Airline industry problems and prospects

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Presentation Outline

- The elements of the jig-saw puzzle
- Trends in financial results
- Industry characteristics and problems
- Major constraints
- Trends in load factors
- Financing?
- Traffic growth prospects
- Productivity is the key
- The environmental challenge
- Summary of main points
The airline jig-saw puzzle

Efficiency improvement

Airline input costs

Distribution costs

Supply and costs

Air fares and rates

Total air transport demand

GDP / disposable income / trade

Efficiency improvement

Product development

Profit / loss

Revenues

Aircraft/airport development

Infrastructure constraints

International regulation

Information technology

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World scheduled airline financial results: US$

Source: ICAO and IATA for 2006 estimate
World scheduled airline financial results: margin by region

Source: ICAO, and Airline Business (August 2007)
The smaller airlines tend to be more profitable
World scheduled airline return on invested capital by region

Weighted Average Cost of Capital for sector: 7.5%

- Total
- US
- Europe
- Asia

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European airline profit margins: network

Operating profit as % operating revenues

-15.0 -10.0 -5.0 0.0 5.0 10.0

Total (12)
British Airways
Air France-KLM
Lufthansa Group
Swiss
Aer Lingus
Turkish Airlines
Iberia
SAS Group
Czech Airlines
Finnair
Austrian Airlines
Alitalia
European airline profit margins: LCC

- Total (7)
- Ryanair
- easyJet
- Transavia
- Air Berlin
- Norwegian
- Vueling
- SkyEurope

Operating profit as % operating revenues

2006
2005
Airline Industry Characteristics

- Strongly influenced by economic cycles
- Seats cannot be stored
- High operating gearing
- High financial gearing and mobile assets
- Many markets highly seasonal
- Large number of customers worldwide
- Long aircraft ordering lead times
High Operational Gearing

- Variable costs (escapable in short-term): approx. 40% of total
- Indirect costs (escapable in medium-term): approx. 40%
- Fixed aircraft-related costs (escapable medium-term): approx. 20%
World scheduled airline debt/equity ratio

Source: ICAO

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Breakeven Load Factor

- Weight load factor required to equate total traffic revenues with total operating costs

  = Weight load factor ÷ operating ratio
  = costs/ATKs x RTKs/Revenues
  = costs/ATKs ÷ Revenues/RTKs
  = unit costs ÷ Yield
World scheduled airline load factor trends by region of carrier

Source: Boeing, AEA, AAPA & Air Transport World data
World airlines: share of fuel in total costs

Source: ICAO
Constraints: Fuel prices

- Limited impact of current high fuel prices on the world economy, and thus air traffic growth rates
- Some reduction in demand from high fuel surcharges, but more than outweighed by low cost airline growth
- Era of $50-90 crude oil may lead to:
  
  *Economical extracting of alternative (non-OPEC) supplies*
  
  *Economical application of known technologies extracting of alternative (non-OPEC) supplies*
  
  *Economical application of known technologies to engine and aircraft design for greater fuel efficiency*
Environmental constraints

- Local noise concerns: major airports attract housing and industry
- Local air quality regulations: coming soon from Brussels; a condition for new (short) runway at London Heathrow
- Climate change: air transport currently only small contribution, but greater impact at cruise altitude
- Proposals for aircraft engine emissions trading and an emissions tax unlikely to impose excessive cost on industry: already coping well with fuel price escalation
- Difficult to achieve future fuel efficiency increase in excess of traffic growth rates: but laminar flying wing estimated to give 70% reduction in fuel burn per tonne-km vs existing aircraft
Sources of aircraft financing for Boeing deliveries

- Leasing companies
- Bank debt
- Cash/other sources
- Export credits
- Manufacturers

Source: Boeing in Airline Fleet & Network Management, May/June 2006

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Major EU airline stock/share price trend vs S&P500
US Interest Rate Trends

Source: OECD
Airline Industry Prospects

- Long-term growth looks assured, unless environmental taxes/permits severe
- Short-term: next economic recession?
- Progress on liberalisation: US/EU?
- More cross-border mergers?
- Fuel prices remain high?
### IATA Forecasts: short/medium term

