from the period and jet fuel prices soared only on partly soaring crude prices. India's re-born aviation sector in particular stands witness to

Despite the fact that world oil prices have reached an all time high, some of the world's leading airlines, such as Air France-KLM, Cathay Pacific, Singapore Airlines, Qantas, British Airways and Emirates have all booked profits in excess of USD 1 billion in the financial year closing 2007-2008 as compared to the previous year.

oil prices moving from the 35 USD a barrel in 2004 to 80 USD in 2007, while the world's largest airlines coped with oil prices moving from 10 USD post September 11th to 80 USD in 2007.

Despite the fact that world oil prices today have reached an all time high, it is interesting to note that some of the world's leading airlines such as Air France-KLM, Cathay Pacific, Singapore Airlines, Qantas, British Airways and Emirates have all booked profits in excess of USD 1 billion in the financial year closing 2007-2008 as compared to the previous year.

The airline industry has been through an exceptionally demanding period. Starting with 9/11 that created highly in conducive insurance liabilities, SARS that wreaked havoc with Asian traffic to Europe and the US, the AVIAN Bird flu which hit intra-south Asia and of course ATF rates, the airline industry aggressively restructured its business, re-looked at business models, streamlined processes and began cutting down on heavy maintenance aircraft its fleet.

While these steps initially made by airlines to keep their collective 'head-above-water' the airline industry further braced itself for the worst which led the revamp of revenue service aircraft and acquisition of brand new aircraft on long term operational lease.

During the past five years airlines phased out 'high-maintenance' aircraft and embraced fifth generation passenger aircraft outfitted with fuel efficient engines that lowered direct operating costs significantly. Aircraft manufacturers Boeing and Airbus during the period beginning 2003 to 2006 saw some of the highest aircraft deliveries ever with airlines in every corner of globe acquire new aircraft.

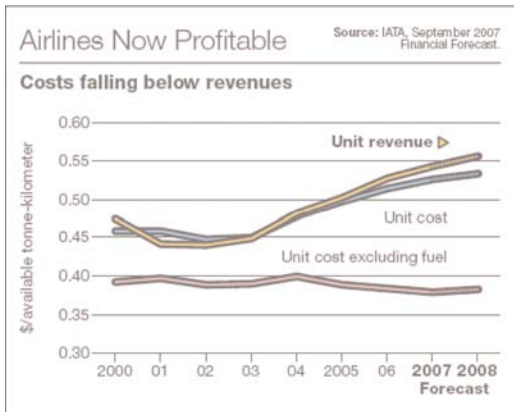
ATF hedging while was effective in softening the blow especially in sudden price rises, the main savings that airlines saw was from significantly low maintenance cost thanks to a new aircraft fleet; low direct operating costs attributable to new, efficient aircraft engines and aircraft flight performance; and wafer thin indirect operating costs due to efficient airline processes and hybrid airline business models.



2

Business Outlook

Is the airline business in India still profitable? And will rising fuel prices be its demise?



Source | Boeing Current Market Outlook 2007 © Boeing Commercial Airplane Co.

While ATF would account for 30 percent of airline operating costs, an airline would only spend on ATF when it operates a scheduled flight. Coincidentally that is also when the airline generates revenue.

Irrespective of ATF price hikes or rise in world crude oil prices, it is not currently possible for airline companies in India to make profits within three years of starting operations as average airline break-even based on prevalent CAPEX occurs in a minimum of five to seven years.

The majority of airlines that commenced revenue service in India started operations less than four years ago with most investments being made towards new aircraft, maintenance support, airport facilities and marketing and distribution.

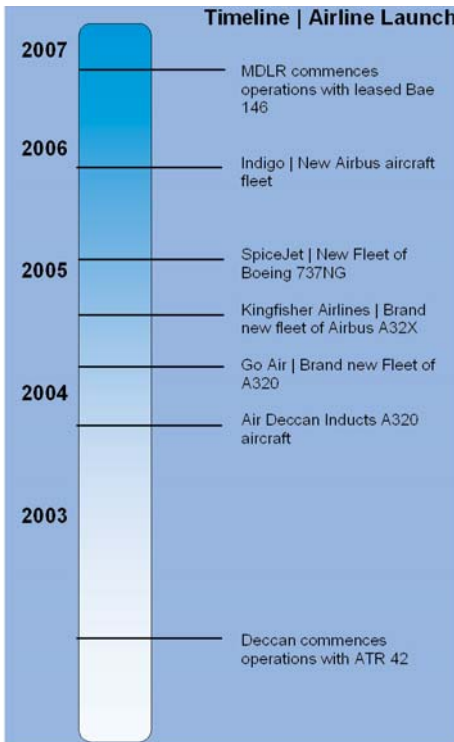
While investments made towards induction of a new aircraft fleet resulted in high CAPEX, airlines significantly benefited from low maintenance costs as this were limited to line maintenance and routine checks. Further the US Dollar depreciating against the Rupee also saw airlines make partial savings, which were mostly in aircraft lease rentals, spares, rotables and routine aircraft operation consumables as jet engine oil, aircraft tyres and common wear and tear items.

