

## **Introduction**

Aerospace technology has been and will continue to be at the cutting edge of human technological and scientific development. Not only does it make distances shorter, but it also facilitates social, economic, scientific, and cultural exchanges. In addition to this, it offers a bird's eye view of our planet, and creates vehicles and instruments for the exploration of the universe and the progression of science.

## **Importance of Aviation Industry**

Aviation is the United States of America's dominant mode of transportation of goods and services. All activities implicated in the provision and exercise of aviation is imperative to the nation's economy. The aviation industry's contribution to Gross Domestic Product is 4.7% on an average. Aviation associated economic activity accumulates to \$975.7 annually and for each dollar delivered to final demand by the aviation industry, an additional \$1.87 in output (economic activity) is generated, for an overall multiplier of 2.87.

The aviation industry employs numerous thousands of people and thousands more work in aviation's support industries- "The steel worker whose steel is essential to the airport rental car and the aircraft, the hotel employees where an air passenger stayed, the printer of the airlines schedule, the farmer that grows vegetables for the in-flight meals and the grocer who sells food to the airport worker. All of these, and others, benefit economically from aviation regardless of whether they have ever flown"-

<http://www.airlines.org/public/industry/bin/WilburSmith.pdf>.

## **Structure**

### **1) Service industry**

The commercial aviation industry is fundamentally a service industry. An airline provides service to customers by transporting them and their belongings to their respective destinations for a mutually approved price. This principally implies that there is no exchange of physical products for consumption.

### **2) Capital Intensive**

The airline industry, contrasting other service industries like banking and insurance, is exceedingly capital intensive and requires an enormous assortment of extremely expensive and technologically sophisticated equipment and facilities. In uncomplicated terms, the airline industry requires bulky sums of money to operate successfully. The capital intensive needs in turn require constant profitability.

### **3) High Cash Flow**

The need for expensive equipment, such as an aircraft, sequentially generates a substantial positive cash flow (profits plus depreciation). This is predominantly because aircrafts depreciate in value over time. Most airlines utilize their cash flow to reimburse debt or acquire new aircraft. When profits and cash flow decline, an airline's ability to repay debt and acquire new-developed aircraft is jeopardized.

### **4) Labor intensive**

Its labor-intensive character complements the service structure of the aviation industry. Each major airline employs a variety of professionals from pilots to mechanics and security personnel to cooks, cleaners, accountants and lawyers. However, with the information technology revolution several key areas have been automated, reducing the

need to hire personnel. But the inherent nature of a service industry implies personal attention to customers. Hence, labor costs per employee are amongst the maximum of any industry. This is also intimately related to the fact that the airline industry is vastly unionized.

### **5) Risk Factors**

The common risk factors faced by the companies in the aviation industry comprise of fuel prices, foreign currency, interest rate risks and investment risk as well. The company's earnings may be hampered by changes in the price and availability of aircraft fuel or oil in general. In order to provide a measure of control over price and supply, the companies trade and ship fuel and maintain fuel storage facilities to sustain its flight operations. They are also exposed to the effect of foreign exchange rate fluctuations on the U.S. dollar value of foreign currency-denominated operating revenues and expenses. The prime exposure comes from the Japanese yen, British pound, Canadian dollar, Euro and various Latin and South American currencies. Another factor that affects the company's earnings are changes in interest rates due to the impact those changes have on its interest income from cash and short-term investments and its interest expense from variable-rate debt instruments.

### **6) Thin profit margin**

The profitability for the airline industry has always been low due to factors sited above. Over the years, the industry has earned a net profit between 1-2% when compared to the average of 5% for the US industry as a whole.

### **7) Seasonal Industry**

The airline business is enormously seasonal to say the least. Business activity is extremely elevated during summer months and equally lax during winters. Due to this seasonal nature, the revenues generated escalate and descend significantly through the course of the year.

#### **8) Barriers to entry**

Barriers to entry in this business are lofty. Factors for the same include high research and development costs, hefty capital investment requirements and constant technological change making it extremely complicated for new business ventures to enter the industry.

#### **9) Intensely Competitive market**

Airlines furiously compete on price and service to attract the consumer/vacationer market. But business travelers necessitate flight frequency and reliability when choosing an airline. Adding to this, the airlines face a tremendous amount of competition in various diverse product forms. For short trips using automobiles and buses are much more practical options than flying.