<table>
<thead>
<tr>
<th>Route</th>
<th>Estimate 2005</th>
<th>% pa 2005-09</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total international</td>
<td>6.7</td>
<td>5.6</td>
</tr>
<tr>
<td>North Atlantic</td>
<td>5.0</td>
<td>5.3</td>
</tr>
<tr>
<td>Trans Pacific</td>
<td>7.4</td>
<td>5.8</td>
</tr>
<tr>
<td>Europe-Asia/Pacific</td>
<td>6.8</td>
<td>5.9</td>
</tr>
<tr>
<td>Europe-Middle East</td>
<td>8.4</td>
<td>6.6</td>
</tr>
<tr>
<td>Within Asia/Pacific</td>
<td>8.7</td>
<td>6.8</td>
</tr>
<tr>
<td>Within Europe</td>
<td>5.7</td>
<td>5.1</td>
</tr>
</tbody>
</table>

Source: IATA Outlook, 31 October 2005 (latest available)
## Aircraft Manufacturer Forecasts – Long-term (Passenger-kms)

<table>
<thead>
<tr>
<th>Av. annual growth: 2004/05 to 2024/25</th>
<th>Airbus</th>
<th>Boeing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intra-Europe</td>
<td>4.1%</td>
<td>3.4%</td>
</tr>
<tr>
<td>Europe - North America</td>
<td>4.9%</td>
<td>4.6%</td>
</tr>
<tr>
<td>Asia - North America</td>
<td>6.3%</td>
<td>6.0%</td>
</tr>
<tr>
<td>Europe - Asia</td>
<td>5.9%</td>
<td>5.4%</td>
</tr>
<tr>
<td>Domestic China</td>
<td>8.7%</td>
<td>8.8%</td>
</tr>
<tr>
<td><strong>Total World</strong></td>
<td>5.3%</td>
<td>4.8%</td>
</tr>
</tbody>
</table>
Transforming the business

Investment in people and aircraft/equipment
Improved processes
Innovation/new ideas

Increased productivity

Better pay for employees
More tax revenue for government
Improved shareholder returns

Lower air fares
Sources of productivity growth

- **Economies of scale**
  - Increased aircraft size
  - Larger airlines? (mergers/alliances)
  - More specialisation
  - High passenger load factors

- **New technology**
  - Faster aircraft / shorter turnrounds
  - Simpler processes
  - Improved aircraft/engines (eg B787/A350)
  - e-commerce (e-ticket, web based distribution, CRM)
  - RFID (bags/cargo), Self-service check-in, ACARS etc
  - Biometrics

*Lessons from Low Cost Carrier business model?*
## SAS Status 2002 Targets

<table>
<thead>
<tr>
<th>Category</th>
<th>2002</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aircraft utilisation (hrs/aircraft)</td>
<td>7.5</td>
<td>9</td>
</tr>
<tr>
<td>Crew utilisation (hrs/pilot/year)</td>
<td>490</td>
<td>600</td>
</tr>
<tr>
<td>Cabin crew utilisation (hrs/employee/year)</td>
<td>530</td>
<td>600</td>
</tr>
<tr>
<td>Aircraft overnight stops per year</td>
<td>800</td>
<td>500</td>
</tr>
<tr>
<td>Turnaround time (minutes)</td>
<td>40</td>
<td>30</td>
</tr>
<tr>
<td>Ground service costs (change)</td>
<td>-10% to -15%</td>
<td></td>
</tr>
<tr>
<td>Maintenance costs (change)</td>
<td>-10% to -15%</td>
<td></td>
</tr>
</tbody>
</table>
Channel shift: British Airways

% of Bookings


Ba.com  Call Centers  Online agents  Traditional agents
Airline Outsourcing

- Internal cost levels are uncompetitive
- Other firms have expertise and/or economies of scale to be more efficient and cost effective (even allowing for their profit)
- Future investments more easily sustained by others (e.g., GDS firms, and other IT)
- Make sure there are now and will be in future competing firms bidding for your business
Negative factors for increased productivity

