



# Introduction: The Aviation Value Chain

Istanbul Technical University

Air Transportation Management, M.Sc. Program

Aviation Economics and Financial Analysis

Module 1

10 November 2014

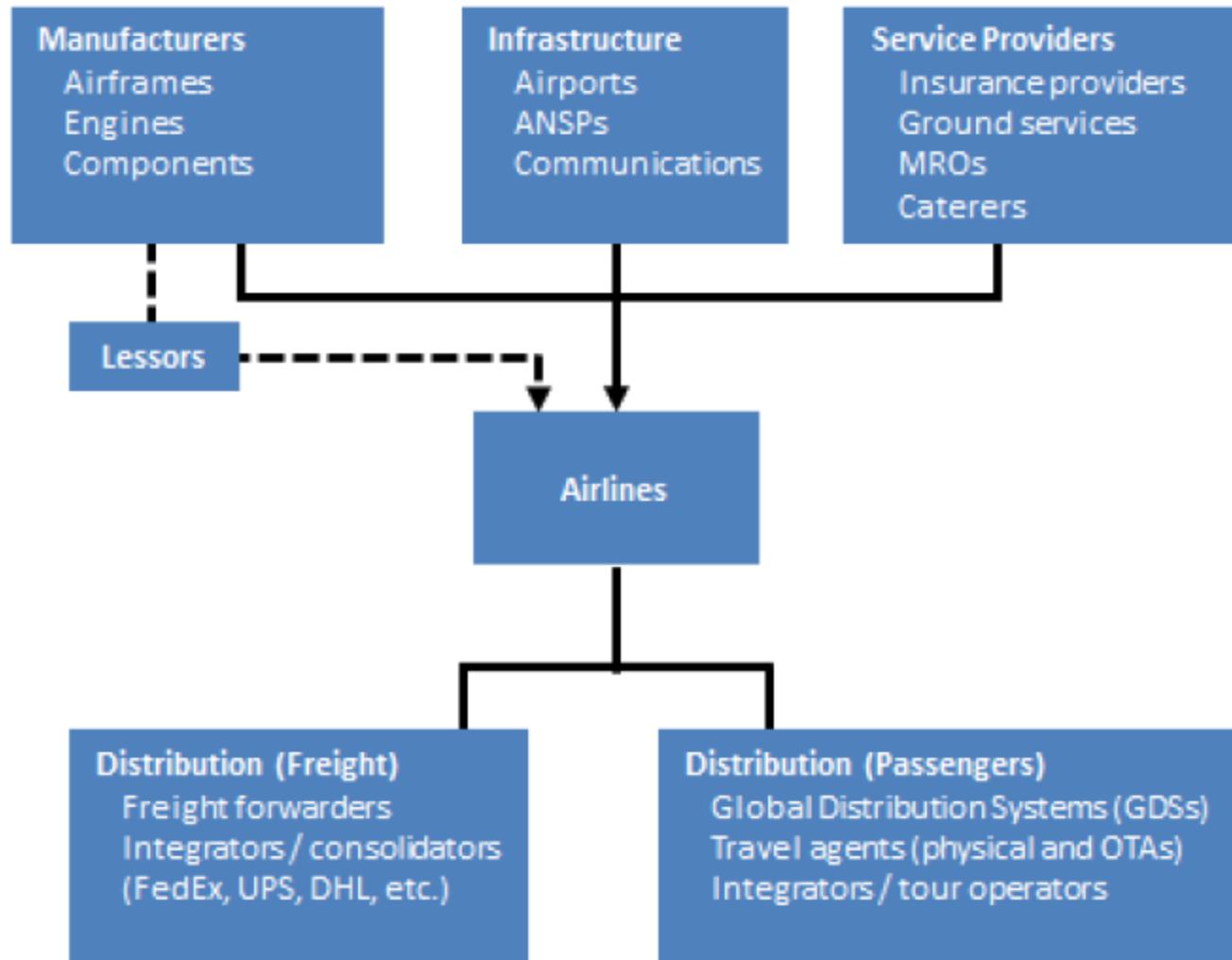
# Outline

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- **The aviation value chain**
- **Emerging role of ancillary products/ services**
- **The role of aviation**
- **The social rate of return**
- **Performance in the aviation value chain**
  - Investment
  - Rate of return
  - Credit rating

# THE AVIATION VALUE CHAIN

# The commercial aviation value chain



# The aviation value chain

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- **Made of a number of interlinked pieces**
  - Upstream and downstream
- **Supply chain is not vertically integrated**
  - I.e., Airlines have limited investments in other sectors of the value chain
  - Some past investments were divested due to regulation
- **Current airline investments include:**
  - Fuel and ground handling services, cargo facilities, some airport terminals

## The aviation value chain – cont.

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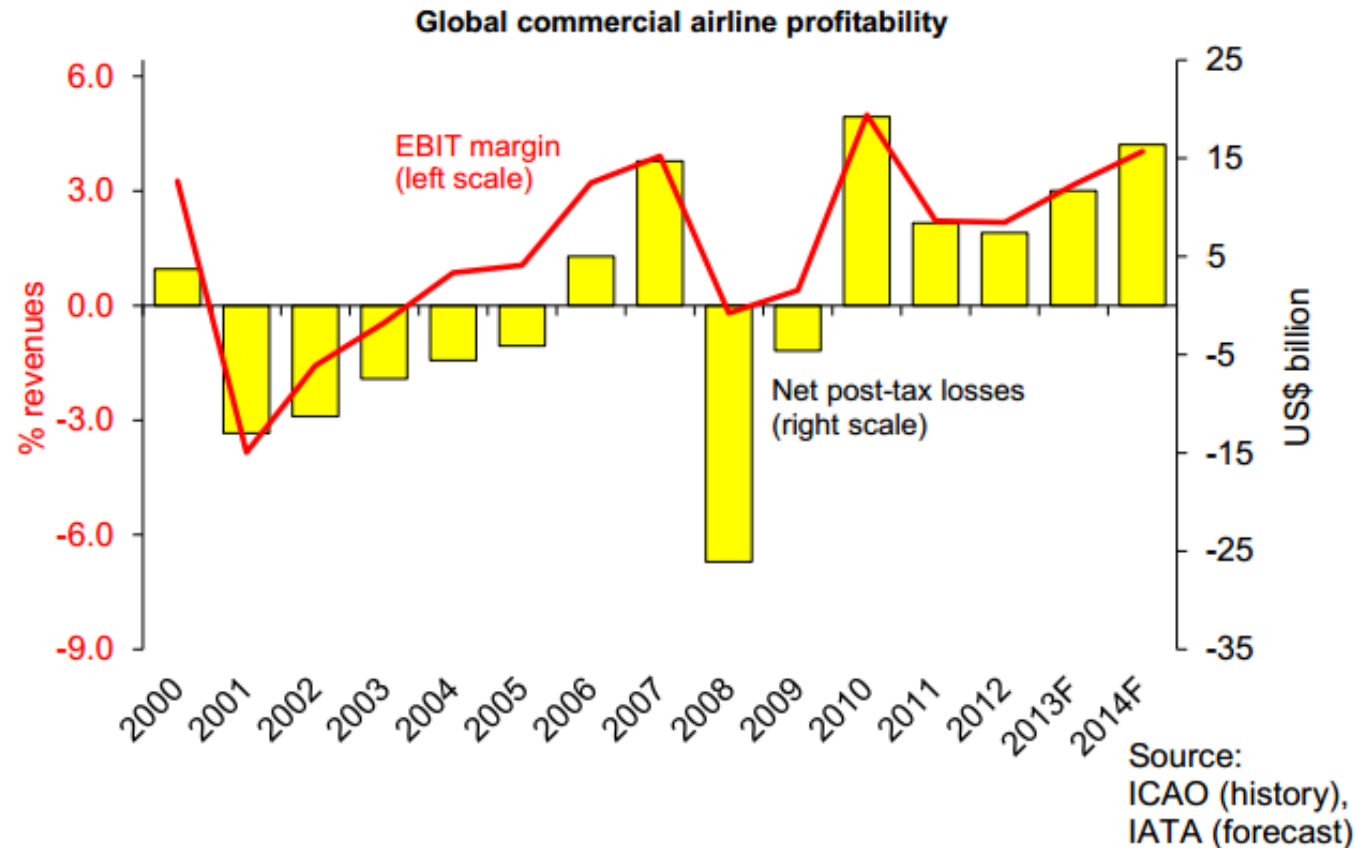
- **Even without vertical integration, there are standards and operating procedures across the value chain members (IATA, ICAO)**
  - This has lowered industry costs and increased customer service levels
- **E.g., IATA has established standards for:**
  - sale and exchange of travel documents
  - clearing of financial transactions between value chain partners
  - Records for travel documents

# RELATIVE PERFORMANCE IN THE AVIATION VALUE CHAIN

# Airline Industry Financial Performance

- Airline financial performance is highly susceptible to economic cycles.
- In 1970-2011, the industry's net profit margin (net of taxes and debt servicing costs) was 0.8%.
- Recently, the best net profit margin was 3.2%, insufficient to cover 7-8% capital costs
- The financial crisis resulted in a net operating loss of more than US\$25 billion in 2008

## Airline financial performance is volatile

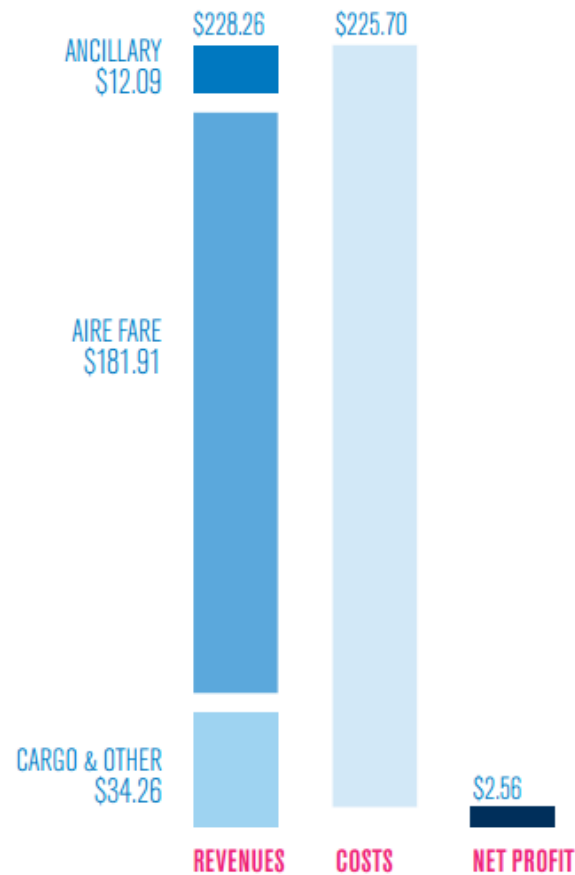


Source: International Air Transport Association (IATA), Financial Forecast, September 2013.



