

# How do airports compete?

**Prof. Dr. Hans-Martin Niemeier**

**Conference on Airports Competition**

**Barcelona, November 19, 2012**

**Faculty of Economics and Business of the University of Barcelona**

- “Airports are exploiting, in many cases, their natural monopoly position” (IATA, 2007)
- “Airports are in tough competition” (ADV, 2007)
- How do airports compete?
- How strong is airport competition?
- Policy: How to intensify airport competition?

# Agenda

- I. How do airports compete?**
- II. Are airports natural monopolies?**
- III. Some models for airport competition**
- IV. Strategies of Airports**
- V. How strong is airport competition?**
- VI. Policy: How to intensify airport competition?**
- VII. Conclusions**

# I. Types of competition

- **Shared local market**
  - overlapping catchment areas in particular of primary versus secondary airport
- **Connecting traffic**
  - Hub competition
  - Hub versus secondary hub
- **Cargo traffic**
- **Aircraft base**
- **In destination-markets**
- **In non-aviation markets**
- **Across the board**
- **With other modes of transport**

## II. Natural monopolies?

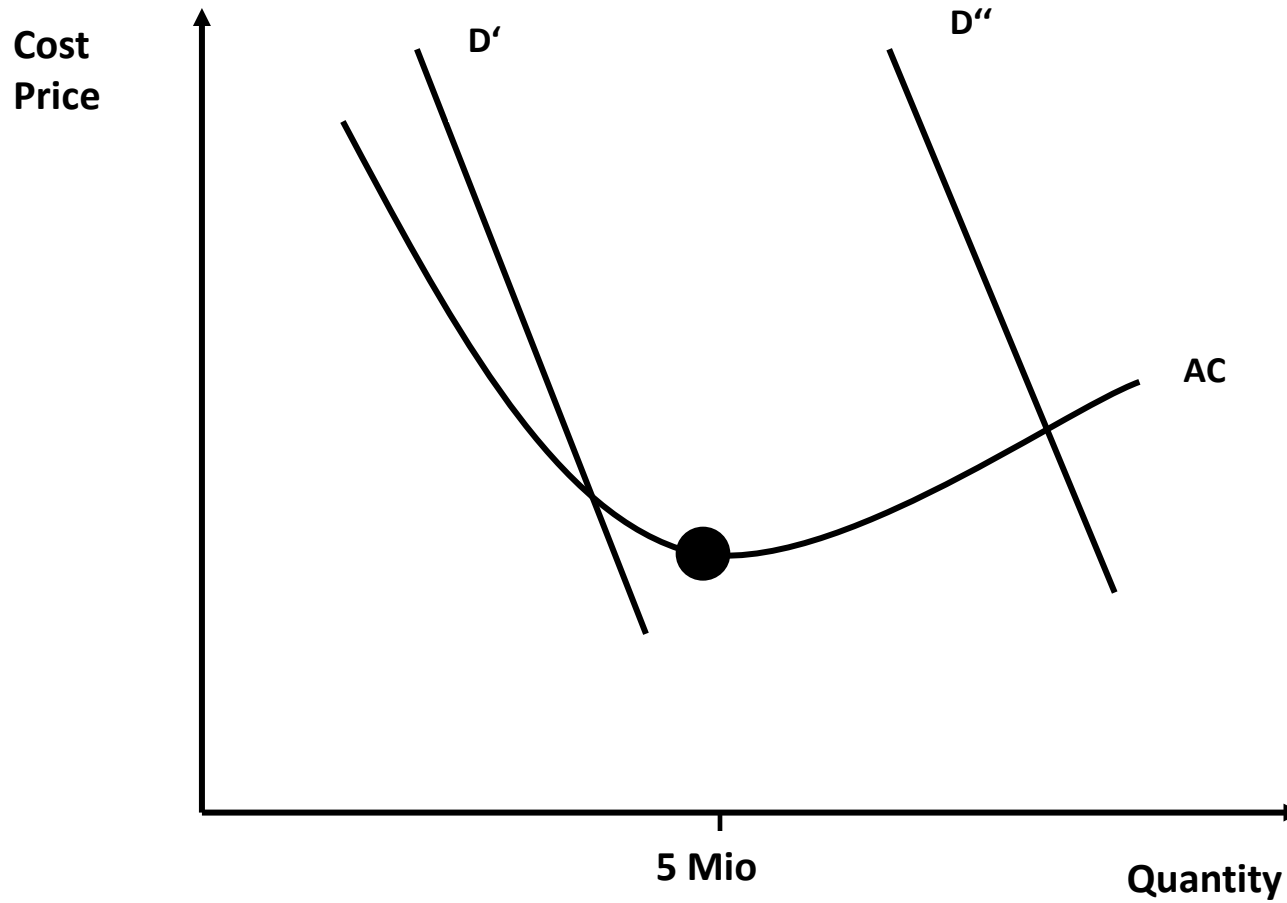
- Airports used to be considered as something akin to natural monopolies. But ... The result is a more competitive and dynamic airport market (CE, 2012, p 12).
- How relevant is the concept of natural monopoly today?
  - Definition
  - Empirical findings on scale economies and sunk costs
  - Conclusion

## II. Natural monopolies?

### Definition

- Natural monopoly are often identified with economies of scale and seen as ever lasting. Source of mistakes
- Natural monopoly is a combination of subadditive and sunk cost for the market demand
  - Indivisibilities
  - Specialized investment
- Economies of scale are sufficient, but not necessary condition for subadditivity.

