



Sources of Finance

Istanbul Technical University
Air Transportation Management, M.Sc. Program
Aviation Economics and Financial Analysis
Module 2
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Outline

A. Introduction to airline finance

B. Industry financial performance

C. Sources of finance

D. Settlement

A. Introduction to airline finance



Key financial elements of the airline industry

- **Capital intensive industry,**
 - with long lived assets
- **Significant use of leasing**
- **High operating leverage**
 - despite high capital costs
- **Pro-cyclical industry**
- **Foreign exchange**
- **Government limits on equity financing from foreign sources**

Capital expenditures

- **The airline industry has high capital needs to finance aircraft and other assets**
 - Capital costs represent over 15% of total operating costs
 - double the requirements of the manufacturing sector
- **Capital expenditures include:**
 - Aircraft purchase
 - Aircraft maintenance and refurbishment
 - Lease of airport facilities
 - Significant IT investments
 - Ground property & equipment at 100+ spokes

Source: Morrell (2007)

Planning horizon

The airline industry has long planning cycles

- **Airline capital assets have long lives**
- **Adding an aircraft type to the fleet**
 - 3+ years to make a decision
 - initial aircraft purchased have life of 20+ years
 - airline will continue to purchase that aircraft type for another 10-15 years
 - total life cycle can be up to 40 years
- **Boeing 747 planning decisions began in the 1960s**
still in fleets of many carriers and will be so for 15+ years

Aircraft price



- **Bombardier Q400**
- **68-80 seats**
- **range up to 2500 km**
- **Unit price \$27m**

Aircraft price



- Boeing 787 Dreamliner
- 250-290 seats
- range up to 15700 km
- \$160-220m depending on modification



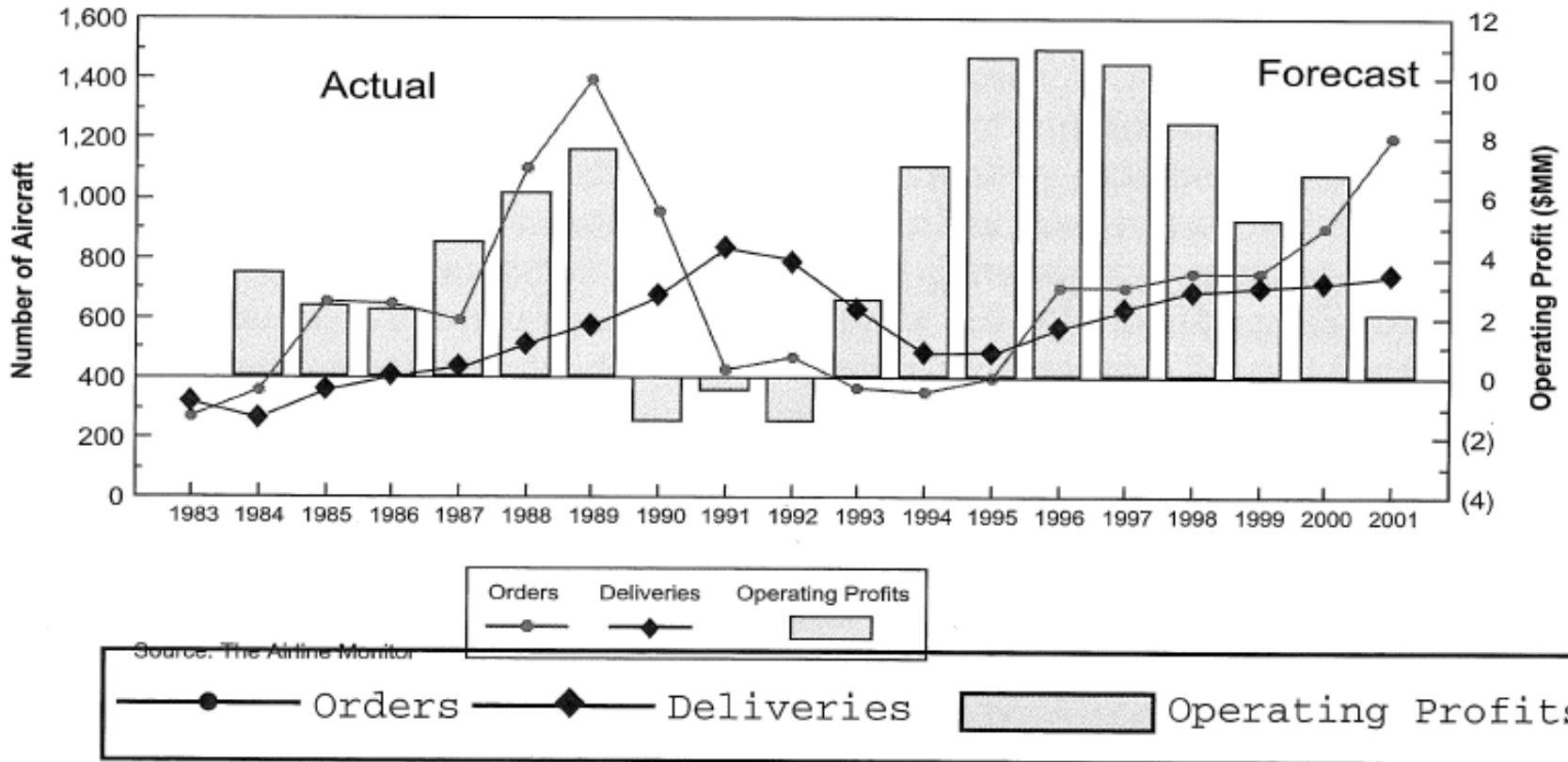
- Airbus A380
- 525-853 seats
- range up to 15400 km
- \$350-410m depending on specifications