# Worldwide Airline Financial Performance

CHART 4: 2012 WORLDWIDE AIRLINE FINANCIAL RESULTS PER DEPARTING PASSENGER

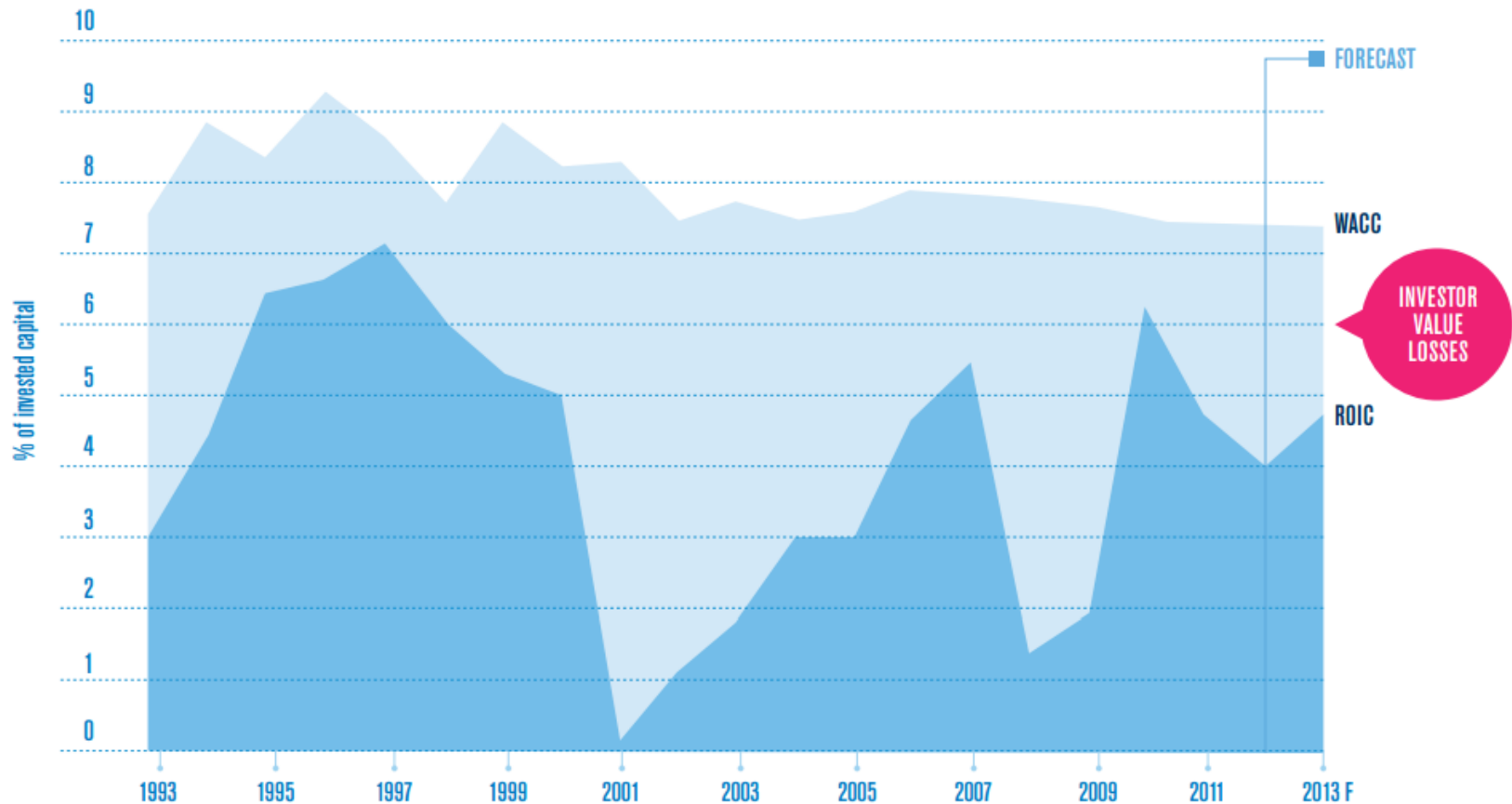


Source: Ancillary revenues from Idea Works 2012 estimate, other data IATA. Costs include operating items and debt interest.

Source: International Air Transport Association (IATA)

# Airline Industry Rate of Return

CHART 5: RETURN ON INVESTED CAPITAL IN AIRLINES AND THEIR WACC

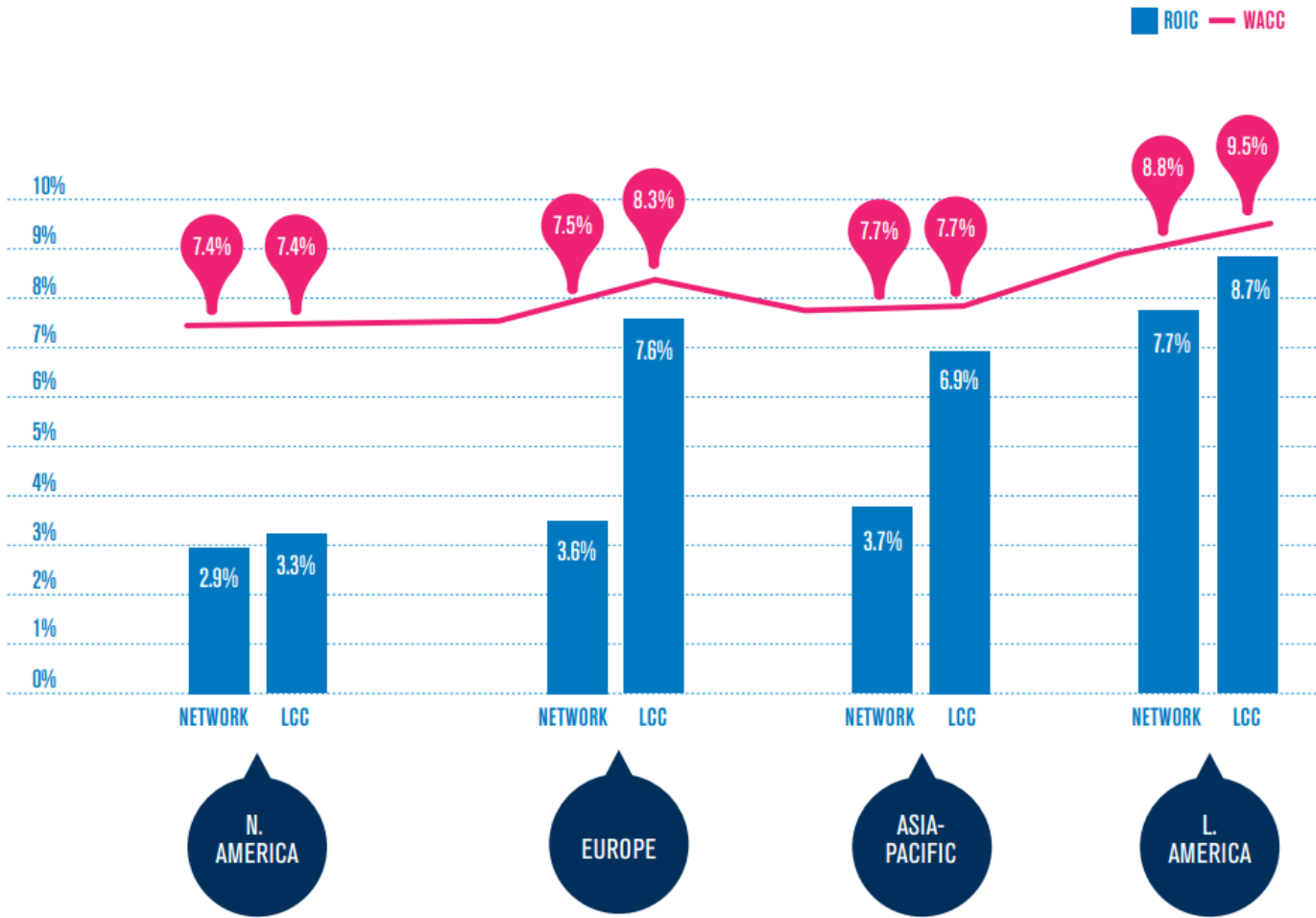


Source: McKinsey & Company for IATA

Source: International Air Transport Association (IATA)