# II. Natural monopolies?



# II. Natural monopolies?

## Economies of Scale in Mio

3 WLU	20.3 WLU	5 WLU	64 PAX 80 WLU	90 WLU	2.5 PAX 3 WLU	83 PAX	88 PAX
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1973	1990	1995	2003	2003	2005	2008	2011
Doganis	Tolofari	Doganis	Main	Main	Jeong	Martin	Martin



## II. Natural monopolies?

### Conclusion

- Importance of natural monopoly characteristics has been underestimated
- Range of natural monopolies seem to be relevant even for large airports, BUT be careful
  - diseconomies for users might not have been measured
  - only two studies on scope economies for airports which have become a multi-product firm.
- Large fixed costs and specialized investment might cause opportunism and hold up problems

## II. Natural monopolies?

- Gomez-Ibanez (2003, p.3): *“The expensive, durable and immobile investments help make all parties – the company, its customers, and the government – vulnerable to opportunism and desirous of stability and commitment”*.

# III. Airport Competition Models

- **Narrow oligopoly with decreasing costs**
- **Spatial models**
  - **Starkie on overlapping catchment areas**
- **Vertical structure**
  - **Double Marginalization, Contracts**
- **Airports as platforms (two sided markets)**
  - **Starkie/Gillen**

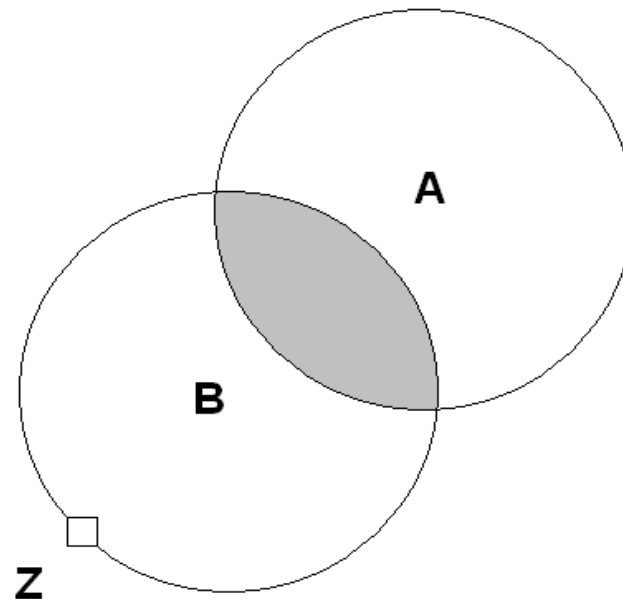
# III. Airport Competition Models

- **Narrow oligopoly with decreasing costs**
- **Choice number of airports:**
  - **Two with relative low LRAC versus four with higher LRAC**
  - **Planner versus free entry**
  - **Models of excessive entry developed by Spence (1976), Dixit & Stiglitz (1977) and Mankiw & Whinston (1986)**
  - **So far neglected, free entry seen as desirable**

# III. Airport Competition Models

- Starkie (2002) on overlapping catchment areas

Figure 1  
Competition and Catchment Areas



# III. Airport Competition Models

- **Price discrimination:**
  - Discounts for buses and car parking
- **Product differentiation by Airlines:**
  - LCCT versus FSA
- **Is it profit-maximizing to extend catchment areas so that they overlap? Vigorous models for bold claims:**
  - Intense competition even between the largest airports, “since airports are unable to price discriminate within the overlap area, the competition in the overlap (the 39.1%) is potent for the whole of the 100% as pointed out by Starkie (2002) (CE, 2012, p. 57)”

# III. Airport Competition Models

- **Vertical structure: Airports are not selling to final demand**
- **Countervailing power of airlines & Switching costs**
- **Double Marginalization**
- **Contracts between Airlines might be efficient (Littlechild)**
- **Airlines and airports might collude (Barbot, 2009)**

### III. Airport Competition Models

- **Airports as platforms (two sided markets).  
Complementarity of aeronautical & commercial revenues (Starkie, 2002/Gillen, 2009)**
- **Airports will not abuse market power on the aeronautical side as they will lower charges to increase commercial revenues.**



# III. Airport Competition Models

- **Some (popular) misunderstandings:**
  - Demand cannot be shifted by lowering the price of one good.
  - Prices of a multi-product monopolist are not generally lower than „normal“ monopoly prices (Fröhlich, 2012).
- **What is the source of commercial rents? Location or rent seeking?**
- **Locational rents must be relative high with inelastic demand.**
- **Lack of empirical testing**

# IV. Strategies of Airports

What strategies are we observing?