#### **10) Strong Regulatory presence**

The federal government plays a crucial role in the commercial aviation industry, especially in assuring the safety of air travelers. Comprehensive safety requirements and programs of the past are still in force and many novel regulations have been added. The primary responsibility for airline safety regulation lies with the Federal Aviation Administration (FAA), which sets the minimum safety standards for the airlines and acts as the public's watchdog for safety.

#### **11) Government stake in Ownership**

Many airlines are still partially owned by their respective nations, and treaties between nations determine which airlines can land where. However the aviation industry in the U.S. is not government owned and hence is a purely private enterprise.

However prior to 1978, the industry resembled a public utility with the Civil Aeronautics Board (CAB), a government agency overseeing the activities of the airline companies. It was the airline Deregulation Act (October 24, 1978) that transformed the airline industry into a market driven industry with customer demand determining the levels of service and price.

### **12) Duopoly in suppliers**

The commercial aircraft manufacture industry in America operates as a duopoly consisting of Boeing Co. (with estimated 2000 commercial aircraft revenues of \$31.1 billion) and Airbus Integrated Company (\$17.2 billion). Boeing and Airbus each control about 50% of the huge passenger aircraft market.

### **13) Oligopoly in jet engine manufacturers and airlines.**

Oligopoly basically refers to a market condition in which, sellers are so few that the actions of any one of them will materially affect price and have a measurable impact on competitors. The jet engine manufacturing industry operates as an oligopoly. The world's largest engine maker is General Electric followed by United Technologies, Pratt and Whitney Division and UK based Rolls Royce aerospace unit.

Oligopoly is also present among the major airline carriers. For e.g. typically, airlines price rises over the weekend, when ticket sales are sluggish, to see if competitors will respond. If one or more main network carriers don't go along, other carriers roll back prices.

## **Strategy**

### **1) Globalization**

The process of globalization has led to the creation of a new international economy with cities and communities around the world. As a result, there is a mounting need for swift and efficient access to the global market place. And delivering this access has become the primary responsibility of airlines in the 21st century. Simultaneously, globalization has augmented to pressures related to economies of scope and scale, increased efficiency in meeting customer needs. In keeping with this altering scenario, airline companies utilize the building of valuable networks, mainly through the practice of mergers and integration's potent strategy to lower costs and convey the type of service the broader process of trade and economy integration will require.

The big engine makers are also inflowing into joint venture agreements to share expensive development costs. Currently, GE and Pratt and Whitney are mutually developing an engine for the Airbus A3XX. Their venture will compete with Rolls Royce's Trent line of jet engines. In fact, the GE and P&W collaborated engines has recently won a major contract with Emirates for supplying these engines in the future.

An opening world presents foremost opportunities but also momentous challenges for companies. Many factors construct hurdles for airline and engine supplier merger integration. The much-awaited international merger of GE and Honeywell did not go through, as the European Commission thought their combined portfolio would be unfair and too hot to handle for competitors. Globalization exposes these companies to a world of intensified competition and international regulations as the market place is increasing

global in character. As a consequence, companies face pressure from global shareholders and relentless focus is on financial performance from institutional investors.

## **2) Constant Research and Development**

"There is seldom anything simple about aerospace. Whether it is design, engineering, manufacture, or operations, solutions to manifold challenges invariably have technological side effects, which, in turn bring new challenges. 'Straightforward' is not a word that is often used by aerospace engineers." (*Frank Bokulich, 2002*)

The commercial aircraft industry relentlessly experiences wear and tear of equipment relatively quickly, creating the need for regular replacements. Secondly, brisk technological changes makes it incumbent on aircraft makers to spend heavily on reconfiguration of production lines as well as building new aircraft models. Finally, the lead-time involved in aircraft production is relatively stretched. For instance, the development of a commercial jet aircraft takes about 18 months on an average. Designing an innovative aircraft takes even longer and is much more expensive.

## **3) Marketing strategy**

In the context of globalization, the airline industry has witnessed an unprecedented appearance of new airline companies resulting in cutthroat competition. Today, passengers have the liberty to choose from a variety of options available to them. Growth of hub and spoke systems\* has resulted in mounting competition even in minute markets that would not normally support competitive service. As a result, a comprehensive marketing strategy is a pre-requisite for the survival and growth of an airline company.

