Airline markets are shifting, both in terms of product...
...And in terms of geography

% of total O-D journeys (12m rolling sum)

Within developed markets

Within emerging markets

Between developed and emerging markets

Source: IATA/Tourism Economics Air Passenger Forecasts, September 2016
The GFC precipitated one key divergence

Air travel and cargo volumes

Source: ICAO, IATA
Retreat from globalization

Source: IMF World Economic Outlook and the World Trade Organization
Supply chains have been shortened

World trade/IP ratio vs. measure of global supply chains

Index (Oct 2008=100)

Ratio of foreign value added to domestic value added in world gross exports

World trade/IP ratio

Share (%)

1995 1997 1999 2001 2003 2005 2007 2009 2011 2013 2015
Protectionism is on the rise

Donald Trump Vows to Rip Up Trade Deals and Confront China
The New York Times
28 June 2016

Across Europe, distrust of mainstream political parties is on the rise
Guardian
25 May 2016

Clamour for trade protectionism on rise:
Arun Jaitley
CNBC
13 October 2016
Finding new customer segments

Growth in world trade and (US) e-commerce sales

Growth in e-commerce sales

Growth in world trade

% change over previous year

Source: IATA Economics using data from Netherlands CPB and Haver
Air travel growth has remained strong

IATA forecasts of global RPK growth

Source: IATA Economic Performance of the Airline Industry
But world is stuck in a low economic growth path

IMF forecasts of global economic growth (using market exchange rates)

Source: IMF World Economic Outlook
Price stimulation from LCC entry in significant markets

LCC share of seats flown (% of total)

Sources: IATA using SRS Analyser data
Significant price stimulation from fuel cost pass-through

Average return fare and Brent crude oil prices

Source: IATA using PaxIS+ and Haver data
But a very mixed picture across travel markets today

Source: IATA Monthly Statistics by Route
‘Market’ price elasticities depend on substitutes

<table>
<thead>
<tr>
<th></th>
<th>Route/Market level</th>
<th>National level</th>
<th>Supra-national level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Short-haul</td>
<td>Long-haul</td>
<td>Short-haul</td>
</tr>
<tr>
<td>Intra N America</td>
<td>-1.5</td>
<td>-1.4</td>
<td>-0.9</td>
</tr>
<tr>
<td>Intra Europe</td>
<td>-2.0</td>
<td>-2.0</td>
<td>-1.2</td>
</tr>
<tr>
<td>Intra Asia</td>
<td>-1.5</td>
<td>-1.3</td>
<td>-0.8</td>
</tr>
<tr>
<td>Intra Sub-Saharan Africa</td>
<td>-0.9</td>
<td>-0.8</td>
<td>-0.5</td>
</tr>
<tr>
<td>Intra S America</td>
<td>-1.9</td>
<td>-1.8</td>
<td>-1.1</td>
</tr>
<tr>
<td>Trans-Atlantic</td>
<td>-1.9</td>
<td>-1.7</td>
<td>-1.1</td>
</tr>
<tr>
<td>Trans-Pacific</td>
<td>-0.9</td>
<td>-0.8</td>
<td>-0.5</td>
</tr>
<tr>
<td>Europe-Asia</td>
<td>-1.4</td>
<td>-1.3</td>
<td>-0.8</td>
</tr>
</tbody>
</table>
Coping with further US $ strength

Exchange rates per US$, indexed to equal 100 in 2010

Source: IATA using data from Haver
There is also still a lot of pent-up demand (and supply)

Distribution of countries by level of air market liberalization

Air markets are less liberal
Air markets are more liberal

Median WALI scores
2005: 9.9
2011: 10.2

Proportion of countries in each range (%)

Weighted Air Liberalization Index (0 = completely regulated, 50 = completely liberalized)

Source: World Trade Organization QASAR database
Scope for large price change in short-haul markets

Passenger yields and average trip length

- Within Africa
- Within South America
- Within East Asia
- Within ASEAN
- Within Europe
- Middle East - rest of world
- North Atlantic
- Pacific
- China - North America
- ASEAN - North America
- ASEAN - Africa
- ASEAN - Europe
- Europe - Australia

Productivity: 

- Average trip length (kms)
- Passenger yields, US$ per RPK
Generalized costs about time as well as fares

Unique city-pairs and real transport costs

Unique city-pair connections

Real transport costs

Source: IATA Economic Performance of the Airline Industry, End-Year 2016 report
Trip frequency still low in many important markets

Propensity to fly (total passengers/population)