# Rate of Return by business model

CHART 9: ROIC AND WACC BY REGION AND BUSINESS MODEL, 2004-2011



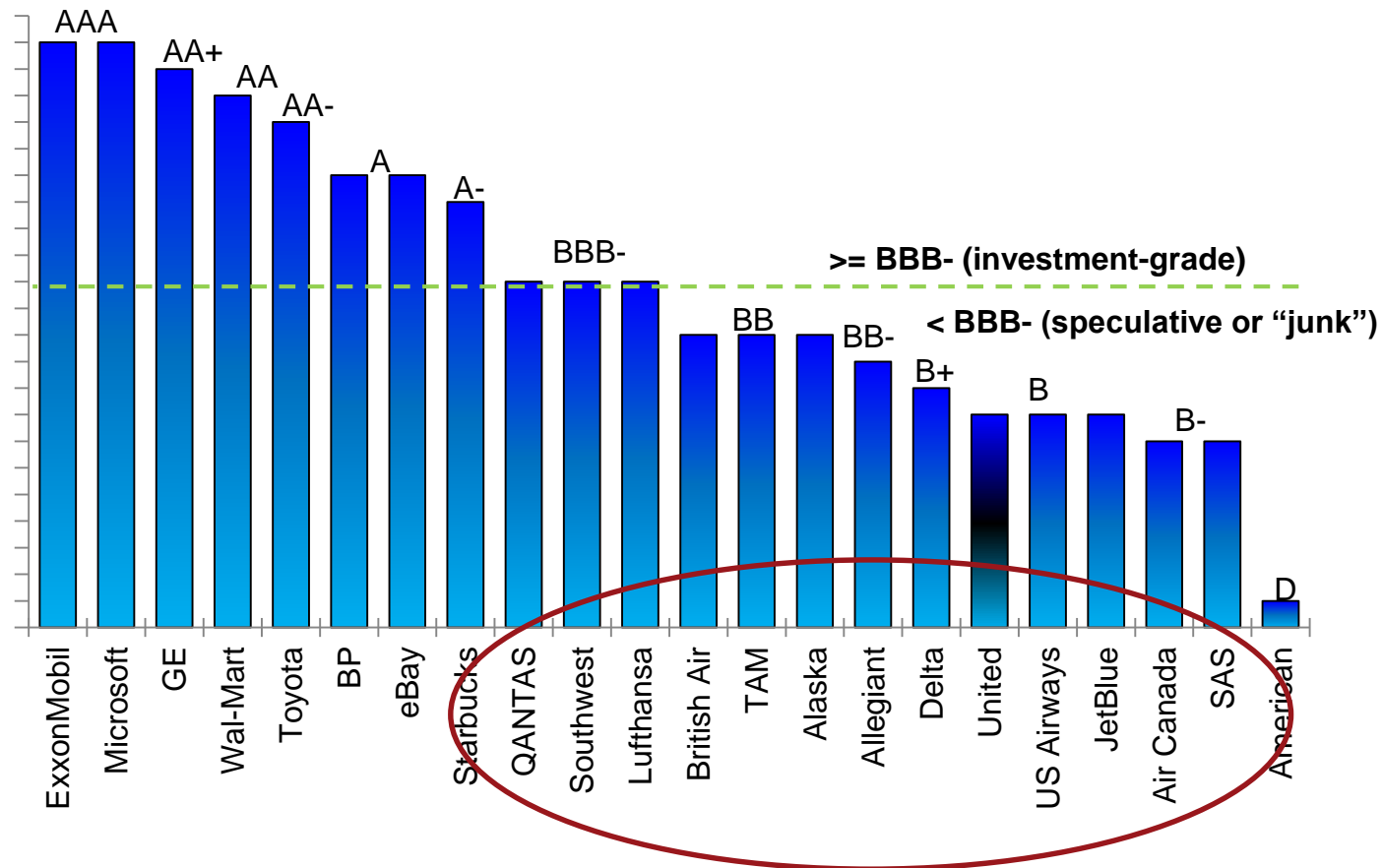
Source: McKinsey & Company for IATA

Source: International Air Transport Association (IATA)

# Corporate Credit Rating (U.S.)

## Credit rating of select airlines and U.S. companies

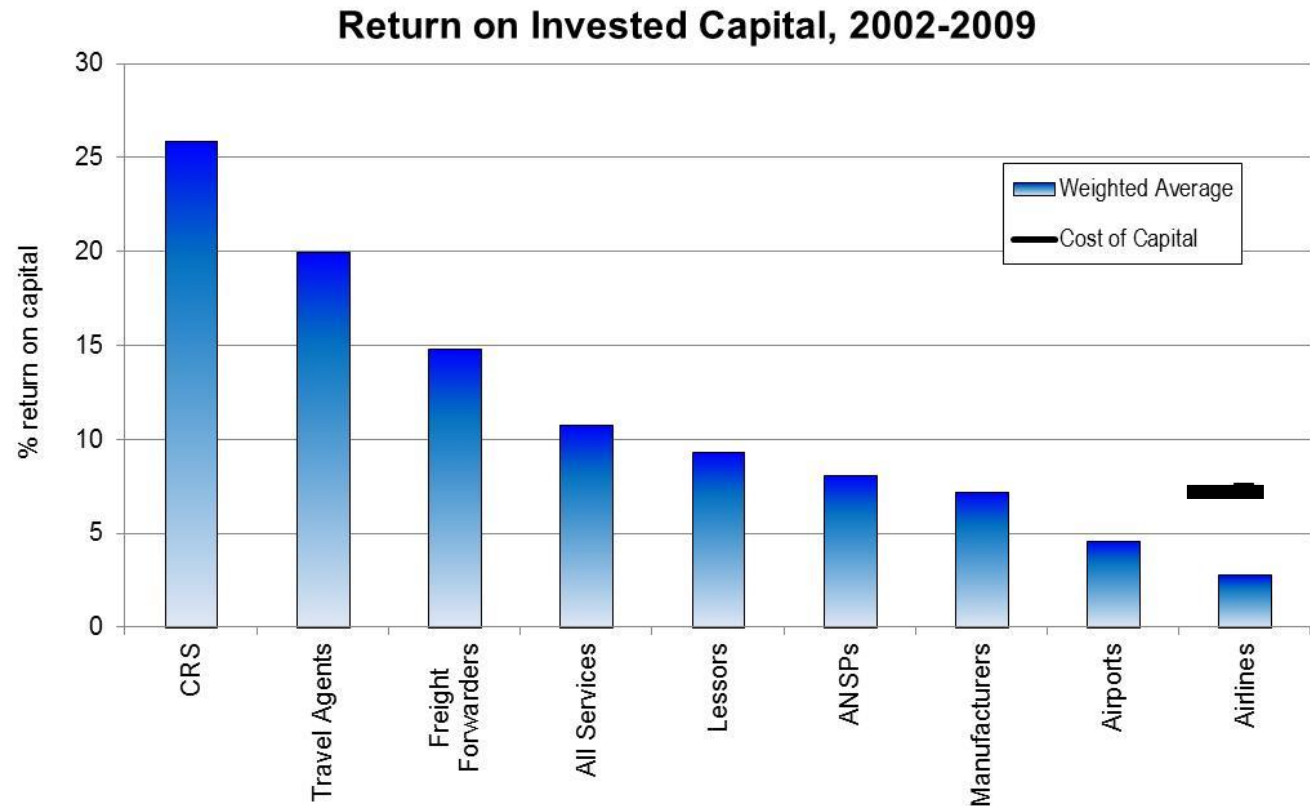
- Most airline credit ratings are junk grade.
- Many airlines have consistently ranked as speculative grade
- E.g., Delta, United, American Air Canada



Source: Airlines for America Presentation "A4A Industry Review and Outlook", November 2013

# Return on Invested Capital: Aviation Value Chain

- Airlines have the lowest returns in the aviation value chain, well below that of travel agents and CRSs
- Airline returns are well below their cost of capital