Marketing chiefly comprises of activities such as pricing, scheduling, advertising, ticket and cargo sales, and reservation and customer service including food service. Between these, pricing and scheduling have assumed primary significance especially since deregulation.

- **Pricing**

With the advent of deregulation, the airline companies have the freedom with regard to pricing. Like other industries, the fares are determined based on customer demand and prices of competitors. The chief objective of an airline company is to set fares that would maximize the revenue from each flight and at the same time provide adequate discounts to customers. This process of finding the right balance is referred to as yield, inventory or revenue management. The demand for seats is estimated through sophisticated computer software hence making pricing a complex process. Further more, due to volatile market conditions pricing is never static and is an on going activity. For instance, fares have declined more than 35% in real terms since 1978. They have become so cheap, that interstate bus and rail service has been hard pressed to compete with the airlines, which today provide the primary means of public transportation in the United States of America. More than 90% of air travel today involves a discount, with discounts averaging two-thirds off full fare.

One of the most innovative marketing strategies utilized by almost all airline companies is the Frequent Flier Program (FFP). Once a customer enrolls in the FFP, he or she is credited with points for every mile flown with the sponsoring carrier or with other airlines tied to the sponsors programs. The rewards for the same include free tickets, upgrades, etc.

As a result of intense competition, airlines are often forced to use “controversial tactics” to dupe potential consumers. Airlines have full-page ads that talk about “One-way fares starting at \$89.” Then you discover the “fine print.” A round trip is required, they will not sell you a one-way fare at \$89, a Saturday night stay is required and you have to buy the ticket 21 days in advance. The airlines basically try to deceive us by not revealing very much in advance.

An effective marketing strategy has become all the more important after the recent September 11<sup>th</sup> terrorist attacks. For e.g., American Airlines has just launched its fresh marketing and advertising campaign that features American employees capturing the spirit, professionalism and unwavering pride of the world’s largest airline. The theme selected is “American Pride”. This is obviously done to woo consumers and to try and heal its tarnished image after the terrorist attacks.

- **Scheduling**

This can be described as an extra ordinarily complex process as it is dependent on market opportunities and complete pressures. For most customers along with price, schedule is a central consideration. This is especially accurate with regard to business travelers. Scheduling must take into account aircraft and crew availability, maintenance needs and airport operating restrictions.

#### **4) Over Booking**

Overbooking is a strategy based on the historic demand for a flight, economics and human behavior. The historical trend among business traveler has habitually been to buy unrestricted full fare tickets. However, they sometimes do not travel on the flight for which they have a reservation. As a result, his or her seat is vacant and cannot be returned

to inventory for future use as in other industries, in turn undermining the productivity of the airlines operations. Consequently, airline frequently over book flights.

Cautious planning is involved in airline over booking. Examinations of the history of particular flight are conducted in order that the over booking matches the number of no-shows. This practice works effectively in most cases. But at times the airline becomes the victims of their own strategy in the event of excessive people showing up for a flight. In such a situation, airlines offer incentives such as complimentary tickets to give up their seats. Occasionally airlines are required to compensate passengers for the inconvenience caused and the amount of compensation is determined by government regulation.

#### **5) Fixed-Price Contracts**

Airlines customarily procure new jets under long-term fixed-price contracts. Typically, the aircraft buyer pays about one-third of the contract price up front, makes numerous progress payments, and then makes a relatively large balloon payment upon delivery of the aircraft. These fixed-price contracts commonly comprise of price escalation clauses that are tied to a weighted average of labor and materials, which uses the employment cost index and the producer price index for industrial commodities. Contracts also stipulate delivery dates. If the aircraft manufacturer does not meet the prescribed delivery date, it usually must pay a stiff penalty.

#### **6) Program Accounting**

According to a survey done by Standard and Poor's, aircraft manufacturers who want to allocate development costs, frequently use a method called "program accounting." A company initially estimates how many planes of a particular design will be sold over the

program's lifetime, and then allocates its development costs over the projected total number of planes to be sold.

This accounting technique is controversial, because the aircraft maker can amend its estimates of unit volume during the course of the program. Such estimate changes can boost reported profits by lowering the development cost per plane.