Australia, Spain, United Kingdom, Canada, United States, Italy, France, Germany, Saudi Arabia, Korea, Republic Of, Japan, Thailand, Turkey, Chile, Colombia, Russian Federation, Mexico, Brazil, Indonesia, South Africa, China, Egypt, India, Nigeria

Source: IATA/Tourism Economics Air Passenger Forecasts, September 2016
Living standards make big difference to travel frequency

Frequency of air travel and living standards

- **Trip frequency**
- **Months before next trip**

Source: IATA/Tourism Economics Air Passenger Forecasts, April 2016
Living standards still have much room for catch-up

Growth in per capita incomes over the long run

% CAGR (2015-2035)

India: 4.8%, China: 4.7%, Indonesia: 3.9%, Turkey: 2.5%, Russia: 1.5%, Mexico: 1.4%, Brazil: 1.3%, United Kingdom: 1.2%, United States: 0.9%, Germany: 0.8%, Canada: 0.8%, France: 0.8%, Japan: 0.7%, Italy: 0.7%

Source: IATA/Tourism Economics Air Passenger Forecasts, September 2016
Large potential in populous but (currently) poor markets

Airline passenger trips and GDP per capita

Source: IATA Economics using data from PaxIS+ and Oxford Economics
Demographics strong in some key markets, adverse in others

The UN's projected change in population (2015-2035, %) and UN projections adjusted for demographic factors.

Source: IATA/Tourism Economics Air Passenger Forecasts, September 2016
Wide range of growth expected over next 20 years

Drivers of passenger growth (2015-2035 % CAGR, selected countries)

- Travel cost
- Population & demographics
- Living standards
- Total growth

Source: IATA/Tourism Economics Air Passenger Forecasts, April 2016
China largest increment, but don’t dismiss the US

Change in domestic O-D markets (millions, 2015-2035)

<table>
<thead>
<tr>
<th>Country</th>
<th>Change in O-D markets</th>
<th>Corresponding CAGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>600</td>
<td>5.2%</td>
</tr>
<tr>
<td>United States</td>
<td>300</td>
<td>2.6%</td>
</tr>
<tr>
<td>India</td>
<td>250</td>
<td>6.7%</td>
</tr>
<tr>
<td>Indonesia</td>
<td>150</td>
<td>3.5%</td>
</tr>
<tr>
<td>Vietnam</td>
<td>100</td>
<td>8.2%</td>
</tr>
<tr>
<td>Turkey</td>
<td>100</td>
<td>5.2%</td>
</tr>
<tr>
<td>Brazil</td>
<td>75</td>
<td>2.6%</td>
</tr>
<tr>
<td>Philippines</td>
<td>65</td>
<td>6.0%</td>
</tr>
<tr>
<td>Australia</td>
<td>50</td>
<td>3.0%</td>
</tr>
<tr>
<td>Mexico</td>
<td>35</td>
<td>4.2%</td>
</tr>
</tbody>
</table>

Source: IATA/Tourism Economics Air Passenger Forecasts, September 2016
New top international country-pair markets emerging

Source: IATA using data from TE/IATA Air Passenger Forecasts, October 2016
Significant change in top-10 in air travel over next 20 years

Source: IATA/Tourism Economics Air Passenger Forecasts, September 2016
Long-term travel growth even in gloomy macro scenario

Global O-D passenger journeys (billion)

Reflation/open borders scenario

Constant policies scenario

Pick-up in Protectionism scenario

Source: IATA/Tourism Economics Air Passenger Forecasts, September 2016
Chinese tourist outflows begin to dominate

Tourist departures, million

- China
- Germany
- US
- Japan

Source: IATA Economics using data from Tourism Economics’ Decision Metrics database
Centre of gravity of air travel shifting fast towards China

Source: IATA Economics using data from PaxIS+
Connecting market shares stable - but Gulf/TK threat

Change in number of connecting passengers by major hubs (2010-2015)

Within Asia
- Middle East: 0.0%
- Istanbul: 0.0%
- Singapore: 0.0%
- Hong Kong: 0.0%

Asia - North America
- Middle East: 4.3%
- Istanbul: 0.5%
- Singapore: 0.4%
- Hong Kong: 0.1%

Asia - Europe
- Middle East: 2.3%
- Istanbul: 0.1%
- Singapore: 0.1%
- Hong Kong: 1.1%

Asia - Australasia
- Middle East: 22.5%
- Istanbul: 0.3%
- Singapore: 0.0%
- Hong Kong: 0.3%

Europe - Australasia
- Middle East: 5.2%
- Istanbul: 0.5%
- Singapore: 2.3%
- Hong Kong: 0.5%

*DXB, AUH and DOH
*IST and SAW

Note: the data labels show the percentage point change in the proportion of total passengers connecting through each hub between 2010 and 2015.