Aircraft orders and delivery

- **There is a lag between aircraft orders and deliveries.**
 - Delivery may occur during an economic downturn, negative profits and declining cash
 - With no traffic growth to absorb capacity
- **Aircraft orders depends on:**
 - projections for economic and traffic growth
 - decline in income-traffic growth multiplier
 - the real cost of air travel
 - expectations of aircraft shortage
 - Cash and financing availability

Aircraft orders and delivery

Aircraft Deliveries and Orders Compared with Operating Profits 1983-1993 and 1994-2001(F)



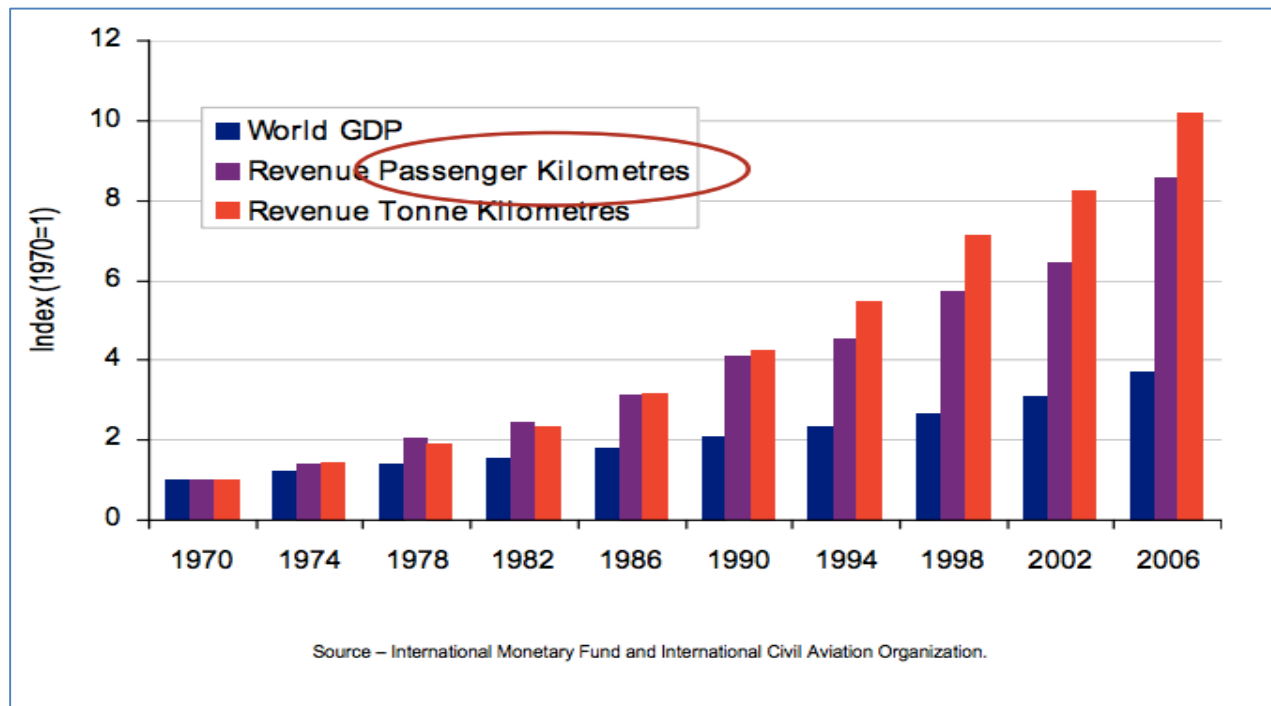
Source: Gallagher, 1995. "Aircraft finance and airline financial analysis in the fifth cycle of the jet age"