The sustained high fuel prices that are presently seen have resulted from a strong world economy, as long as world economies continue to grow, demand of for oil including ATF will also grow significantly.

Between 2003 and 2006, world airline fuel expenses including India grew from 15 percent to more that 25 percent of airline operating costs. These levels presently hover between 30 percent for airlines operating new aircrafts and roughly 35 percent for fleets that are gradually aging.

While ATF would account for 30 percent of airline operating costs in India, it may be important to note that the only time an airline would spend on ATF would be when the aircraft intends to make a scheduled flight and coincidentally that is also when the airlines generates revenue and yield.

Airline expenditure on fuel is directly proportionate to occu-



KPMG in India Analysis | 2008

Since a majority of India's airlines are in their 3rd or 4th year of operations, it becomes near to impossible for any airline to break even anytime before 2009 or 2010

pancy and load. Hence, airlines in India should be focusing on maximizing revenue service and constantly strategize to harness the most from maximum yield routes.

To combat rising fuel prices, airlines globally have responded by seeking to improve fuel efficiency of their operations by selecting higher flight levels for operations, intentionally choosing parking bays near the runway that lowered ground taxi time, sought early decent clearance enabling the aircraft to have longer drift down on near to idle engine power settings and in some cases taxied on single engine power with the second engine remaining on idle.

In addition, airlines altered aircraft take off weight significantly and a few carriers removed extra seats from the cabin, switch to an entire paperless cockpit, removing seat back phones even down to flushing lavatories during extended delays to minimize take off weight.

While such corrections would offer marginal savings on fuel spend, significant savings can mostly be made by improving airline efficiencies and reducing elements that constitute in indirect operating costs.

One of the keys to lowering operating costs and drive airlines to break even lies in running the airline more efficiently and significantly reduce costs that feature indirectly in airline balance sheets so therefore airlines should be focused and patient especially with anticipating break even. While ATF costs drive operating costs up, it only reflects in price hikes on routes and can be combated by imposing fuel surcharges which may be attributable to inflation.

The aviation sector in India should continue to grow as long as income levels rise, the buying power India's middle class remains buoyant and India's economy and Gross Domestic Product is still driven on purchasing power parity and not per capita income. The moment when the aviation sector would see losses or reach the end of its life cycle is when there would no longer be a demand for air travel or when the economy slows down and enters recession.

Low Take off Weight → Fuel Savings

In removing seatback phones from its MD-80s and B737-400s, a US airline shed 200 pounds per airplane, translating into 3,400+ gallons saved annually

Alaska Airlines® indicated in March 2004 that removing just five magazines per aircraft could save \$10,000 per year in fuel; also, the airline has reduced the weight of catering supplies

Air Canada® considered stripping primer and paint from its 767s to save 360 lbs. per plane

JetBlue® and US Airways® and others have moved toward a paperless cockpit

By removing six seats, JetBlue® reduced A320 weight by approximately 904 pounds

Airlines have been able to remove ovens, trash compactors, or even entire galleys, due to the elimination of hot meals on selected flights; others are using lighter seats; they have also removed magazine racks and replaced hard cabin dividers with curtains

AirTran® ordered carbon fiber seats for its 737-700s to shave 19.4 pounds per row, resulting in estimated fuel savings of \$2,000 per year per aircraft

Alaska's new beverage cart, at 20 lbs. lighter, could save \$500,000 in annual fuel costs

Pratt & Whitney® estimates that its EcoPower engine-washing process saves Hawaiian 2.8 pounds (or USD 1 million) in fuel annually across the airline's 31 Boeing 767 engines

Some airlines empty aircraft lavatory systems during extended ground delays to minimize takeoff weight

Source | Air Transport Association of America Research | John Heimlich

Rise in ATF prices regionally or globally feature commonly under inflation and therefore as long as there is demand there are bound to be price hikes.

Average break-even gestation in any airline business occurs in between five to seven years of aircraft operation and is dependent on the business model employed, aircraft used for revenue service and indirect operations. Since a majority of India's airline are today in their third or fourth year of running, it becomes near to impossible for break even occur any time before 2009 or 2010.