- **Cost leadership**
- **Pricing**
- **Product differentiation:**
- **Alliances & Mergers**
- **Blocking entry**

# IV. Strategies of Airports

- **Cost leadership**
  - **CE view: „Most publicly owned airports now operate as commercial entities at arms-length from government, while private ownership is a feature of the largest airports: nearly half of European passenger journeys now start at an airport with private shareholders.” (CE, 2012, p 6)**
  - **Privatisation has changed the airport industry only in the UK. Partial privatisation is dominant in Europe (Gillen & Niemeier).**
  - **Adler & Liebert (2012) & Oum et.al. (2006) show partial privatised airports are less efficient than public or private.**
  - **Adler & Liebert (2012) show that if feasible competition improves efficiency more than regulation.**

# IV. Strategies of Airports

- **Pricing**
  - CE (2012, p 90) : “Airports have also responded to the increased competition through adjustments to prices” More route discounts, 50% of airports lowered charges in crisis
  - Increase in price differentiation is positive, but reaction to crisis still reflects average cost pricing
- **Pricing of scarce capacity**
  - Competition should force airports to peak and congestion pricing.
  - Not happening although substantial profits & welfare gains could be reaped.

# IV. Strategies of Airports

Only nine LCTs have been developed throughout Europe to date **(some have closed down: Warsaw and Budapest)**

Airports	LCT Cost (Mio)	# of LCCs (2008)	Pax capacity (Mio) LCT
Tampere-Pirkhala Airport (Finland)	Na	1	Na
Warsaw Frederick Chopin Airport	Na	6	Na
Budapest Airport Zrt.	35	6 (Sep-2009)	2
Amsterdam Airport Schiphol	32	9	8
Marseille Provence Airport	16.4	5	3.5 p.a.
Bremen Airport	10.4	1	Na
Lyon Saint-Exupery Airport	Na	Na	1.8 p. a. (by 2010)
Copenhagen airport	26.8	Na	6 p.a.
Bordeaux-Mérignac Airport	5.5	2 (2010)	1.5

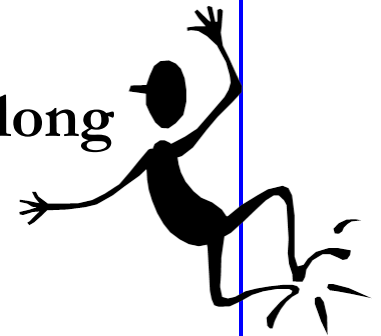
# IV. Strategies of Airports

- **Airport Alliances & Mergers, Multiple airport companies (Forsyth. et. al 2011)**
  - **Network economies are not drivers for airport integration.**
  - **Overcoming market imperfection in vertical relationships is not a driver for airport industries.**
- **Airport integration is driven by mainly by know how transfer and in some cases (e.g. ADP and Schiphol Group Alliance) by the motive to gain market power.**

# IV. Strategies of Airports

## Barriers to entry

- “New airports have also entered the market. There were 81 more airports in Europe with commercial jet services in 2008 than in 1996. And, at others, there have also been significant increases in capacity. This is all evidence of airports both spurring competition and responding to it in a market where customers have choice.” CE, 2012, p.6)
- Great! Entry is working! We are heading for the long run competitive equilibrium!