High operating leverage

- **Industry capacity is “lumpy”**
 - i.e., you can’t fly 45% of a plane
- **Fixed costs constitute a high proportion costs.**
 - In the short run, flight costs are relatively invariant to actual passenger/cargo loads.
- **Thus incremental revenues can dramatically increase bottom line contribution**

Pro-cyclical industry

- **Income elasticity is 1.5 to 2.0**
- **This implies that as economy cycles, air transport will cycle up (or down) at almost double the rate**



Source: InterVISTAS (2010)

Foreign exchange

- **Major airlines sell tickets in many markets in many currencies.**
- **Costs are typically not balanced with revenues in a particular currency.**
- **Currency fluctuations are important as many costs are in the US currency (or Euros):**
 - Aircraft purchased in US (a/c are #2 US export)
 - Fuel markets tend to be in US dollars
 - US financial markets among the largest sources of airline and aircraft finance

Limits of foreign equity

- **Governments may restrict foreign ownership in certain industries**
 - broadcasting
 - telecom
 - inner and coastal water transport
 - nuclear power
 - etc.
- **Airline must be predominantly domestically owned and controlled.**
- **This forces airlines to raise equity in domestic markets, potentially at a higher cost than could be obtained in other financial markets.**

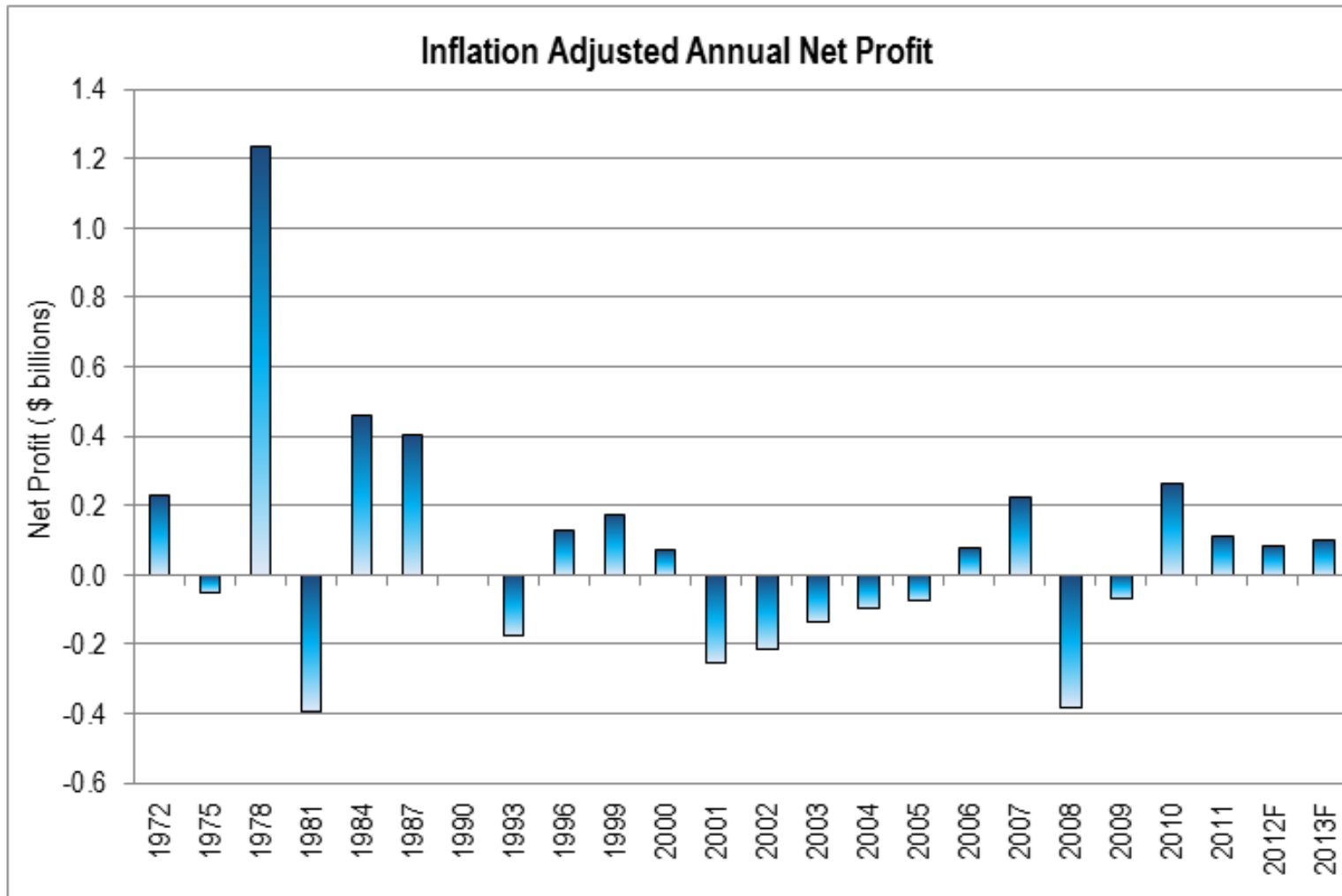
Industry financial performance



Poor financial performance...