Sources: IATA using PaxIS+ data
Gulf hubs starting to dominate some markets

Passenger journeys connecting through the Middle East (either DXB, AUH or DOH), % of total direct & connecting market

<table>
<thead>
<tr>
<th>Region</th>
<th>2010</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia - North America</td>
<td>4.1%</td>
<td>8.5%</td>
</tr>
<tr>
<td>Asia - Europe</td>
<td>10.6%</td>
<td>15.8%</td>
</tr>
<tr>
<td>Asia - Middle East</td>
<td>11.4%</td>
<td>14.6%</td>
</tr>
<tr>
<td>Europe - Australasia</td>
<td>30.3%</td>
<td>52.7%</td>
</tr>
<tr>
<td>Asia - Africa</td>
<td>36.8%</td>
<td>41.7%</td>
</tr>
</tbody>
</table>

Sources: IATA using PaxIS+ data
Price competitiveness issue on these markets

Yield premium for connecting through Hong Kong versus Gulf hubs

UK - Australia: 1.5%
UK - New Zealand: -3.7%
France - Australia: -4.1%

Sources: IATA using PaxIS+ data
### The air transport paradox

#### Revenue growth

<table>
<thead>
<tr>
<th>Industry</th>
<th>CAGR, percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthcare equipment and services</td>
<td>6.2</td>
</tr>
<tr>
<td>Rail</td>
<td>6.2</td>
</tr>
<tr>
<td><strong>Airlines</strong></td>
<td>6.1</td>
</tr>
<tr>
<td>Energy</td>
<td>6.0</td>
</tr>
<tr>
<td>Tech hardware and equipment</td>
<td>5.8</td>
</tr>
<tr>
<td>Materials</td>
<td>5.2</td>
</tr>
<tr>
<td>Software and services</td>
<td>4.7</td>
</tr>
<tr>
<td>Utilities</td>
<td>4.6</td>
</tr>
<tr>
<td>Freight forwarding</td>
<td>4.5</td>
</tr>
<tr>
<td>Capital goods</td>
<td>4.3</td>
</tr>
<tr>
<td>Economy</td>
<td>4.3</td>
</tr>
<tr>
<td>Pharma, biotech, and life sciences</td>
<td>4.2</td>
</tr>
<tr>
<td>Retailing</td>
<td>4.1</td>
</tr>
<tr>
<td>Food, beverage, and tobacco</td>
<td>3.9</td>
</tr>
<tr>
<td>Food and staples retail</td>
<td>3.8</td>
</tr>
<tr>
<td>Transportation &amp; logistics</td>
<td>3.6</td>
</tr>
<tr>
<td>Trucking</td>
<td>3.4</td>
</tr>
<tr>
<td>Contract logistics</td>
<td>3.4</td>
</tr>
<tr>
<td>Household and personal</td>
<td>3.3</td>
</tr>
<tr>
<td>Telecom</td>
<td>3.3</td>
</tr>
<tr>
<td>Shipping</td>
<td>3.0</td>
</tr>
<tr>
<td>Semiconductors and equipment</td>
<td>2.8</td>
</tr>
<tr>
<td>Communications and professional services</td>
<td>2.6</td>
</tr>
<tr>
<td>Consumer services</td>
<td>2.4</td>
</tr>
<tr>
<td>Consumer durables and apparel</td>
<td>2.4</td>
</tr>
<tr>
<td>Bus</td>
<td>2.2</td>
</tr>
<tr>
<td>Automobiles and components</td>
<td>2.1</td>
</tr>
<tr>
<td>Postal/CEP</td>
<td>1.6</td>
</tr>
<tr>
<td>Media</td>
<td>1.4</td>
</tr>
</tbody>
</table>