### **7) Fleet Planning**

Since deregulation, the airline industry has witnessed numerous important trends in aircraft selection and purchase. The amplified popularity of leasing as compared to ownership is primarily because the former is a less expensive option to acquire a new and technologically advanced aircraft. Also it leaves a carrier with fewer tangible assets that a corporate raider can sell, to reduce debt incurred in the takeover.

The second tendency has been towards the acquisition of small and medium sized aircrafts as contrasted to massive aircrafts to respond more successfully to consumer demand and provide frequent service. Finally, the trend has been towards more environment friendly and fuel-efficient design innovations in aircrafts on the part of manufacturing. Technological developments have provided quieter and cleaner burning jets and emissions.

### **8) Environment**

The airline industry is on the threshold of crossing environmental pollution standards causing considerable concern among local governments. This is especially with regard to fuel efficiency, aircraft emissions and noise. Consequently, the airlines have invested and continue to invest billions of dollars in addressing environmental problems which are aircraft associated.

To counter this, more efficient and technologically advanced models are replacing aged aircraft engines. International Aviation Planning Groups regularly participate in developing options for the diminution of aviation emissions including operational measures and market mechanisms. Manufacturers are also developing cleaner burning combustion chambers and the smoke produced by the first generation jets has disappeared in thin air. Though pollution is always viewed in terms of air and water contamination, the noise produced by jets is equally if not more damaging. To combat this, there have been various design changes and today commercial jet aircrafts are in the stage three (quieter planes) of noise standards. Other measures include the reduction of emissions into air and water at airport and maintenance bases and recycling programs to reduce the amounts of solid waste.

### **Performance**

After looking at the present structure and the present strategy of the aviation industry, it is now time to look at its present performance. According to the Air Transport Association, passenger enplanements rose to a record high of 665.5 million. This achievement was remarkable, since dramatically elevated fuel costs over 1999, led the airlines to increase airfares by 4.5%. When adjusted for inflation, this was the first increase in the cost of air travel since 1993. Normally, higher prices would lead to a reduction in demand for air travel. But in 2000, price increases were offset by strong economic growth that produced rising incomes for travelers.

Passenger traffic in 2000 grew by a healthy 6.2%, to \$692.5 billion revenue passenger miles, when compared to 1999. Real growth for the U.S. economy was a sturdy

5.0 percent. Domestic traffic increased by 5.8% resulting in an increase in the number of passengers by a dynamic 27.1 million totaling to 610.0 million.

A substantial increase in passenger traffic will directly result in a rise in the total revenues for the U.S. airlines. The revenue grew by 8.8% amounting to a massive \$129.5 billion in 2000. Passenger revenue, which accounts for approximately 75% of the total operating revenue, amplified by 11%. The average price of air travel, measured by passenger yield, augmented by 4.5% succumbing to the pressures of labor and fuel costs increases. In spite of the boost in revenues, airline earnings at the operating level began to plummet in 1999. In 2000, operating earnings fell again and net profits declined sharply. Operating earnings in 2000 amounted to \$7.1 billion, down from \$8.4 recorded in 1999. Furthermore, the industry's net profit margin in the year 2000 was only a trivial 2.0%, when compared to a 6% average for U.S. Corporations.

As far as the growth in fleet is concerned, the Air Transport Association U.S. members saw their fleets enhance to a total of 5,178 aircrafts. The net accumulation in the year 2000 to the fleet was 210 aircrafts, as the industry continued to respond to increasing demand complemented by the constant need of modernizing their fleets.

But the industry has been through a traumatic period since March 2001, with the slowdown in the economy resulting in the loss of a large portion of business traffic, that cumulated in the September 11 terrorists acts for which, the commercial planes were turned into instruments of mass destruction. To stay out of bankruptcy, the government had to rush through a rescue program, first injecting \$5 billion of cash into the industry. It also had to stabilize the insurance rates for the industry to assure that it could keep flying

and also put a loan guarantee program in place to ensure that the capital markets would remain open for the industry.

In the wake of the September 11 terrorist attacks, the investment outlook for the Airline industry is negative. Passenger volumes are off piercingly amid customer concerns about security, and in most cases the amount received from the U.S. Air Stabilization Act will not be enough to recoup losses incurred since the attacks. The Congress has also ordered a switch in the responsibility for airport security from the airlines to the Department of Transportation. The Transportation Security Administration (TSA), created by the new law, will have coordinators oversee protection of passengers at some 430 commercial airports across the country.