# IV. Strategies of Airports

## Barriers to entry

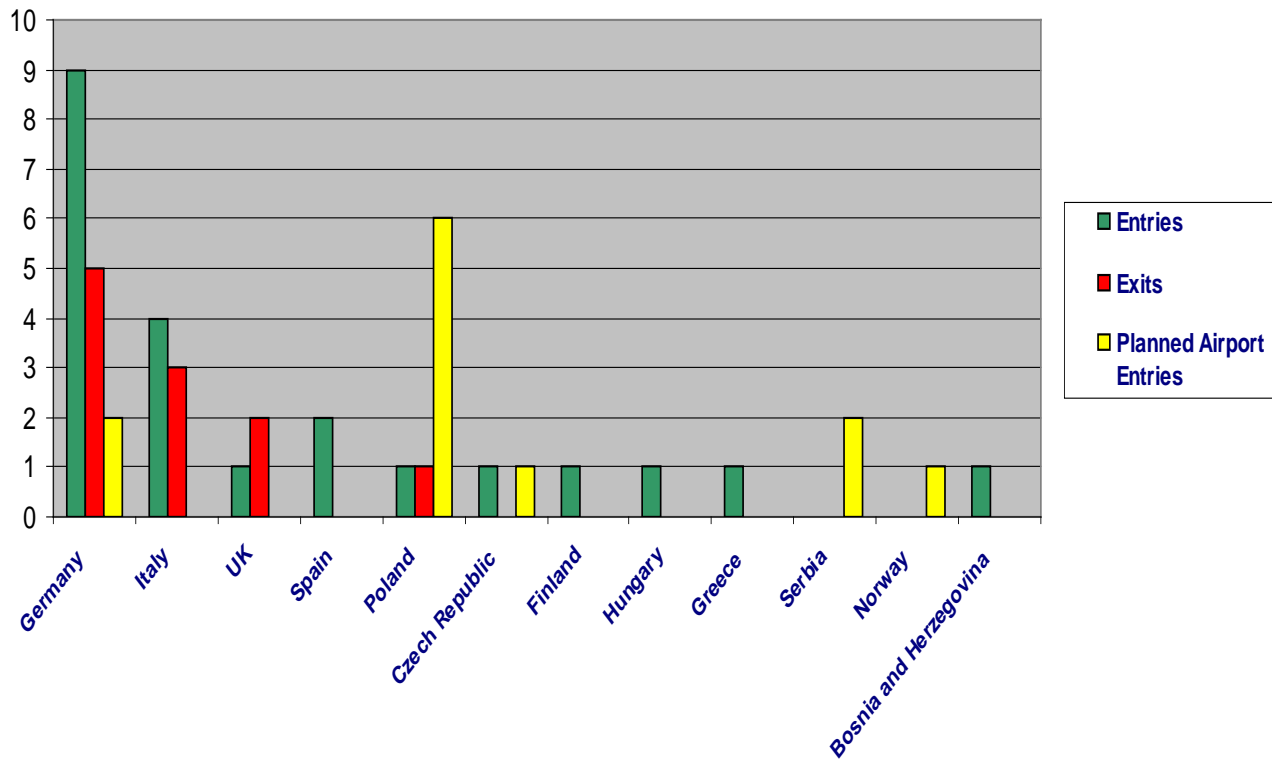
- “New airports have also entered the market. **There were 81 more airports in Europe with commercial jet services in 2008 than in 1996.**” CE, 2012, p.6)
- If airlines substitutes jets for turbo prop, airports are built over night and the iron forces of competition compete all profits away!
- Luckily CE refers also to Mueller-Rostin C. et al (2010), “Airport Entry and Exit: a European Analysis”.
- Let’s have a look what story they tell!





# Entries and exits 1995 to 2005: 22 entries and 11 exits

## Airport Entries and Exits



No entries/exits occurred in:

- Belgium
- Bulgaria
- Estonia
- France
- Lithuania
- Portugal
- Slovak Republic
- The Netherlands

Source: GAP

# The European airport industry – Germany

9 entries

5 exits

## General characteristics:

- Most new entrants have not lived up to their expectations
- Often highly subsidized by the state → Low profitability
- Often low traffic figures
- Importance of public service obligation routes at some airports



# The European airport industry – the United Kingdom

1 entry

2 exits

**New entrant in  
Doncaster:**

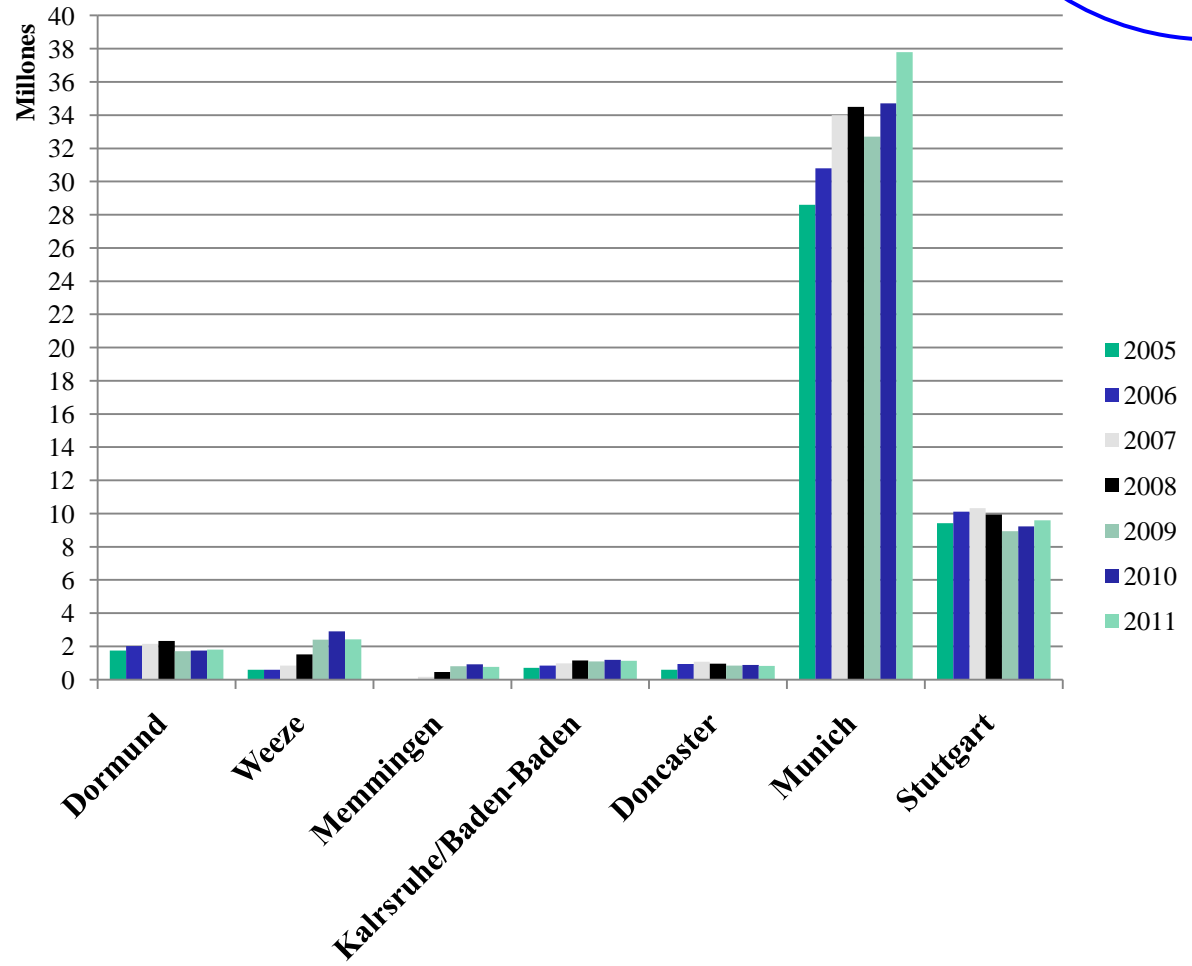
→ Initial opposition by Manchester  
against new airport