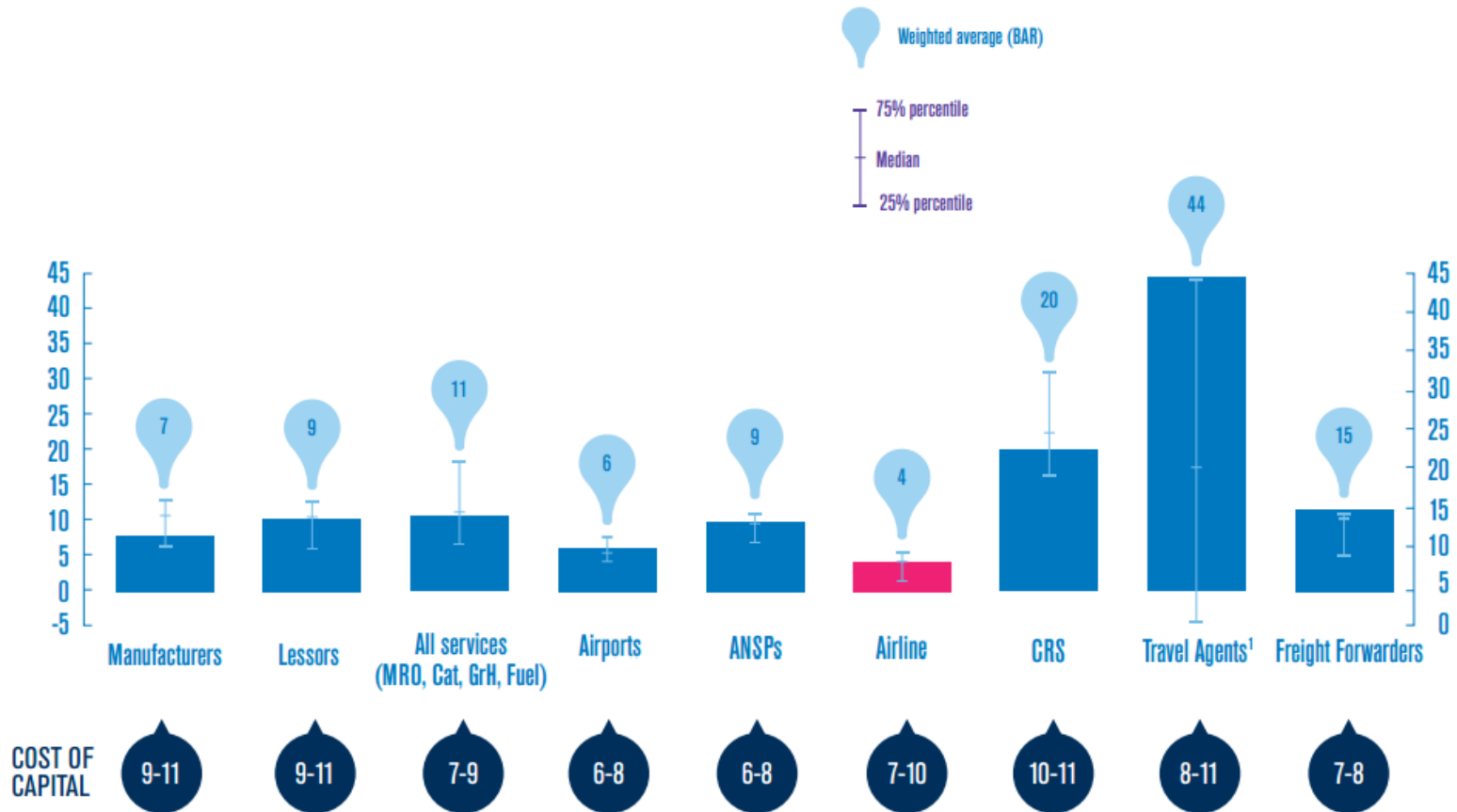


Source: McKinsey & Company for IATA, 2011

# Return on capital for the value chain

**CHART 12: RETURN ON CAPITAL VARIES THROUGHOUT THE VALUE CHAIN**

ROIC excluding goodwill of sample, period 2004-2011, %



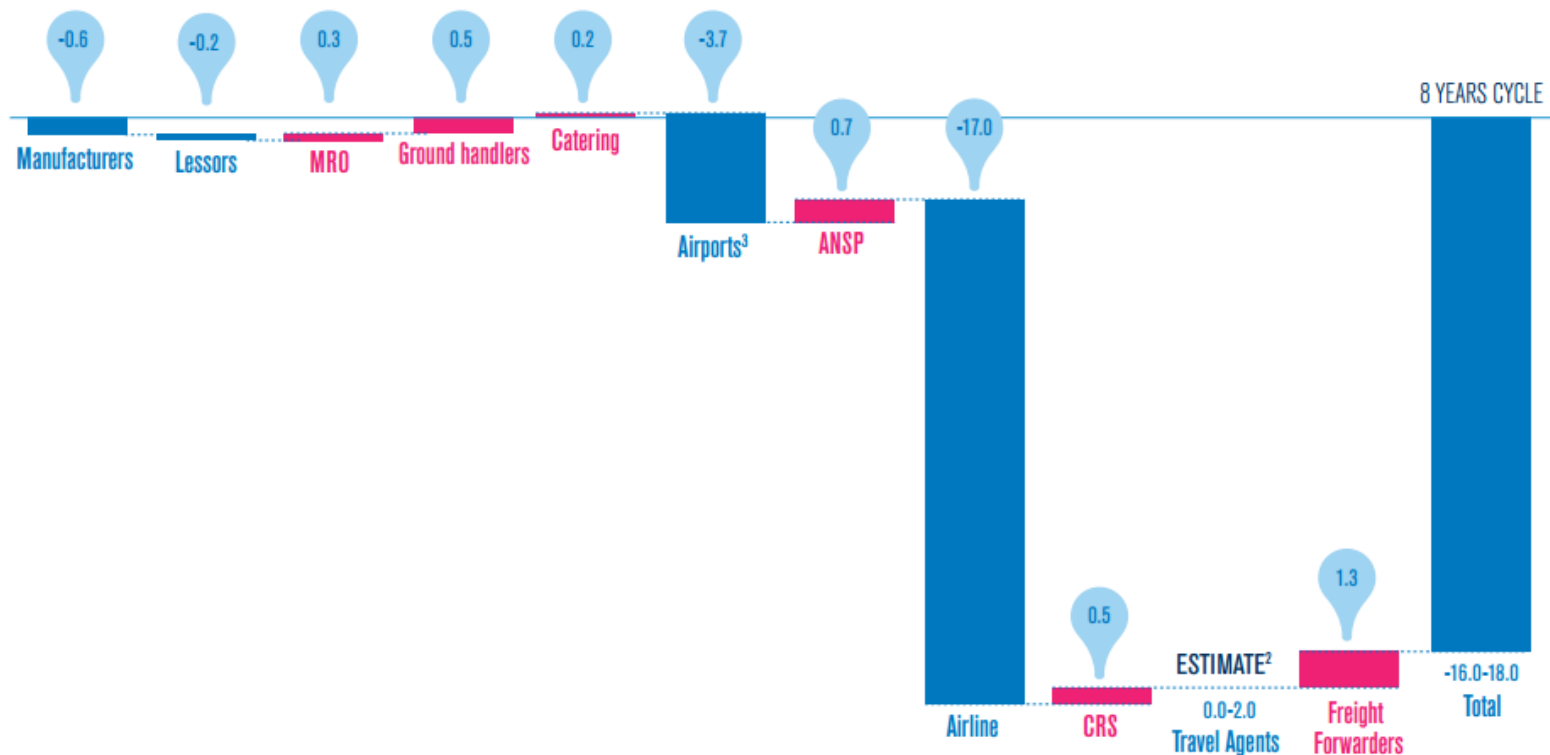
Source: IATA

Source: McKinsey & Company for IATA

# Economic profits in the value chain

**CHART 14: ECONOMIC PROFITS IN THE AIR TRANSPORT VALUE CHAIN (EXCLUDING FUEL AND LABOR)**

Average economic profit<sup>1</sup>, (ROIC-WACC) × invested capital, USD billion, 2004-2011



<sup>1</sup> Based on invested capital excluding goodwill, extrapolated to total industry

<sup>2</sup> Sample too small to give meaningful estimate

<sup>3</sup> Economic profit for airport sector extrapolated based on weighted average of sample excluding AENA. AENA subsequently added back to sector estimate