While ATF costs would hurt airline operating costs, it could never be the reason for an airline to fold up. India operates one of the youngest aircraft fleet in the world and with new and more efficient engines, airlines gain from low fuel burn and improved operation efficiency. The advantage accrued from a new aircraft fleet presents immense savings which in turn leads to achieving break even faster.

A common element in India that can add stress to airline operations is the severe congestion at airports both in the air and on the ground. While quick fixes as high speed runway exit taxiways, additional taxi ways and more efficient ground controller procedures have helped to ease this slightly, there still are many changes and amendments that should be done to help improve airline efficiency. These include:

- Shorter distances between terminal and bays in order to lower transportation time
- Augmentation of additional aerobridges enabling at least 70 percent of arrival aircraft to dock at the terminal
- Increased use of two runway operations
- Reducing after take off track out distance below 5 DME
- Strict adherence to low runway occupancy time and penalize airlines for spending excessive time on the runway during take off or landing².

²Subjective to availability of highspeed exit taxiway, prevalent weather and restricted operations NOTAMS



3

Commercial Structure

What impact does ATF have on an airline's financial performance?

And what's behind India's airlines re-routing?

Process improvement and airline market strategy are two elements that need to dynamic and should evolve to market conditions. Therefore, process diagnostics must be performed regularly to check for any leaks in operating efficiency.

ATF cost for an airline has impact only on direct operating costs which account for 30 percent of total airline expenses leaving the rest 70 percent to be slimmed down. Financial performance of an airline predominately is dependent on airline efficiency; its market strategy and an intuitive approach to route planning that maximizes revenue.

An airline's direct operating is limited to elements that constitute expenditure incurred in operating one hour of flight operations. These usually are fuel burn per hour, crew salaries, provision for major maintenance reserve, landing, parking and terminal landing charges; aircraft lease costs and aircraft insurance.

Costs as marketing, distribution, ground handling, terminal operations, network operations and routing, administrative support, training and cost finance and cost management are factored under indirect operating costs.

While the low cost airline business model set the precedent for lowering or streamlining airline processes in almost all verticals, airlines over a period evolved business models to their needs in turn adding in departments and or support verticals that deviated from the classic business model.

The LCC business does not lay down imperatives or a do's and don't checklist, it purely suggests lowering down elements that could increase indirect operations costs therefore airlines should customize a business model that suits their type of operations best.

However in order to stay lean and efficient it almost becomes imperative to revisit and re-engineer business processes periodically.

Process improvement and airline strategy are two elements that should be dynamic and should evolve to market conditions and therefore process diagnostics should be performed at least twice

Traffic today in India is dynamic and patterns change almost every quarter. Airlines should set in place earlier warning mechanisms to forewarn of low yield routes as well as flag potentially high traffic routes which may be seasonal.

a year in order to check for any leaks in operating efficiency. India's aviation landscape's unique advantage is that of high traffic growth.

Air traffic in India is growing not just in on metro routes but also tier II and III as long the economy does well and income levels rise. Region socio-economic patterns have changed and along with it, creating the need for better connectivity.

To stay ahead in today's competitive airline environment, it almost becomes imperative for an airline to cyclically plan its route network to generate maximum yield.

Traffic today in India is dynamic and patterns change almost every quarter therefore airlines should set in place an early warning mechanism to forewarn of low yield routes as well as flag potentially high traffic routes which may be seasonal.

Cost Head	Element	Improvement Scope
Direct Operating Costs	Fuel flow per hour, cost of lubricants/jet oil, reserve for major component and engine overhaul, aircraft maintenance reserve, crew salaries, landing, parking, terminal handling and route navigation charges, aircraft lease rentals, aircraft insurance.	Achieving efficiencies in flight performance, aircraft take-off weight, load and trim, ground taxi time, early TOD, re-routing, RNAV and RNP planning
Indirect Operating Costs	Terminal operations, commercial ground handling, marketing, sales, distribution, network operations support, administration, finance and cost management, human resources, recruitment, training, maintenance operations, flight operations	Achieving efficiencies in ground handling, airlines processes, maintenance planning, flight operations, dynamic and flexible market strategy, turnaround time, maintenance time(including AOG situation) and finance management

KPMG in India (RC) Analysis | 2008



4

Prospects for Growth

Does the future of aviation in India look bright? And what's the way forward?