→ But Doncaster has been very successful  
since its entry in 2004



# IV. Strategies of Airports

Has entry worked since 2005? In a few.



Overall

Entry is not occurring in those regions with excess demand. Why?

# IV. Strategies of Airports

- **Economies of Scale, Environmental & Planning Restrictions**
- **Incumbents block entry:**
  - **Berlin: Entry blocked by corporatized airport**
  - **Privatisation process prefers monopolies over competition.**
    - **Contracts which prevents entry**
    - **BAA in 1985, ADP in 2006**
- **Rent seeking might prevent competition and could cause additional welfare losses.**

# V. Intense airport competition?

- Which airports have substantial market power?
  - Views on European Airports
    - CE (2012) versus Maertens (2012)
  - Country studie:
    - UK, Netherlands and who else?

# V. Intense airport competition?

- Which airports have substantial market power?
- CE defines 5 indicators:
  - Local departure choice, Transfer choice, Multi-hub, Buyer power, Inbound leisure
- Conclusion: „majority of airports in all categories are affected by at least one of these constraints, and that in many cases by several competitive constraints with a cumulative impact on market power” (CE, 2012, p 107).

# V. Intense airport competition?

- **Which airports have substantial market power?**
  - **Maertens: Market power index of Malina (2010)**
    - **Key element: Market share of airport in NATS 3 region within 100 km**
    - **Result: Amsterdam, Berlin, Copenhagen, Frankfurt, Paris, Madrid, Stuttgart, Vienna, Zurich...have market power**



# V. Intense airport competition?

- Which airports have substantial market power?
- United Kingdom
  - Market definitions to identify market power: for aeronautical service and for commercial services.
  - CAA bases its decisions on SSNIP together with reasoning on substitutability, the Competition Commission (CC) uses different approach.
  - CAA and CC agree that Manchester faces competition, but disagree on persistent market power of Stansted.
  - DOT de-designated only Manchester

# V. Intense airport competition?

- Which airports have substantial market power?
- Netherlands
  - NMA asked GAP to analyse market power of Schiphol Airport. Based on competitive analysis and SSNIP test GAP concluded:
  - “Despite increased competition still market power for airport operator of Schiphol on the defined relevant markets for aviation and aviation-related services” (GAP, 2010)

# V. Intense airport competition?

- Which airports have substantial market power?
- Germany:
  - 20 international and 30 regional airports. Düsseldorf, FRAPORT, Hamburg and Hannover are partially privatised.
  - From official site no studies evaluating market power.
  - According to Malina (2010)
    - half of the German airports face substantial competition among them Düsseldorf.
    - Berlin, Frankfurt, Hamburg, Munich and Stuttgart have substantial market power

# VI. Policy

## How to intensify airport competition?

- Which institution should decide to designate or de-designate airports?
- Privatisation should intensify competition through break ups and cross ownership rules
- IATA Slot system increase switching costs
- Restriktive bilaterals prevent airport competition

(Stuttgart and Berlin cannot enter the market)