Source: McKinsey & Company for IATA

Source: IATA

# THE EMERGING ROLE OF ANCILLARY PRODUCTS/SERVICES

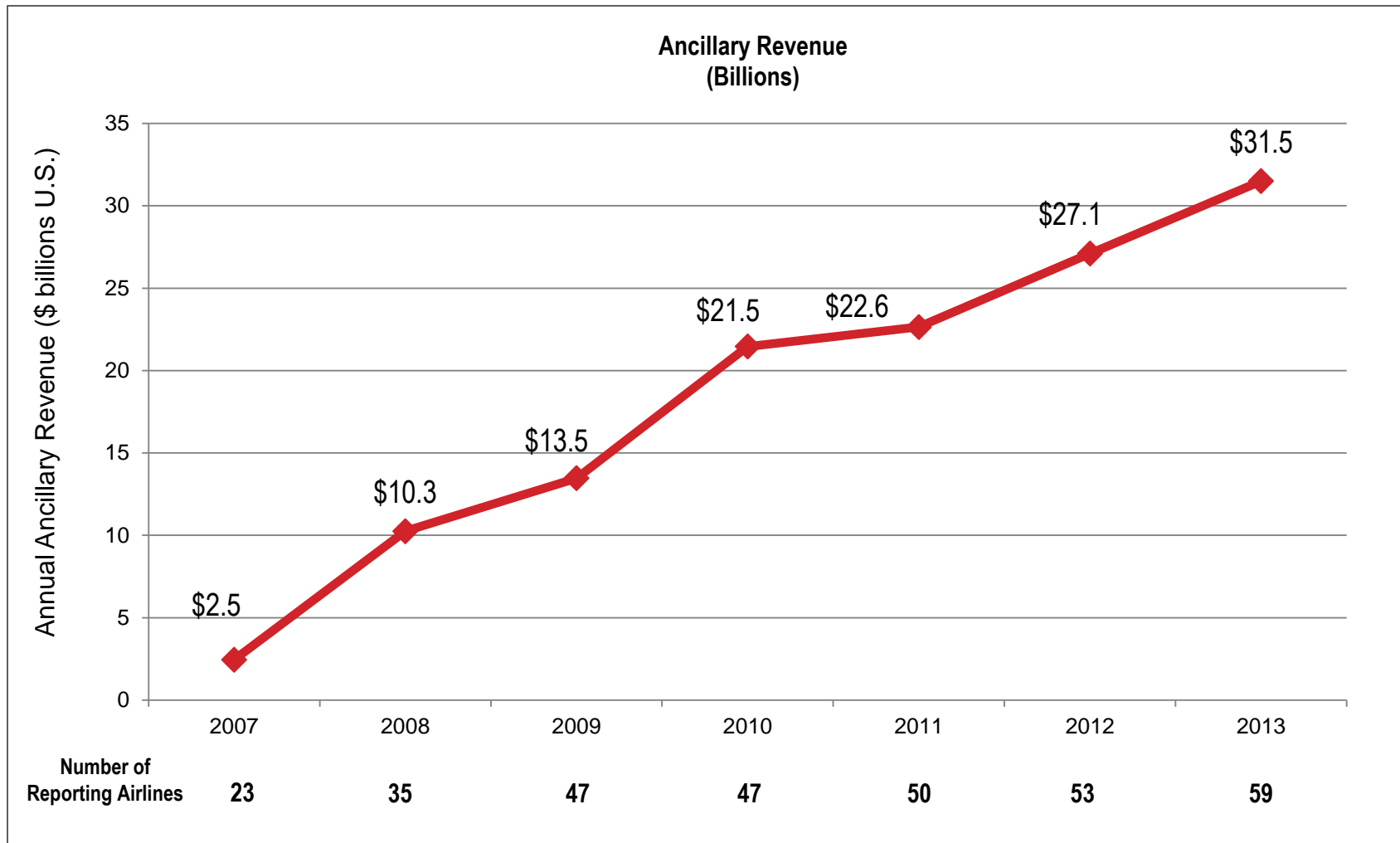


# The growth of ancillary revenues

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- **Airlines have identified elements of services that are of higher value to some passengers**
  - Seat selection, priority boarding, luggage checking, entertainment, etc.
- **Airlines are now monetising the value in these non-core services**
- **Growth in this revenue has been growing steadily**
- **A major source of income for LCCs and ULCCs**
  - New sources of revenue for legacy carriers

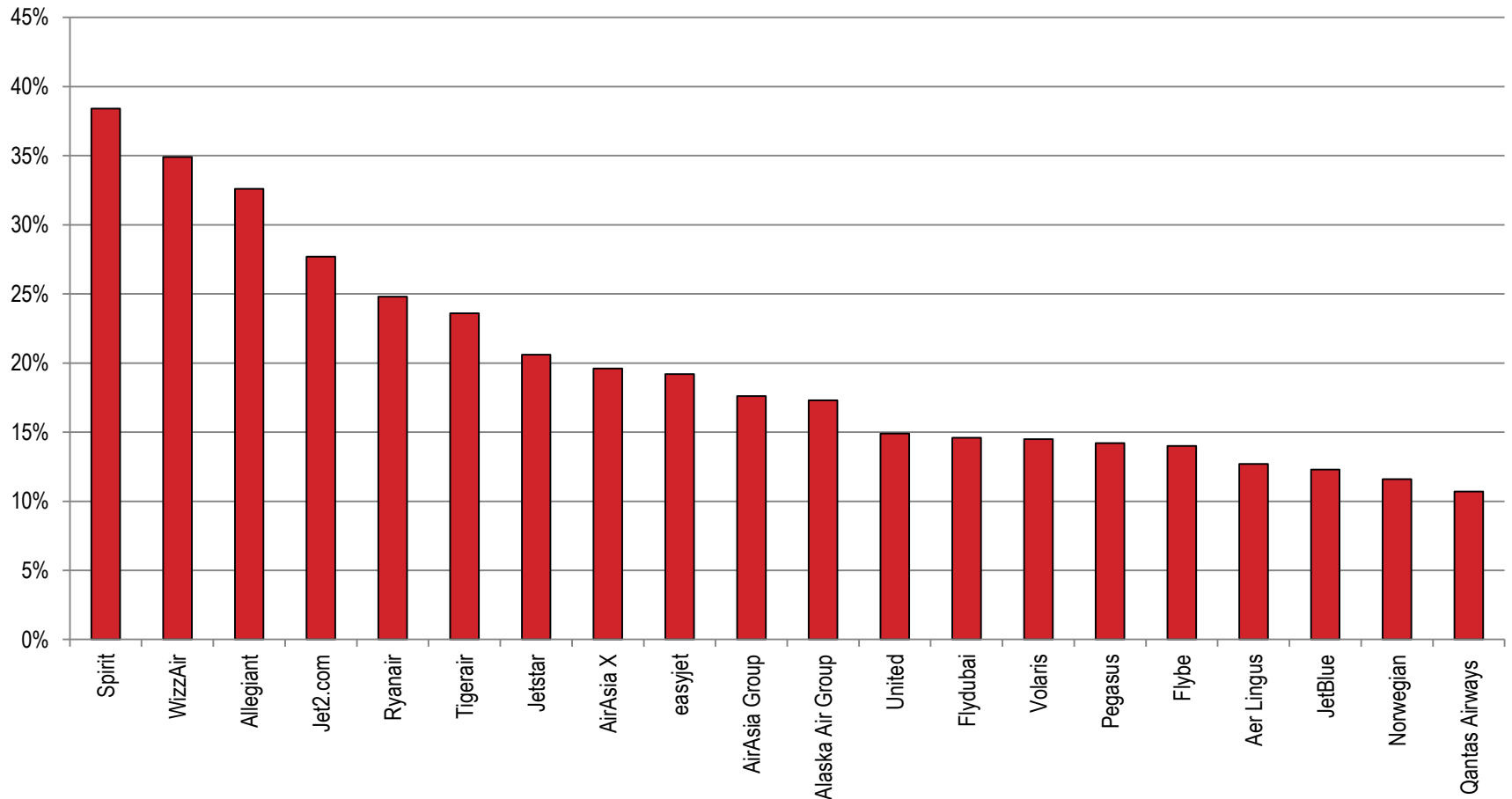
# Ancillary Revenues



Source: The Amadeus Yearbook of Ancillary Revenue by IdeaWorks Company, 2012, IdeaWorksCompany Press Release June 2013 and July 2014.

# Ancillary Revenue

Ancillary Revenue as a  
Percent of Total Revenue 2013



Source: IdeaWorksCompany, 2014 Yearbook of Ancillary Revenue Results

# The benefit of ancillary revenues

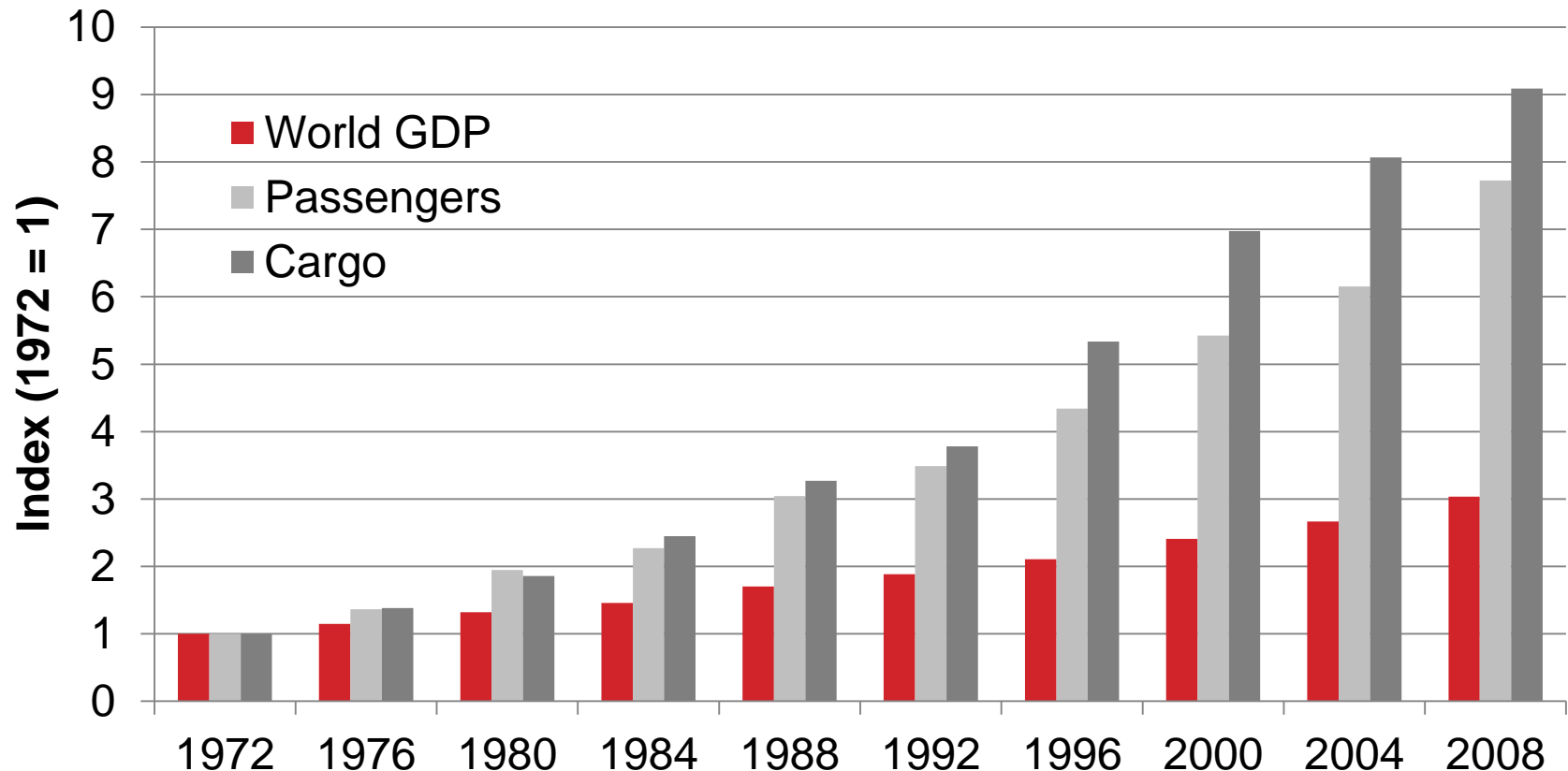
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- **Consumers can choose and pay for only the services they require**
- **Airlines can offer the core product at low prices**
  - marginal costs possibly
- **Carriers are starting to adopt a merchandising approach for service offerings**

# THE ROLE OF AVIATION

# World GDP vs Air Traffic (Pax & Cargo)

## World GDP versus Air Cargo Transport



Source: World Bank and International Civil Aviation Organization.