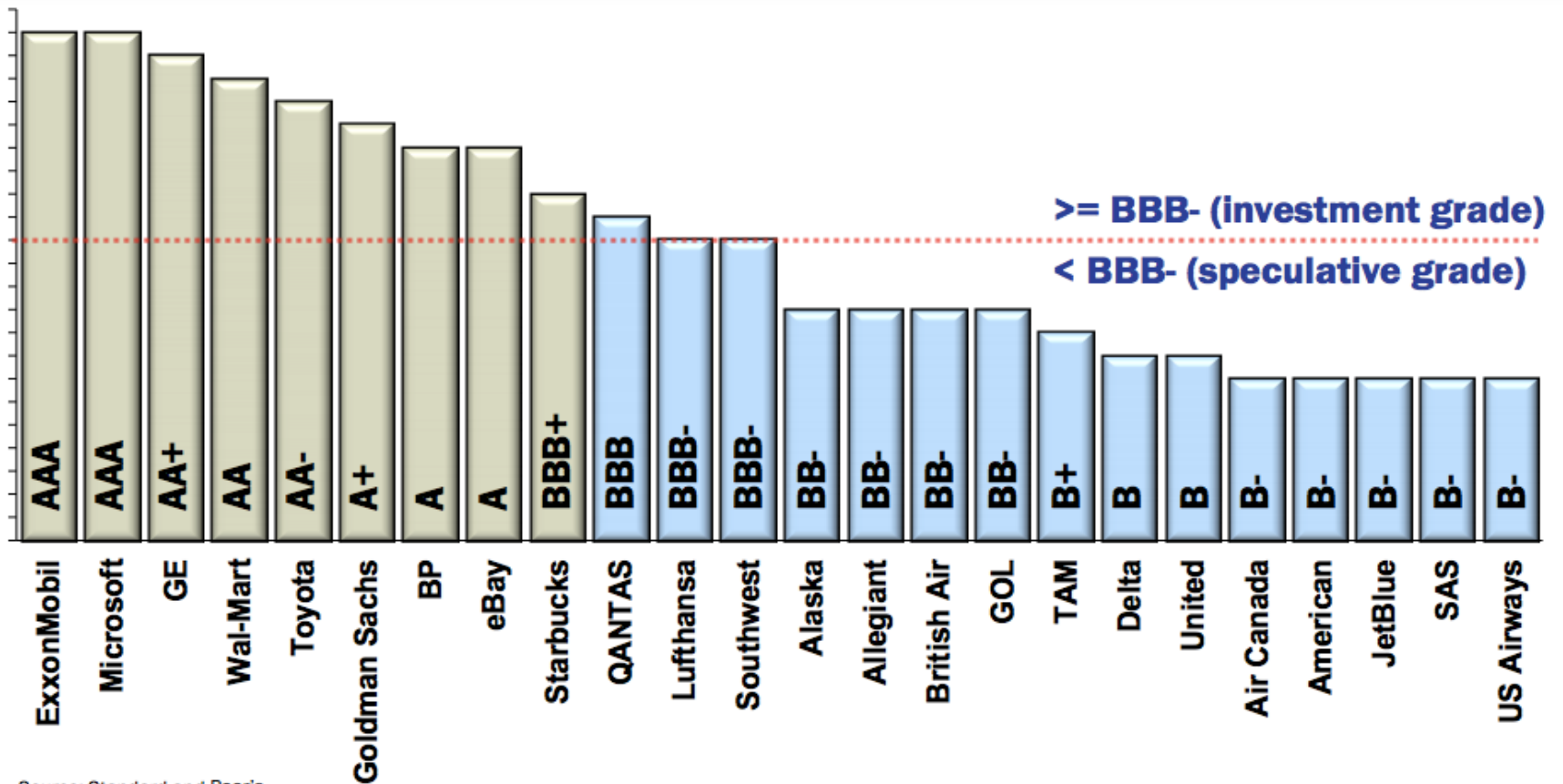
- **The airline industry faces challenges in attracting investors to finance extensive capital requirements.**
- **Main challenges:**
 - poor financial performance
 - intense competition
 - economic recessions, terrorist attacks, natural disasters, epidemics, etc.
 - High operating leverage
 - most airlines are rated as non-investment grade (“junk bonds”) => high cost of borrowing

Profitability in the global airline industry



Source: 1972-1996: ICAO, *Civil Aviation Statistics of the World*; 1999, IATA, *World Air Transport Statistics*; 2000-2013: IATA, *Industry Financial Forecast*, December 2007 and 2012.