KPMG Forecast for the airline business in India

Top Airports		
Top 5 airports registering high Passenger Traffic		
	Domestic	International
1	Bhubaneswar-99.9%	Mangalore-381.4%
2	Jaipur-90.7%	Coimbatore-255%
3	Raipur-68.6%	Tiruchirapalli-89%
4	Tiruchirapalli-65.9%	Ahmedabad-64.6%
5	Ranchi-67.6%	Lucknow-32%
Top 5 airports registering high Aircraft Movement		
	Domestic	International
1	Jaipur-94.5%	Tiruchirapalli-82.4%
2	Imphal-85.8%	Coimbatore-66.3%
3	Bhubaneswar-69.9%	Nagpur-60.4%
4	Raipur-46.9%	Ahmedabad-58.9%
5	Nagpur-46.5%	Lucknow-44.7%

Figures: April – March (2007-08)

The growth in the aviation sector in India is driven in part by the rapid economic growth, rise in income levels and the growing spending power of middle class. As long as India's economy grows, the aviation sector should continue to grow. India's airlines should be focused and patient especially anticipating break even. While ATF costs drive direct operating costs up, it only reflects in fuel surcharges.

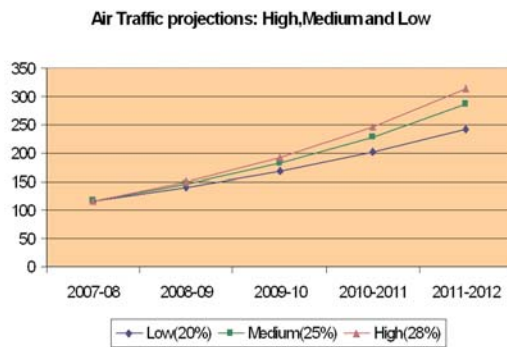
International as well as domestic passenger traffic registered a noteworthy increase during the period April – March (2007-08). While international passenger traffic grew at a rate of 15 percent, the domestic air traffic grew at 23.8 percent during the above mentioned period. Likewise, the quantum of aircraft movement has also shown an upward trend.

This trend has been led by certain airports in India that have recorded significant increase in air traffic and aircraft movement (as shown in table alongside).

The strikingly rapid rise in domestic and international traffic can be attributed to increased capacity at airports and greater air connectivity across destinations. While oil prices across the globe have risen sharply, in-turn raising airfare prices up notch, the increase in traffic from tier II and tier III cities in India has sent a very clear message that air travel included with fuel surcharges to offset high ATF rates is increasingly becoming the primary travel medium and consumers are no longer associating air travel as a luxury but as a sound and highly bankable mode of transportation.

The significant air traffic rise noticed from regional international airports in particular is due to enhanced capacity and flight frequency being added by international airlines and regional airlines which earlier was limited due to Government restrictions as well as low demand.

State international airports today are no longer being perceived as seasonal traffic stations but instead today have evolved in to be-



Source | Airports Authority of India | KPMG Analysis | 2008

coming regional international gateways. This trend should increasingly lead to India's air traffic figures exceeding the projected CAGR of 25.4 percent as regional airports are expected to enhance its terminal capacity with the government aggressively modernizing non-metro airports.

Metro hub airports namely New Delhi and Mumbai that earlier attracted almost all regional transit traffic in times to come should see lower international inbound and outbound traffic as state/regional international gateways will be in a position to take on and sustain international traffic efficiently and this is expected to marginally ease congestion at metro airports intern improve airport operational efficiency.

According to estimates released by the Airport Authority of India (AAI) this trend is today is evident today especially with Coimbatore, Ahmadabad and Tiruchiapalli International Airports registering extremely high international traffic with figures exceeding 677.3 percent in the case of Coimbatore.

India's aviation sector is at a tipping point as increased dependence has been placed on connectivity by air, which is expected to lead to a high growth trend in air traffic in the coming years. Given the current growth rate of 22 percent over the previous year, KPMG in India estimates based on high-low-medium forecasting that India's air traffic by 2012 should be in the range of 242.34 and 313.72 million people from the present recorded levels of 116 million people.

Airlines in India today should be prepared in expecting the unexpected while at the same time focus on achieving high utilization to try to ensure consistent revenue.



5

Annexure

Acknowledgements

- Airports Authority of India Research | Traffic News and traffic research
- Boeing Commercial Airplanes | Current Market Outlook 2007
Airbus Industry | Corporation Communications
- International Finance Corporation – World Bank | Doing Business Report 2007
- Air Transport Association | “Coping with Sky-High Jet Fuel Prices” | John Hiemlich
- United States Energy Information Administration(USEIA) & Air Transport Association of America
- Citi Futures | Citi Bank
- Propriety KPMG Research | KPMG in India

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