- Lack of international standards in some areas
- Need for increased security
- Airport congestion:
  - Limits to new runway construction; greater peaking in passenger terminal; surface access congestion
- Air Traffic Management:
  - Congestion, too many centres, restrictive practices
- Environmental:
  - Noise curfews and operational restrictions
  - Emissions caps and/or taxes

Trade unions?
IATA Industry priorities for 2006

- Achieve 70% penetration of e-ticketing in BSPs by end 2006
- Secure commitment for use of CUSS at 15 new locations
- Achieve savings of $1.3 billion in taxes, charges and fuel fees
- Secure $1.5 billion of fuel savings through operations, new routings and infrastructure improvements
- Launch seven new BSP/CASS operations
London to New York in a Super Constellation in 1950s:  
*Piston-engined fuel efficiency (same fuel/seat-km as B777)*

Pressurised cabin, 
but expensive, slow, limited range and not always reliable

Source: Ralph M Pettersen website
Selected airlines: fuel efficiency in 2004
Domestic and intra-EU routes

Marked advantage from higher load factors and seat density (LCCs and leisure) and larger aircraft (leisure)

Source: Morrell (2006)
### Lower deck cargo capacities: selected long-haul passenger aircraft types

<table>
<thead>
<tr>
<th>Aircraft</th>
<th>Total payload (t)**</th>
<th>Tonnes* @ 167 kg/cu.m</th>
<th>% total payload</th>
</tr>
</thead>
<tbody>
<tr>
<td>B767-200</td>
<td>29</td>
<td>10</td>
<td>35.4</td>
</tr>
<tr>
<td>B767-300</td>
<td>36</td>
<td>14</td>
<td>38.2</td>
</tr>
<tr>
<td>B787-8</td>
<td>42</td>
<td>17</td>
<td>40.6</td>
</tr>
<tr>
<td>A330-200</td>
<td>43</td>
<td>17</td>
<td>39.0</td>
</tr>
<tr>
<td>B777-200</td>
<td>51</td>
<td>20</td>
<td>38.7</td>
</tr>
<tr>
<td>A340-300</td>
<td>51</td>
<td>20</td>
<td>39.9</td>
</tr>
<tr>
<td>B747-400</td>
<td>64</td>
<td>20</td>
<td>32.2</td>
</tr>
<tr>
<td>B777-300</td>
<td>65</td>
<td>27</td>
<td>41.5</td>
</tr>
<tr>
<td>B747-8</td>
<td>71</td>
<td>22</td>
<td>31.5</td>
</tr>
<tr>
<td>A380-800</td>
<td>73</td>
<td>16</td>
<td>21.3</td>
</tr>
</tbody>
</table>

* Cargo only; **passengers, baggage and cargo
Fuel efficiency versus aircraft size by aircraft type

- **Single aisle**
- **Twin aisle**
- **Double deckers**

**Passenger and cargo payload (kg)**

**Tonne-kms available per US gallon**
Capacity per flight: AEA member airlines: Intra-European routes

Index (1975 = 100)

- Seats index
- Tonnes index


- 15 tonnes
- 128 seats

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Average seats per flight: AEA and selected airlines: all long-haul routes
Airports Council International forecasts of average passengers per flight

- Middle East: +1.4%
- Asia/Pacific: -0.4%
- Europe: +2.0%
- Africa: +2.2%
- Latin America: +1.5%
- North America: +0.9%

Average passengers per flight in 2005

Av% pa 2005 to 2025
Recent average aircraft size forecasts

- Boeing: hardly any increase over next 20 years
- Airbus: +20% over next 20 years
- Rolls-Royce: +0.6% pa over next 20 years (about 13% up overall)
- Frankfurt/Main Airport: +1.2% pa from 2005 to 2020
- London Heathrow between 2000/01 and 2012/13
  - Domestic: +1.0% pa
  - Short-haul: +1.3% pa
  - Long-haul: +1.7% pa
Summary of Main Points

- Poor industry profitability and return on capital
- Highly geared: large swings in profits
- Longer-term traffic growth prospects good
- Continued advances in productivity needed to keep costs in check:

  Lessons from LCC business model

  but could be constrained by lack of airport and ATC capacity as environmental measures and taxes become more widespread