## VII. Conclusions

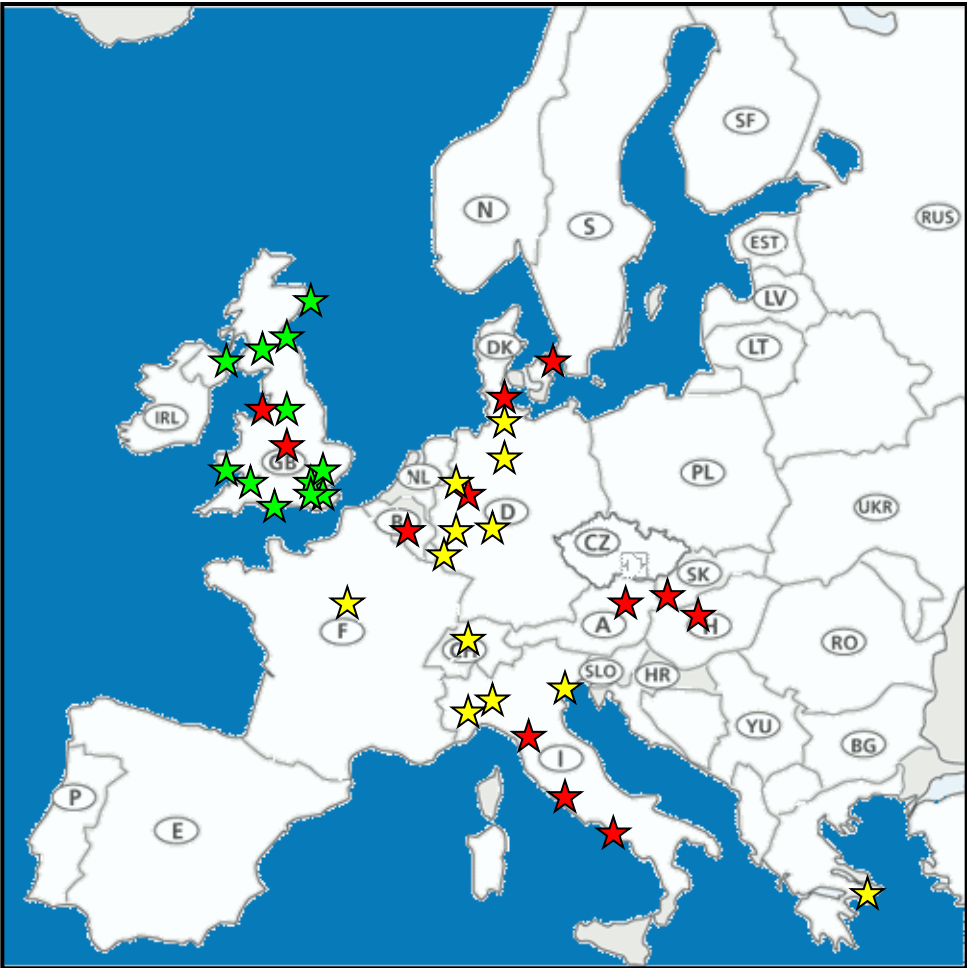
- Airport competition has increased in many regions, but in most countries at least one airport has persistent market power
- How competitive airport markets are, has to be assessed on a case by case approach.
- With the exception of UK and the Netherlands the scope for competition and the need for regulation is not well assessed by authorities.
- Increase competitive forces and regulate monopolistic bottlenecks by well designed incentive regulation.
- Foster competition by open skies, less horizontal integration and slot markets.

**Thank you very much!**

# Appendix

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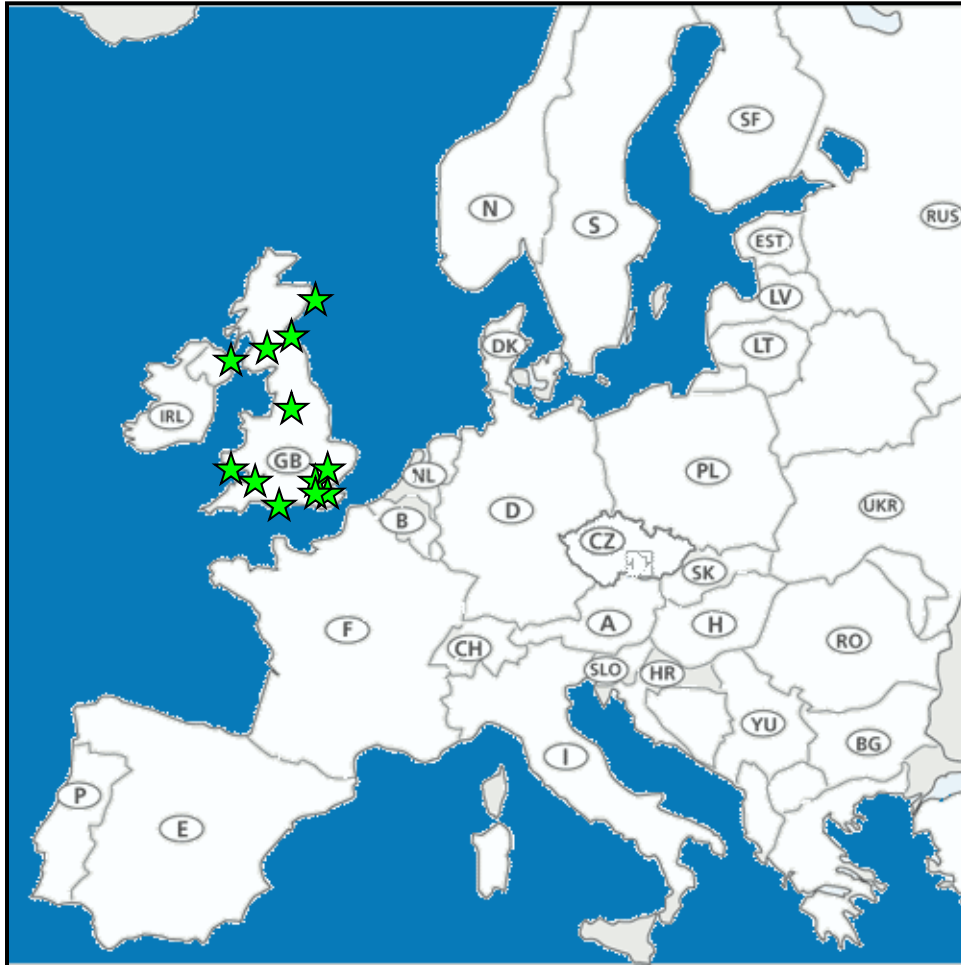
# Fully and partially privatized airports in Europe