# Current Growth in Air Travel

## Medium-term Passenger Traffic Forecasts to 2016

*International and Domestic Traffic*

*Passenger-kilometres performed (PKP)*

Region of State's AOC Holders	Annual Growth Rates				
	History		Forecasts		
	2012	2013*	2014	2015	2016
	(%)	(%)	(%)	(%)	(%)
Europe	4.8	4.6	5.4	5.7	5.9
Africa	2.2	4.4	4.8	5.9	6.3
Middle East	14.3	11.2	11.6	12.1	12.3
Asia and Pacific	6.7	7.7	7.2	7.4	7.5
North America	1.6	2.0	2.7	3.1	3.3
Latin America and Caribbean	9.0	6.7	8.9	8.2	8.6
<b>World</b>	<b>5.3</b>	<b>5.5</b>	<b>6.0</b>	<b>6.3</b>	<b>6.5</b>

\*preliminary figures

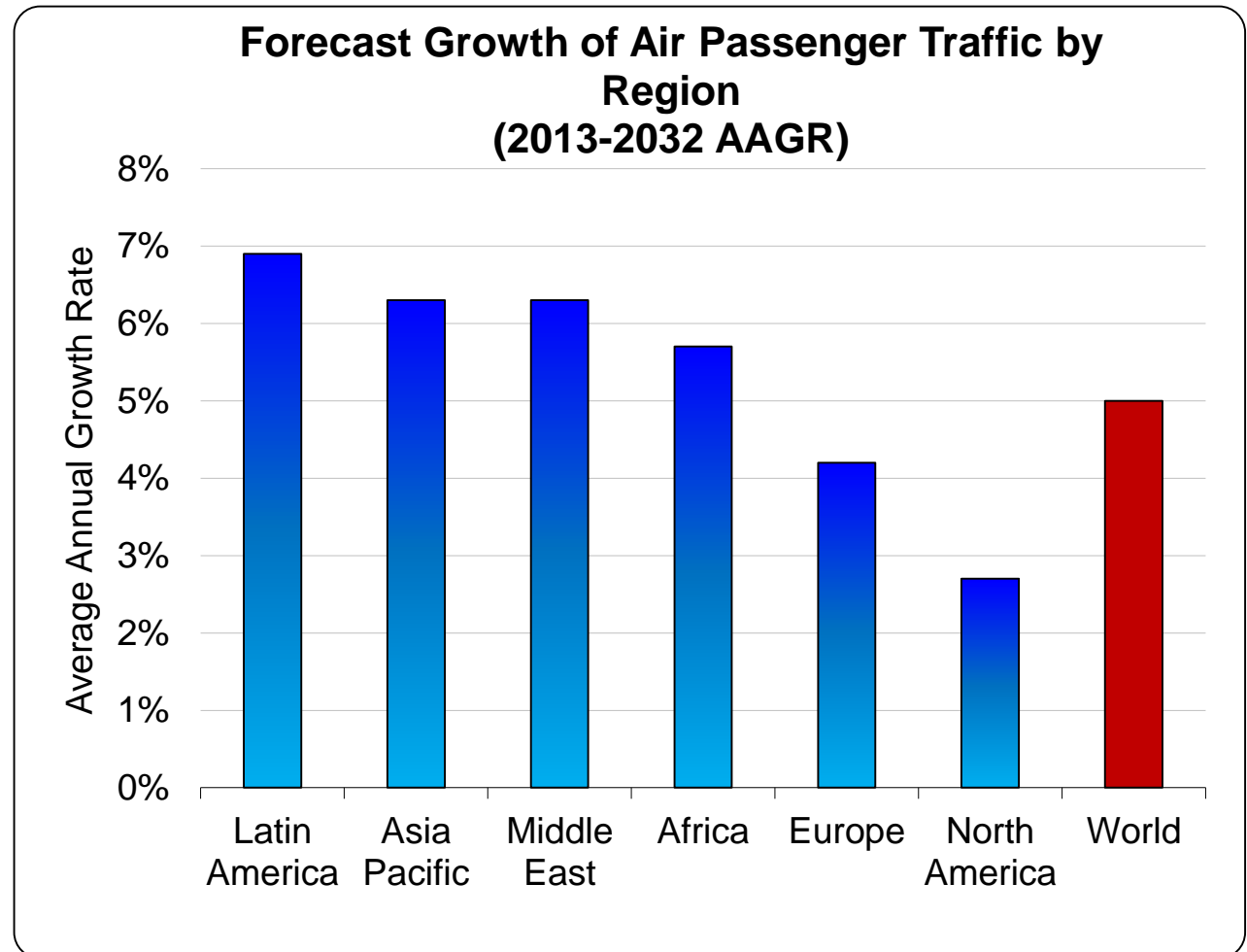
The historical passenger traffic results are the revised figures in May 2014.

Source: International Civil Aviation Organization (ICAO), News Release, 16 July 2014  
<http://www.icao.int/Newsroom/NewsDoc2014/COM.21.14.EN.pdf>

# Regional Air Passenger Traffic

**Growth will occur in regions other than N. America**

- Canada will be among the slowest growing regions in the world, falling well below world average
- FAA has lowered forecast for US:
  - from 2.6%
  - To 2.2%

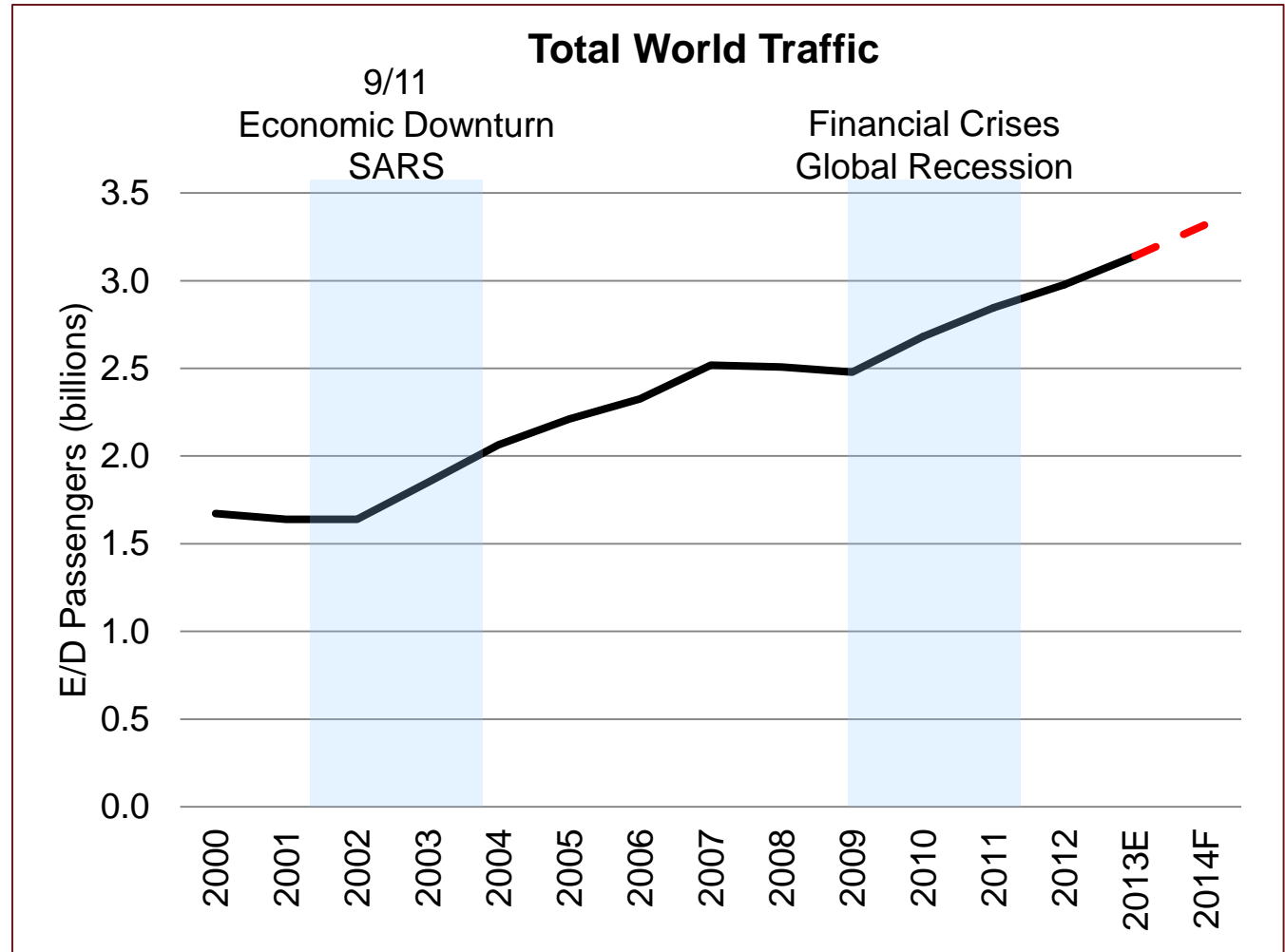


Source: Boeing Current Market Outlook 2013-2032



# Global Air Passenger Traffic

- Air travel continues to grow, but has its ups and downs.
- Airbus forecasts passenger traffic growing 4.7% (CAGR) over the next twenty years.