Airline corporate credit rating



Source: Standard and Poor's

Source: ATA Economics, 2011. "Thanksgiving 2011 Air Travel Forecast"

Operating ratio in air transportation

- Operating Ratio
= operating expense /
operating revenue
- 1960-1977:
US average OR of 94.2
- 1978-1995:
US average OR of 98.3
- 1977-1992:
global revenue \$2 trillion
operating profit 2%
net profit 0.6%



	2004	2005	2006	2007	MEAN
Electronics	94.6	94.3	94.2	94.1	94.3
Air Transportation	92.9	98.1	90.8	90.0	93.0
Retail Stores	93.1	93.0	92.7	92.9	92.9
Office Equip	89.8	90.1	89.6	89.5	89.8
Computers	89.4	89.5	89.3	89.5	89.4
Trucking	88.2	87.5	88.1	89.0	88.2
Auto/Truck	87.3	89.4	85.5	87.5	87.4
Machinery	87.5	86.9	86.2	86.0	86.7
Chemical Basic	85.5	84.6	86.7	87.0	86.0
Metal Fabrication	86.1	85.6	85.6	86.5	86.0
Paper/Forest Products	83.9	85.4	85.9	86.0	85.3
Precision Instruments	85.9	84.9	83.8	85.0	84.9
Petroleum	84.9	83.2	82.0	82.5	83.2
Building Materials	79.4	82.0	83.8	84.5	82.4
Steel [General]	83.3	82.2	80.9	83.0	82.4
Beverage	78.0	78.8	81.6	90.0	82.1
Tobacco	82.6	79.7	79.5	79.0	80.2
Chemical [DIV]	79.1	79.1	79.2	80.5	79.5
Railroads	73.6	70.4	67.9	66.5	69.6
Drugs	67.0	66.7	66.0	65.9	66.4
Semiconductors	63.9	64.3	68.8	64.0	65.3
Natural Gas	64.6	64.7	62.4	65.0	64.2
Maritime	54.1	60.3	64.6	65.0	61.0
GRAND MEAN	81.5	81.8	81.5	82.1	81.7

Source: Gritta and Seal (2009); Dempsey (2006)

Challenges in airline finance

- **Gerard J. Aprey (American Airlines):**
 - *“WANTED: Airline industry seeks investors willing to finance billions of dollars of aircraft deliveries and other capital improvements...*
 - *... Will offer choice of junk bonds, stocks consistently underperforming the S&P 500, and uncertain aircraft residual values to those who apply.”*

Sources of finance



Sources of finance

- **Equity financing**
- **Debt financing**
- **Third-party financing**
 - aircraft manufacturers
 - engine manufacturers
- **Leasing**
- **Internal financing**
 - Retained earnings equity
- **Prepaid Tickets**



Equity financing

An airline can raise capital by issuing shares.

- **Common shares**
 - **full voting shares with no restrictions.**
 - Shareholders are owners
 - Right to vote at shareholder meetings
 - Right to receive dividends
 - Right to receive the value of liquidated assets
- **Preferred shares**
 - **a special class of shares with preferential rights.**
 - E.g., payment of dividends prior to other shareholders
 - Repayment of liquidated value prior to other shareholders
 - Sometimes can be converted into common shares
 - Trade off between voting rights and better privileges

Trends in equity financing

- **Privatisation**

- Privatisation has been major user of equity markets
- Previously, only US had major private airlines and hence few countries had developed airline equity markets and support institutions

- **IPO**

- Launch of new air carriers, IPO of government airline
- Often, new carriers launched by private placement, with subsequent IPO

- **Airline stocks are viewed as “traders”**

- Often viewed as trading stocks, not long-term investments

Debt financing

- **Debt financing**
 - Banks
 - Insurance companies, super-annuity funds, etc.
 - Long life assets of airlines
match long life liabilities of insurance/annuities
 - Loans in the form of a bond, debenture or note
 - Typically provides a fixed rate of return to investors
 - Some debentures may enable investors to tap into profits (e.g. income debentures, participating debentures)
 - Income and participating debentures have advantage over preferred shares
 - No board approval is required to pay dividends
 - Repayable at a fixed time