- ★ Fully privatized airports
- ★ Partially privatized airports with a majority share
- ★ Partially privatized airports with a minority share

•Malta International Airport has been partially privatized as well (Minority share privatization)

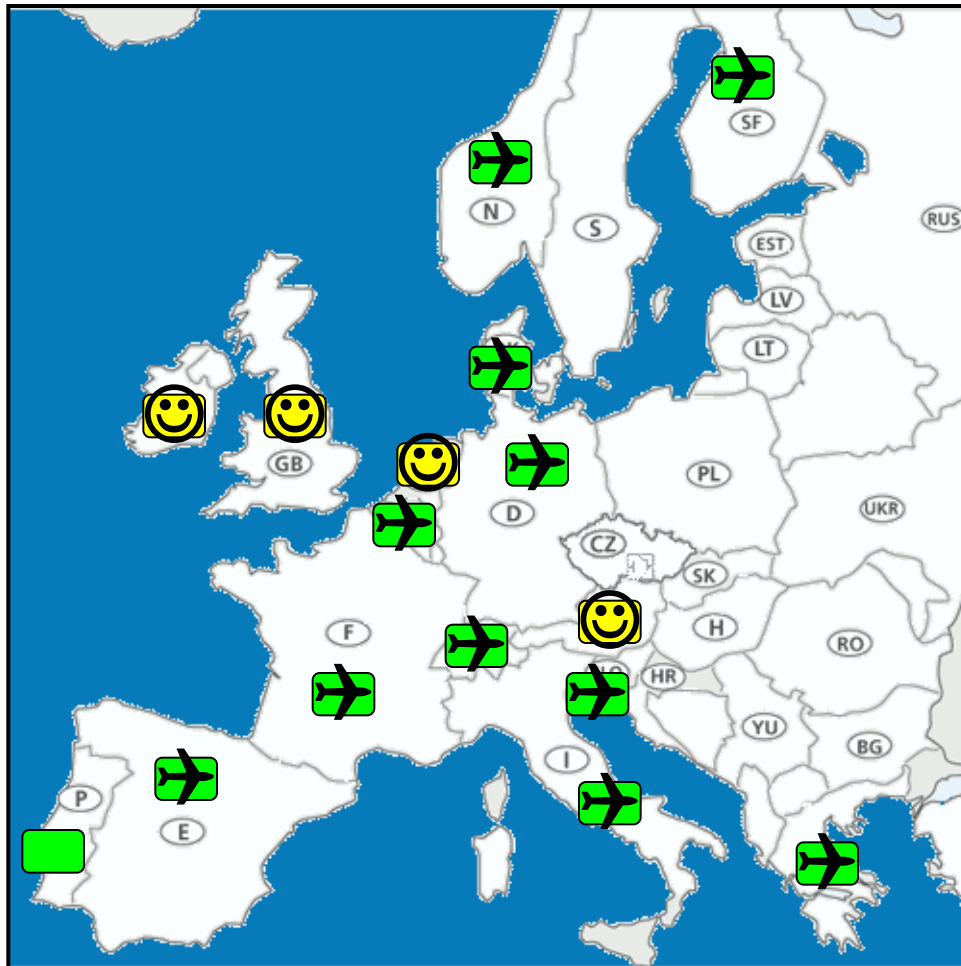
# Fully privatized airports in Europe



★ Fully privatized airports



# Regulation of European airports

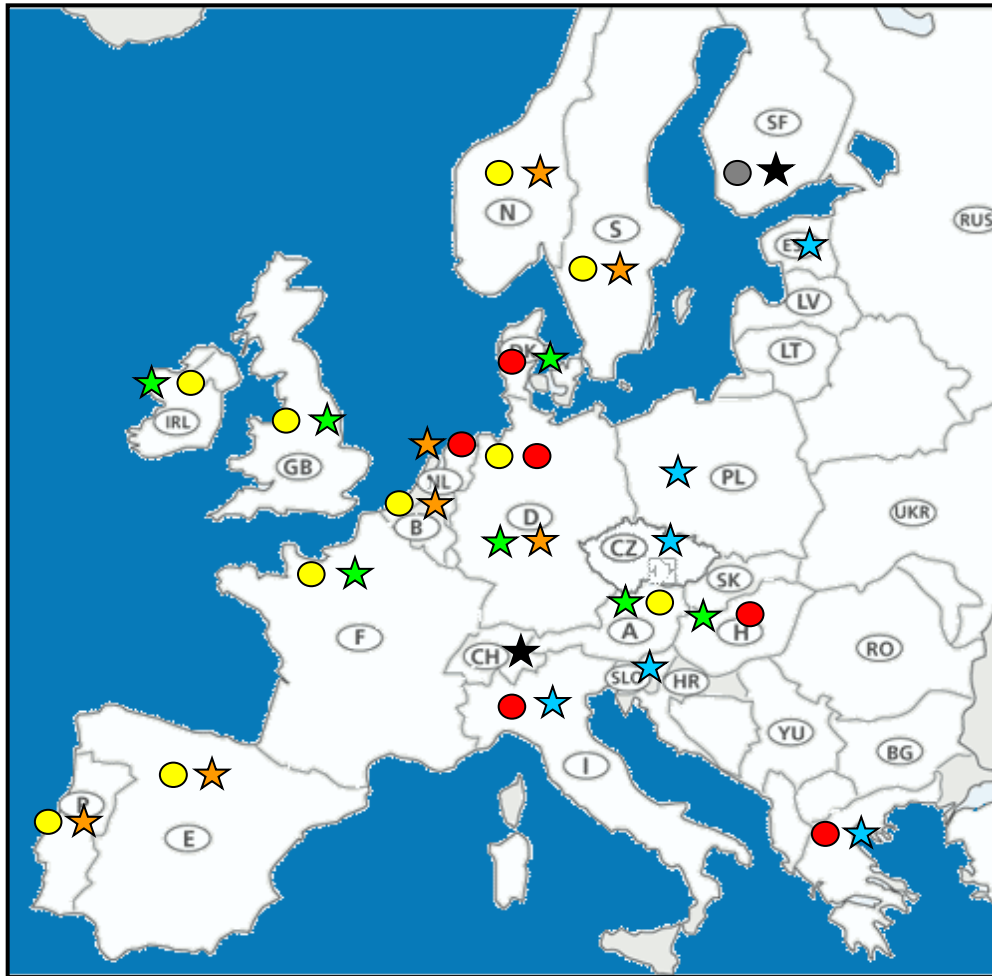


 Independent regulator (all with user consultation)

 User consultation (but no independent regulator)

\* User consultation at Malta International Airport

# Type of Regulation at European Airports



★ Type of price cap

★ Charges set by airport

★ Cost plus regulation

★ No regulation

*Single or dual till system*

● Single till

● Dual till

● No till system

\* Malta International Airport has a price cap and a dual till system in place.

# IV. Strategies of Airports

Are tailored low-cost terminals:					
Valuable?	Rare?	Costly to Imitate?	Organized Properly?	Competitive Implications	Firm Performance
Yes	Yes	No	Yes	Temporary competitive Advantage	Above average (at least for some amount of time)

- **Dedicated LCTs are likely to be valuable. They enable the airport to reduce operational costs, capital investment, airport charges and increase market share.**
- **The impacts of LCTs on non-aeronautical activities are not clear.**