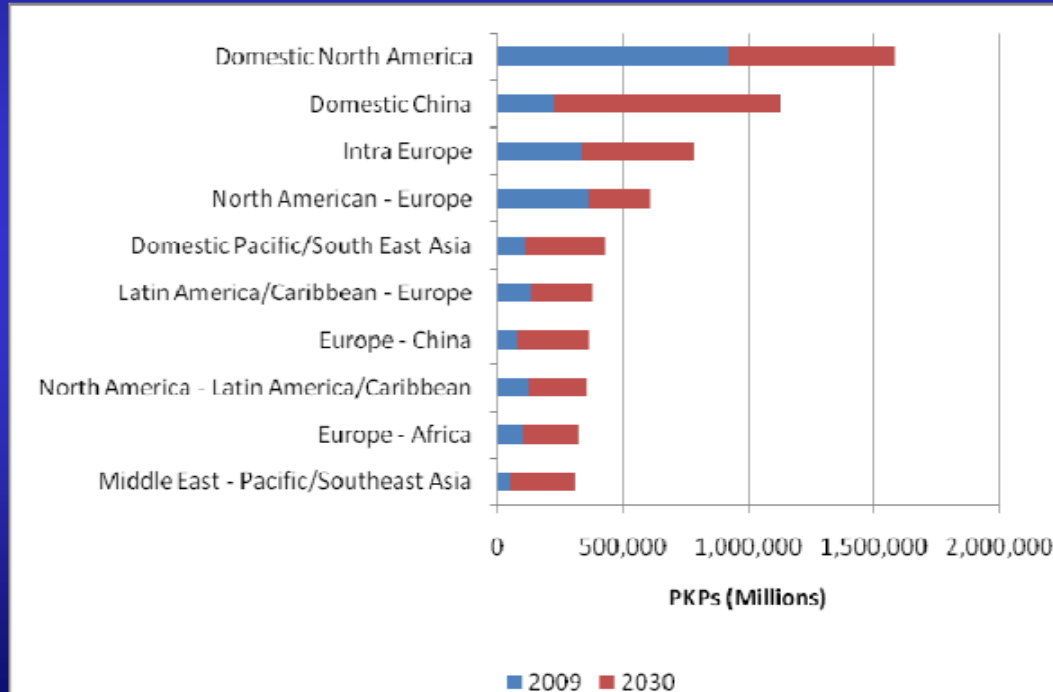


Source: International Air Transport Association (IATA) Fact Sheet, ICAO Facts and Figures and Airbus Global Market Forecast (2014-2033).

# Regional Markets



## Top ten traffic flows in 2030



20-Year Growth %	% World RPKs
2.6%	15.0%
7.9%	10.7%
4.3%	7.4%
2.6%	5.7%
6.7%	4.1%
5.3%	3.6%
7.8%	3.5%
5.0%	3.3%
5.9%	3.1%
9.0%	2.9%

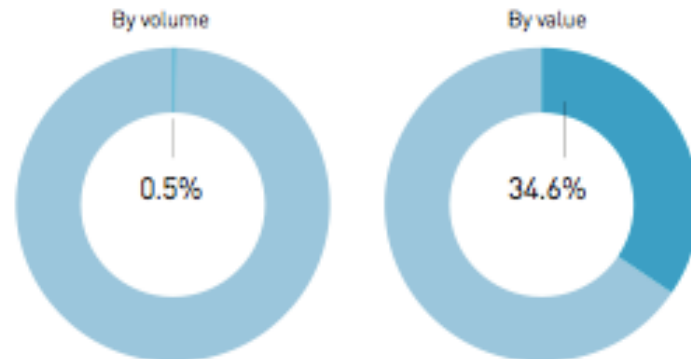
Source: International Civil Aviation Organization (ICAO)

# Air Cargo

# 35%

Air transport carries around 35% of world trade by value and only 0.5% by volume<sup>24</sup>

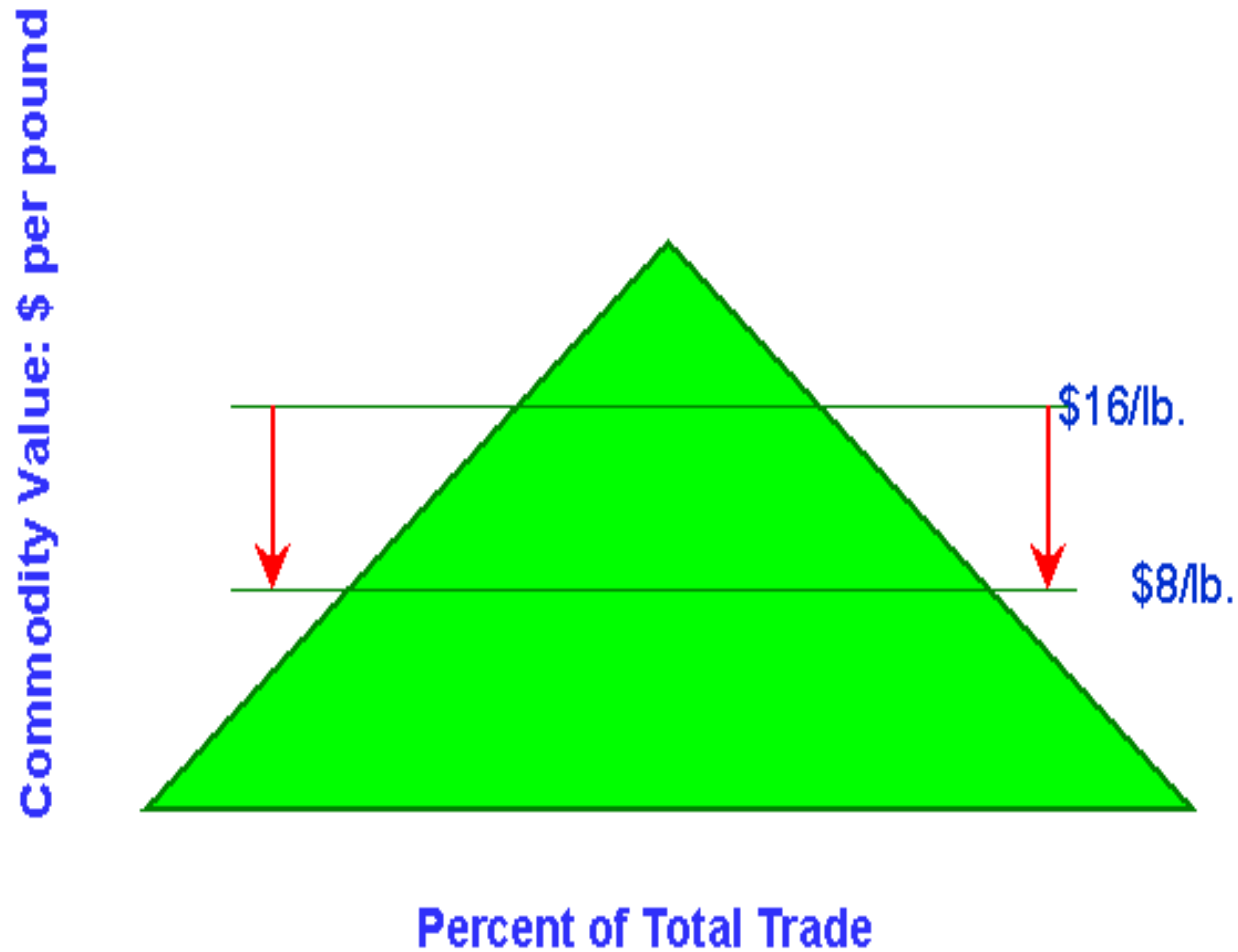
Proportion of global trade transported by air<sup>29</sup>