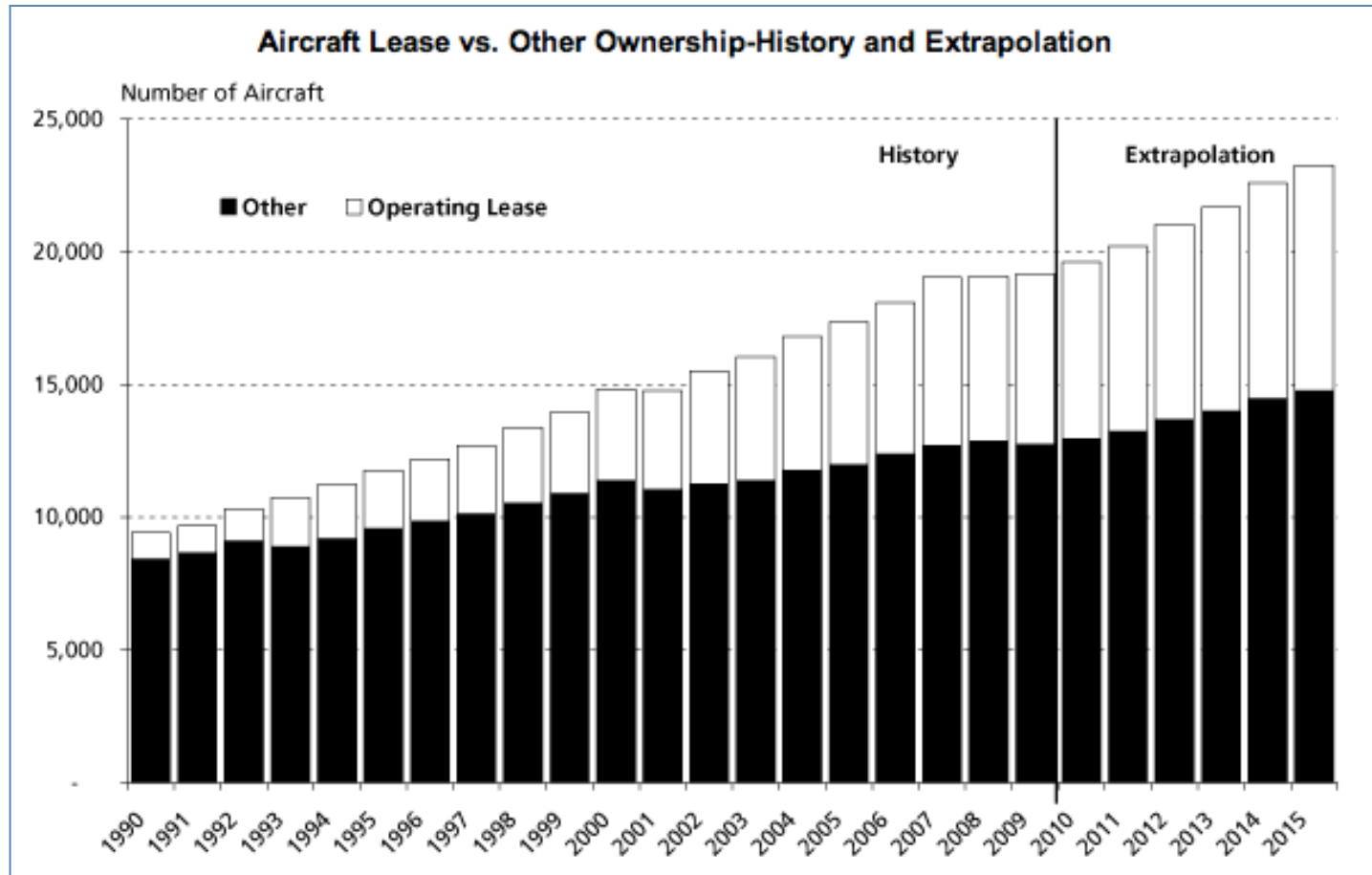
Third-party financing

- **Airframe manufacturers**
 - becoming an increasing source of finance for new aircraft purchases
 - sometimes will agree to acquire an airline's old equipment
- **Engine manufacturers**
 - a large component of total aircraft price
 - on some aircraft models, very intense competition between engine manufacturers