- **The provision of appropriate facilities, the presence of good organisation (among other things) are identified as crucial to maximising non-aeronautical revenue.**

# Airport Alliances

## ADP and Schiphol Group Alliance

- 8% capital stake, 21 Oct. 2008
- Goals:
  - *“Aviation:* Improve competitiveness through dual hub. Best-in-class service levels.
  - *Non aviation:* Retail, real estate and telecoms activities through exchange of best practices.
  - *International airport developments* with a key focus on strengthening the dual hub within SkyTeam network.”(ADP & Schiphol, 2008)

# Airport Alliances

## ADP and Schiphol Group Alliance

- Revenue and cost synergies:
  - €71 million per annum on a fully phased basis by 2013
  - €18 million per annum reduced capital expenditure from 2013 onwards
  - Sources: 45- 50% aviation, 30-35% retail, 20-25 % others

# Airport Alliances

## ADP and Schiphol Group Alliance

- **Performance:**

- Synergies for ADP = 6 % of EBITA forecast for 2012. No impact on share price of ADP
- Synergies relative small to other alliances & mergers
- Positive: Know how transfer, cost savings through standardization of processes, common new developments and joint purchasing.
- Dubious: “Strengthen their relationship and integration Air France-KLM, through optimized connectivity between the two airports”
- Negative: Reduces hub competition