The industry was already plagued by scrawny demand for business travel, towering fuel costs and labor friction. The Standard & Poor airline index fell 27.7%, versus a 13.8% decline in the S&P Super 1500. Prior to the attacks, S&P estimated 2001 traffic to increase 2.3% to 657 billion Revenue Passenger Miles (RPMs). The airlines are moving to cut capacity by about 20% across the board, and may lay off as many as 100,000 airline employees.

But all is not lost for the airline industry. According to Merrill Lynch, Domestic Passenger Unit Revenue (RASM) declined 14.3% for the month of January versus a year ago, better than the estimated drop of 15% to 18%. Moreover, Domestic Load Factor rose 1.4 points year-over-year to 64.0%, which was interestingly the industry's first load factor increase in 13 months.

As far as the stocks of the airline companies are concerned, ABN AMRO has recently raised ratings from Add to Buy (their highest rating) for a number of carriers like

American Airlines (AMR), Continental Airlines (CAL), Northwest Airlines (NWAC), Southwest Airlines (LUV), Alaska Air Group (ALK), etc.

Airline	Recomm.	Price	Price Target	EPS	P/E
AMR	Buy	\$24.38	\$31	-1.85	-13.15
CAL	Buy	\$30.41	40.00	0.46	66.79
NWAC	Buy	\$15.16	25.00	-2.34	-6.48
LUV	Buy	\$19.12	25.00	0.67	28.36
ALK	Buy	\$28.72	37.00	1.04	27.56

*Source: ABN AMRO*

## **Future**

### **1) Low Research Funding**

As highlighted previously in the paper, the airline industry has to constantly attune itself to changing technological demands. However, a few scholars in the US government maintain the perception that aeronautics is now a mature technology. Consequently, the funding for basic research and studies has reduced over the years. These scholars predict that the future could see further reduction of research funding for both aeronautics and space technology.

### **2) Futuristic Jetliners**

Boeing Co., the globe's largest aircraft manufacturer, says its paper airplane will still fly. Eleven months ago, they announced a probable abandonment from the race to construct a super size jetliner, betting instead that the future of air travel would rest in a sleek machine with swept-back wings and horizontal fins located at its front. Today, the so-

called Sonic Cruiser remains in the drafting stage, with major questions about its viability as yet unanswered. Still, the proposal of 250 passengers hopping onto a futuristic jetliner and zipping halfway around the world at just below the speed of sound continues to generate buzz in the aerospace community despite the aviation crisis triggered by the events of September 11. Boeing engineers have been looking at versions of the Sonic Cruiser that could cruise at speeds of between 1.2 and 1.4 times the speed of sound.

On the commercial side, there is a growing demand for supersonic jets that will service the increasing number of passengers traveling to the Pacific Rim. "Right now it can be a 14- to 16-hour flight to reach some Asian markets," says Jerry Gregorek, chairman of the Aerospace Engineering, Applied Mechanics and Aviation Department at Ohio State University. The industry is forecasting that many people will choose to pay a little more for a ticket on a supersonic jet in order to reach their destination in half the time. "The Europeans are already looking at an advanced Concorde design," Gregorek adds. On the other hand, Airbus is looking at designing an aircraft that would resemble the super jumbo of tomorrow. The A3XXX would be much bigger than the 747. Boeing looked at targeting speed, whereas Airbus targeted size as their future strategy for growth.

### **3) Mergers**

While stringent scale economies are not deemed of major importance in the international aviation market, mergers can generate both cost savings through scope and density effects and, via network value, increased revenue flows. Indeed, merger activity is almost bound to be prominent in the coming years. Standard & Poor's puts a low probability on any merger between any of the nation's six largest air carriers, with the exception of the

American/TWA deal. According to United Airlines after the merger with US Airways, it would command an overwhelming market share on the Charlotte to Chicago and Chicago to Pittsburgh routes. The enlarged airline would also operate, abundant routes with a better than 80% share. Hence, the coming years could see a spree of mergers of airlines in order gain better market share.