Lease

- **Operating lease**
 - The asset is not fully amortized over the lease term
 - The lessee does not acquire title to the asset
 - Annual lease payment appears as expense item on income statement (tax advantages)
- **Capital lease**
 - The asset is fully amortized over a fixed lease term
 - Lease payments cover capital costs + lessor's profit
 - The lessee may acquire asset at the end of the term (purchase option)

Increase in operating leases



Source: Historical data ACAS; forecast AVITAS

Lease classification

- **Dry lease**
 - Lease of aircraft, but not aircrew
- **Wet lease**
 - Lease of aircraft and aircrew
- **Damp lease**
 - Part of the crew is provided by the lessee and part by the lessor (e.g., Air France lease to Air Seychelles)
- **Swap lease**
 - Airlines swap aircraft depending on high/low season
- **Cross-border lease**
 - Double-dip lease, Irish lease, Samurai lease

Lease

- **Advantages of leasing**
 - A lessor retains title to the aircraft
 - The provides protection of lessor against insolvent debtors
 - A lessee benefits from tax incentives
 - Leasing can lower equipment costs compared to other sources
- **Problems with leasing**
 - Withholding of taxes
 - Double sales tax
 - (e.g., sale-and-leaseback in certain provinces in Canada)

Internal financing

- **Internally generated cash from operations**
 - Retained earnings
 - As fleets are depreciated, airlines become strong cash generators
 - May be cheaper than borrowing
 - Avoids cash flow drain of interest payments on debt
 - But requires sufficient retained earnings
- **Converting existing assets into cash**
 - Sale of aircraft and other equipment
 - Sale and leaseback of equipment
 - Sale of residual value of leased aircraft

Other forms of finance

- **Enhanced equipment trust certificates (EETC)**
 - an airline may issue bonds to pay for the acquisition of aircraft
 - a special purpose vehicle (SPV) is a company set up to raise cash and purchase aircraft
 - the airline makes lease payments to SPV which are remitted to the bond holders in the form of interest payments

Prepaid tickets

Aviation is one of the only economic sectors where customers prepay in full

- **Typically this amounts to several weeks of cash flow**
- **This is a major element of start up airlines' financing.**
- **Charters**
 - Higher risk of failure to perform service
 - Some countries require charter prepayments be protected in a trust until the aircraft departs

Settlement



IATA settlement systems

- **IATA maintains financial settlement systems for transactions between airlines and other parties (forwarders, travel agents) in air cargo and passenger markets.**
- **In 2012, IATA financial systems processed transactions worth \$367 billion**
 - IATA Clearing House (ICH) - \$52 billion
 - IATA Currency Clearing Service - \$36 billion
 - Billing and Settlement Plan (BSP) - \$252 billion
 - Cargo Account Settlement Systems (CASS)- \$31.7 b

IATA settlements - passengers

- **IATA's Billing and Settlement Plan (BSP)**
 - A system designed to facilitate airline ticket sales and remittances between travel agents and airlines
 - Used by IATA accredited travel agents
 - TAs get access to more than 240 IATA airline members
 - BSP is closely linked to IATA Agency Program

IATA settlements - cargo

- **IATA's Cargo Accounts Settlement Systems (CASS)**
 - A system designed to facilitate sales and settlement of accounts between airlines and freight forwarders
 - Used by IATA accredited forwarders at no cost
 - Non-accredited forwarders may access for a fee
 - Member and non-member airlines pay a fee to participate
 - \$2,500 for members and \$3,500 for non-members
 - In 2012, CASS processed \$32 billion in transactions

IATA settlements - banker

- **IATA's CASS and BSP programs make IATA a banker**
 - IATA BSP/CASS has fiduciary responsibility to protect the payments due to airlines
 - It continually monitors financial health of airlines and agents/forwarders
 - If necessary, IATA can terminate access to BSP/CASS or initiate bankruptcy proceedings against an airline/agent/forwarder



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