#### ROIC excluding goodwill

<table>
<thead>
<tr>
<th>Industry</th>
<th>Average, percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software and services</td>
<td>94.7</td>
</tr>
<tr>
<td>Pharma, biotech, and life sciences</td>
<td>45.7</td>
</tr>
<tr>
<td>Household and personal</td>
<td>36.4</td>
</tr>
<tr>
<td>Healthcare equipment and services</td>
<td>33.9</td>
</tr>
<tr>
<td>Media</td>
<td>30.7</td>
</tr>
<tr>
<td>Food, beverage, and tobacco</td>
<td>26.8</td>
</tr>
<tr>
<td>Tech hardware and equipment</td>
<td>24.7</td>
</tr>
<tr>
<td>Communications and professional services</td>
<td>21.9</td>
</tr>
<tr>
<td>Semiconductors and equipment</td>
<td>21.5</td>
</tr>
<tr>
<td>Telecom</td>
<td>20.6</td>
</tr>
<tr>
<td>Postal/CEP</td>
<td>16.6</td>
</tr>
<tr>
<td>Consumer services</td>
<td>15.7</td>
</tr>
<tr>
<td>Retailing</td>
<td>15.7</td>
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<tr>
<td>Consumer durables and apparel</td>
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</tr>
<tr>
<td>Economy</td>
<td>13.9</td>
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<tr>
<td>Capital goods</td>
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<td>Bus</td>
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<td>Food and staples retail</td>
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<td>Material</td>
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<td>Contract logistics</td>
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<td>Shipping</td>
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</tr>
<tr>
<td>Trucking</td>
<td>6.4</td>
</tr>
<tr>
<td>Utilities</td>
<td>6.1</td>
</tr>
</tbody>
</table>

#### Notes

1. Real revenue growth, 2004 - 13 CAGR inflation adjusted, median for industry
2. ROIC after tax, excluding goodwill; excludes outliers

Source: McKinsey presentation to IATA

IATA Economics [www.iata.org/economics](http://www.iata.org/economics)
At last investors are getting a ‘normal’ return

Source: IATA Economic Performance of the Airline Industry, End-Year 2016 report
Ending decades of investor capital destruction (?)

Difference between investing in airlines and investing in similar assets elsewhere

Source: McKinsey, IATA
But airline profitability still challenged outside the US

Net post-tax profit margins

Source: IATA Economic Performance of the Airline Industry, End-Year 2016 report
Balance sheets in some regions remain weak

Adjusted net debt/EBITDAR by region

- Latin America
- Asia Pacific
- Europe
- North America

Source: IATA Economic Performance of the Airline Industry, End-Year 2016 report
Solid improvement in capital productivity

Airlines' operating or EBIT margin and capital productivity

Source: IATA Economic Performance of the Airline Industry – end year 2016 report
Helping airlines’ business model innovation

2015 ROIC = adjusted EBIT/revenue * revenue/invested capital

Increasing return on capital (ROIC)

Source: IATA using data from The Airline Analyst
Structural change in approach to asset utilization

Breakeven and achieved weight load factor

Source: IATA Economic Performance of the Airline Industry – end year 2016 report
High fuel prices not always bad for airlines

Airline industry ROIC and jet fuel prices

ROIC, % of invested capital

Jet fuel price, US$/barrel

Source: IATA, Platts
Consumer and business demand extremely strong

World scheduled air travel, freight and world real GDP

Indexed to equal 1 in 1950

Source: IATA, ICAO, Haver
Aircraft fuel efficiency has improved dramatically

Source: Lee
Costs typically passed through to prices.

Unit cost and the price of air transport

US$ in 2013 prices per tonne kilometer

US$ in 2013 prices to fly a tonne kilometer

Unit cost
(US$/ATK)

Price
(US$/RTK)

1973 oil crisis
US deregulation
EU deregulation
Boeing 707

Source: ICAO, IATA

IATA Economics  www.iata.org/economics
In fact air transport prices have fallen further than costs.

Breakeven and actual load factors

Source: IATA, ICAO

IATA Economics www.iata.org/economics
Other sectors do better

Return on capital across the air transport supply chain

- Airlines
- Airports
- ANSPs
- Maintenance
- Lessors
- Freight forwarders
- Catering
- Ground handling
- Manufacturers
- GDSs

% ROIC

- 1996-2014
- 2007-2014

Source: McKinsey for IATA
But this is not the main issue for airline earnings

Average yearly economic profit, USD billion, 2007-2014

Source: McKinsey for IATA
And awful relative performance

Annual return on invested capital, 2004-2013

Source: McKinsey
Debt finance markets still sceptical of change

<table>
<thead>
<tr>
<th>Investment grade</th>
<th>Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA+/-</td>
<td></td>
</tr>
<tr>
<td>A+/-</td>
<td></td>
</tr>
<tr>
<td>BBB+/-</td>
<td>ANZ, Qantas, Lufthansa, Ryanair, Southwest, Alaska, Westjet</td>
</tr>
<tr>
<td>BB+/-</td>
<td>Delta, American, United, Allegiant, Spirit, BA, Turkish, LATAM</td>
</tr>
<tr>
<td>B+/-</td>
<td>Air Canada, Hawaiian, JetBlue, Avianca, GOL, SAS, Virgin Australia</td>
</tr>
</tbody>
</table>

As are equity markets

US transportation sector

2016 forward P/E ratio

43%

Source: Datastream
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