Source: ATAG, 2010 data

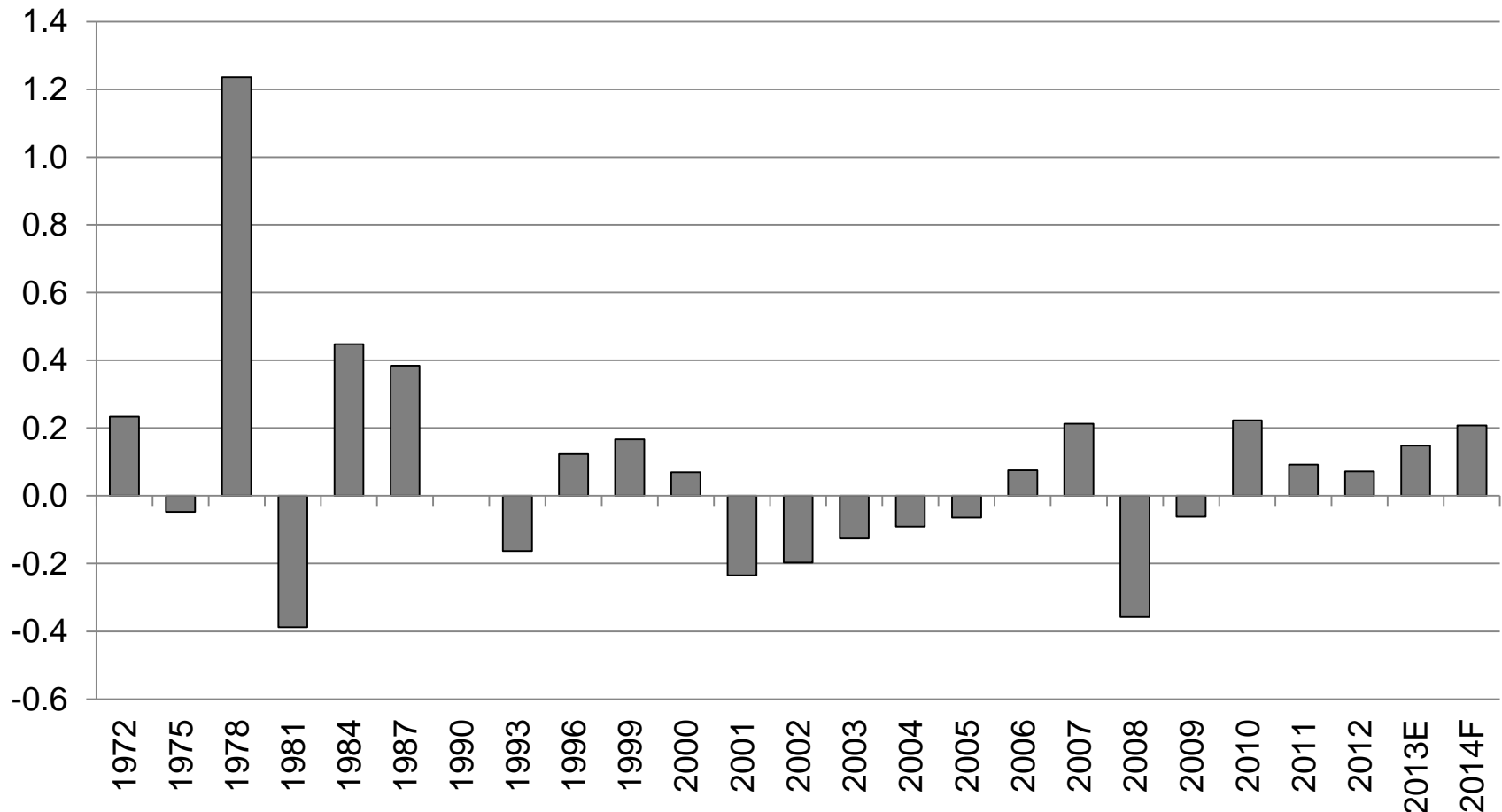
- 48 million tons of freight
- \$5.3 trillion goods value
- 172 billion freight ton kilometers
- High value items are shipped by air (e.g. perishable items)

# Air Cargo Value Pyramid



# Profitability in the global airline industry

## Inflation Adjusted Annual Net Profit



Source: 1972-1996: ICAO, *Civil Aviation Statistics of the World*; 1999 IATA, *World Air Transport Statistics*; 2000-2014: IATA, *Industry Financial Forecast*, December 2007, 2012 and March 2014.

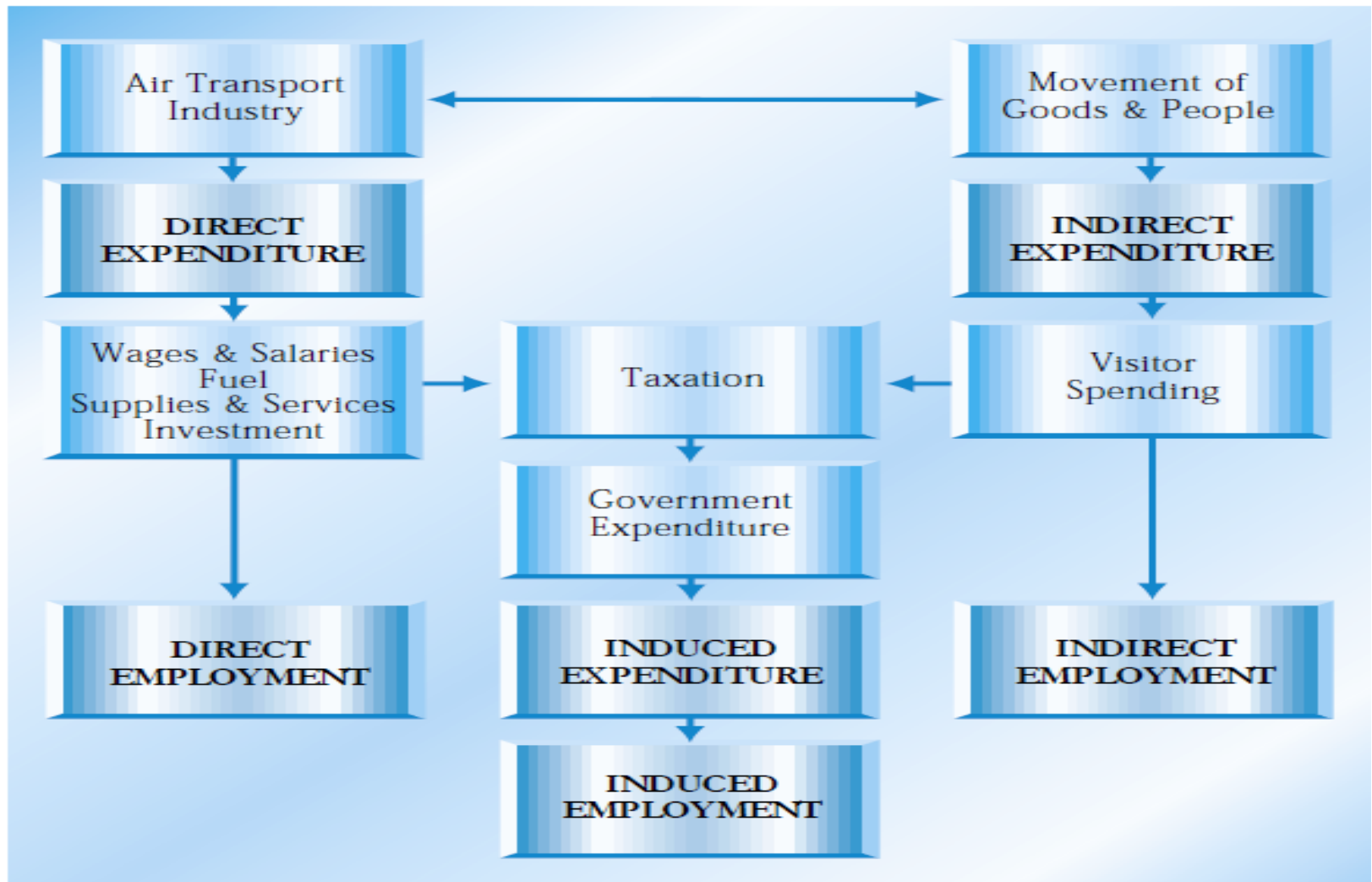
# THE SOCIAL RETURN FROM AVIATION

# Importance of Air Transport

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- **Trade and tourism**
- **Social and cultural exchange**
- **Economic growth (hotels, automobiles, tourist destinations, other industries)**
- **Business-to-business transactions**
- **Government interactions**
- **Global interdependent world**

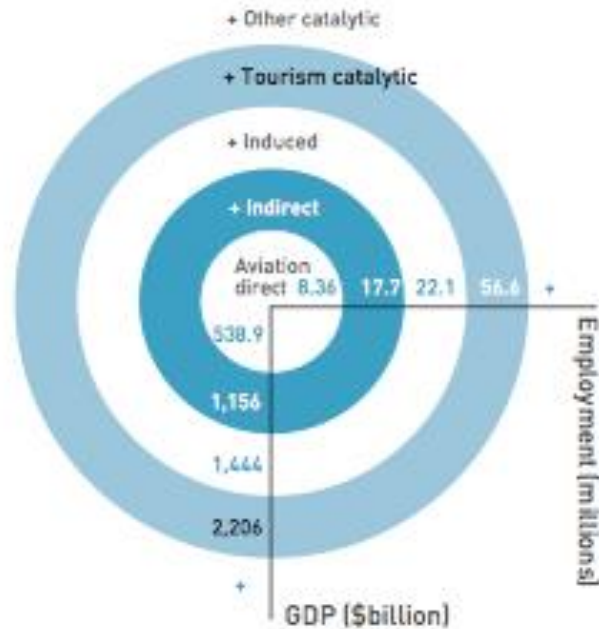
# Economic Impact of Air Transport





# Economic Impact: Jobs

Aviation's global employment  
and GDP impact<sup>2</sup>



56.6 million

Jobs supported by aviation worldwide<sup>1</sup>

Source: Air Transport Action Group (ATAG), 2010 data

# Economic Impact: Jobs

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- **Canada:**
  - 2011: 219,000 (401,000 direct, indirect, induced, catalytic)
  - 1993: 48,000
  - 1984: 42,282
- **U.S.:**
  - 2011: 2.8 million (9.3 million direct, indirect, induced, catalytic)
  - 1990: 515,000
  - 1984: 398,406
- **Worldwide:**
  - 2011: 8.4 million (56.6 million direct, indirect, catalytic)

# Economic Impact: GDP

**\$2.2** trillion

Aviation's global economic impact  
(including direct, indirect, induced  
and tourism catalytic)<sup>3</sup>

**3.5**%

Of global GDP is supported by aviation<sup>4</sup>

**3.5**x

Aviation jobs are,  
on average,  
3.5 times more  
productive than  
other jobs<sup>5</sup>

**19**<sup>TH</sup>

If aviation were a country, it would  
rank 19th in size by GDP<sup>5</sup>

Source: ATAG, 2010 data

# Economic Impact: Summary

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- **The air transport industry itself creates value in the economy.**
  - The industry drives direct, indirect and induced impacts.
- **Air transport becomes the vehicle for promoting economic growth in other sectors.**
  - ‘Catalytic Impacts’

**THANK YOU!**