#### **4) Vision for future Aerospace employees**

There is a mounting disparity between financial rewards for engineers in areas such as computers, information systems and communications, and aerospace engineering. In addition, there has been employment uncertainty, fluctuations in economic activity related to aerospace, and cost cutting in the aerospace industry, together with the absence of commitment to inspiring, ambitious air and space developments. These maneuvers loads of employees, students and future students away from aeronautics and into the "hot" areas of what is presently called "high tech." At the same time, the gradual retirement of experienced engineers, the generation that led the development of major air and space systems since the 1960's and 1970's, threatens to fatally deteriorate the national knowledge base in Aeronautics.

#### **5) Role of women in Aerospace**

The Air Force has unlocked, practically all of its positions to women. The doors to career fields, previously closed to women, are being flung open. And women are relishing the opportunity, by proving their aptitude to contribute. Last year, for instance, women were allowed for the first time to compete for combat cockpits, and 99.6% of all positions in the Air Force are now available to women. Overall, women encompass 15% of both our officer and enlisted force. And with the opening up of more career fields these

percentages will amplify. At some universities, more than half of the incoming aeronautic students are women. All this strengthens our belief that women are destined of play a momentous role in the traditionally male dominated industry.

#### **6) Probable effects of Globalization**

Globalization and diversification of aerospace industries might continue, moving design and manufacturing of aerospace vehicles out of the US to countries in which manufacturing costs can be significantly inferior. This would lead to shrinking of the aerospace industry in the US.

#### **7) Electronic ticketing**

Ever on the lookout to cut costs, airlines have enthusiastically embraced “ticketless travel” — the practice of issuing electronic tickets, or e-tickets, to customers. E-tickets are booked in the conventional manner, through a travel agent or directly through the airline, though no paper ticket is issued. Instead, passengers acquire boarding passes at the airport check-in counter or from an automated dispensing machine, which is activated with a credit card or frequent-flyer card. Once the industry standardizes e-tickets and lets one carrier acknowledge tickets from another carrier when flights are cancelled, it is not difficult to imagine electronic tickets replacing all paper tickets within five years.

#### **8) Use of Information Technology to improve service**

Technology has begun to assist with some common tribulations like the long lines to check-in baggage and obtain boarding passes. For example, travelers on Alaska Airlines can bypass the boarding pass counter by printing their own document through their PCs. In addition, Alaska and other airlines have installed hundreds of self-service kiosks that allow passengers to check in luggage, obtain boarding passes, and check the status of

their frequent flyer credits. At Northwest Airlines, when ticket lines get too long, agents are sent into the crowd with hand-held computers to remotely print boarding passes. In January 2000, United Airlines introduced paging services, another valuable convenience, whereby customers can be notified through pager, cell phone, or e-mail if their flight has been cancelled or delayed. But it is still in the infant stages and will continue to grow in the near future.

### **9) Alternatives to transport**

On one hand, technology is assisting the aviation industry to improve service. On the other hand, it is constantly threatening to become a formidable competitor for the industry in the near future. While the fare costs of business travel have fallen in real terms, the overall opportunity costs of attending business meetings have tended to escalate. Alternatives are now budding as direct responses to this ascend in opportunity cost: videoconferencing, teleworking and so on. Although some adverse effects on the air transport have been observed, to date the impact of these alternatives has been relatively small. But the costs of using telecommunications are falling and technologies are becoming user-friendlier. Videoconferencing, for instance, no longer requires specialized studios and equipment, and line costs have declined while technical dependability has enhanced. Hence, the airline industry has to respond accordingly to its latest rival.

The most apt conclusion for the future of the aviation industry is in the words of NASA Administrator, Dan Goldin, **“Collaborate. Integrate. Innovate. If not, you'll stagnate and evaporate”**.

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**Appendix****FAA Aviation Forecasts**

The FAA forecasts for the U.S. Commercial Air Carriers is as follows:

Fiscal Year	Passengers (in millions)	Passenger Miles (in billions)	Passenger Jet Aircraft	Cargo Jet Aircraft	Departure from U.S. Airports (in millions)
2002	700.5	743.9	5410	1152	7.9
2003	726.4	779.1	5654	1203	8.1
2004	754.9	817.9	5871	1260	8.4
2005	786.1	858.8	6131	1319	8.7
2006	817.8	900.9	6410	1380	8.9
2007	850.4	944.2	6719	1445	9.2
2008	884.2	989.8	7080	1505	9.8
2009	920.0	1037.3	7446	1569	10.1
2010	957.1	1087.0	7796	1635	10.4

*Source: Air Transport Association*