



**Air Transportation Management,
M.Sc. Programme**

**Air Law, Regulation and
Compliance Management**

Course material:

Airline Mergers, Acquisitions and Airline Alliances

Modules 7 & 8

Excerpt from:

Organisation for Economic Co-Operation and Development, Airline
Competition – Background Paper by the Secretariat, 18-19 June 2014
DAF/COMP(2014)14

Unclassified

DAF/COMP(2014)14

Organisation de Coopération et de Développement Économiques
Organisation for Economic Co-operation and Development

12-Jun-2014

English - Or. English

**DIRECTORATE FOR FINANCIAL AND ENTERPRISE AFFAIRS
COMPETITION COMMITTEE**

Cancels & replaces the same document of 06 June 2014

AIRLINE COMPETITION

-- Background Paper by the Secretariat --

18-19 June 2014

This document was prepared by the OECD Secretariat to serve as a background note for Item IX at the 121st meeting of OECD Competition Committee on 18-19 June 2014.

The opinions expressed and arguments employed herein do not necessarily reflect the official views of the Organisation or of the governments of its member countries.

*More documents related to this discussion can be found at
<http://www.oecd.org/daf/competition/airlinecompetition.htm>.*

JT03359273

Complete document available on OLIS in its original format

This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.



DAF/COMP(2014)14
Unclassified

English - Or. English

TABLE OF CONTENTS

Introduction 3

1. Features of the airline industry 4

 1.1. Liberalisation of the air transportation industry 4

 1.2. Business models and industry consolidation 6

 a. LCC entry and new business models 6

 b. Consolidation and co-operation through alliances 9

 1.3. Financial distress and government intervention 12

2. Competitive landscape of the airline industry 15

 2.1. “What does an airline need to enter and compete?” 15

 a. Exogenous/structural barriers 15

 b. Endogenous/strategic barriers 17

 2.2. “What do airlines compete on?” 19

 a. Price 19

 b. Quality 21

3. Airline competition issues and antitrust enforcement 22

 3.1. Market definition in the airline industry 22

 3.2. Horizontal strategies: alliances, mergers and cartels 24

 a. Alliances 24

 i. Which competition concerns arise from airline alliances? 25

 ii. Have alliances succeeded in bringing upon efficiencies? 27

 iii. Which competition enforcement tools apply to airline alliances? 29

 iv. What decisions and remedies apply to airline alliances? 33

 b. Mergers 34

 c. Cartels and horizontal restrictions 37

 3.3. Unilateral practices: exclusion/predation in the airline sector 40

 a. Exclusionary pricing and selling strategies 41

 b. Refusals to grant access to essential inputs 46

4. Conclusion 47

BIBLIOGRAPHY 49

BACKGROUND NOTE

By the Secretariat¹

Introduction

Why does the airline sector matter?

1. Between 1980 and 2013, the airline sector has grown substantially. According to the International Civil Aviation Organisation (ICAO), passenger trips increased from 4.028 billion in 1980 to 19.125 billion in 2012.² International scheduled passenger traffic grew by 5.2% in 2013 in comparison to 2012 and is expected to reach over 6.4 billion passenger by 2030.³

2. The number of travellers has increased because, among many other things, prices have decreased significantly in response to increasing competition in the air transport market. For example, “in 1974 the cheapest round-trip New York-Los Angeles flight (in inflation-adjusted dollars) that regulators would allow: \$1,442. Today one can fly that same route for \$268”.⁴

3. With respect to cargo, although only around 0.5% of the volume of world trade shipments is carried by air, it accounts for over 35% in terms of its value. This means that air transport is indispensable for the speedy delivery of high value commodities, and other time-sensitive and perishable goods.

4. Increasing demand for air transport services has been facilitated by, and contributed to, the expansion of the global reach of airline networks. In 2012, airlines launched new services for a net addition of 974 airport pairs, while flight frequencies remained stable.⁵ Expanded networks increase air connectivity, which in turn increases states’ access to foreign markets. Overall, increased connectivity has been found to enhance the economy’s overall performance and productivity.⁶

5. It is expected that, by 2026, aviation will contribute \$1 trillion to world’s GDP. Worldwide, aviation and related tourism generate over 56 million jobs, of which 8.36 million are directly linked to the aviation sector. Around 35% of international tourists travel by air.⁷ These numbers clearly illustrate how vital the international airline sector is in the increasingly inter-connected and globalised world’s economy. Air transportation spurs international trade and investment, tourism as well as growth of many other industries, thereby contributing to the growth of the overall economy.

¹ This paper was written by Mona Chammas and Anna Pisarkiewicz with a valuable contribution from Simon Bricka, OECD Competition Division. All footnotes are cited in full in the bibliography attached to this Background Note.

² Author’s calculations from World Bank international and domestic passenger data, based on an ICAO Press Release, 16 December 2013.

³ ICAO Press Release, 16 December 2013.

⁴ Breyer (2011).

⁵ IATA (2013), Annual Review.

⁶ For a detailed economic overview of the benefits of the aviation industry on consumers, public finances and the global economy see country reports prepared by IATA in cooperation with Oxford Economics.

⁷ IATA (2013), Annual Review.

6. The impact of the airline sector on the performance of other industries and global economy explains why it is essential to ensure that airlines operate in a level playing field.

Why does airline competition matter?

7. Since the airline sector has been de-regulated, air travel has to a large extent become a commodity and air services have become market-driven. Driven by lower prices and growing income, air traffic for passengers and cargo has grown exponentially. Airlines started offering lower fares to consumers under the pressure from increasing competition, which was spurred by liberalisation and de-regulation of the air transport sector. While many agree that overall the evolution of the sector has produced significant benefits to consumers, concerns about anti-competitive behaviours remain.

8. One of the most striking features of the international air transport sector is the variety and number of co-operation arrangements between airlines. These are typically used to reduce costs and spread the operational risk. However, any kind of horizontal co-operation between airlines, be it a basic interlining agreement or a full horizontal merger, may produce anti-competitive effects. In addition, many airlines (in particular incumbent carriers) may still have the ability and incentives to abuse the dominant position they inherited from the period preceding liberalisation. For example, legacy carriers may use their privileged position in a hub airport or engage in a predatory strategy with a view to deterring entry into the market in which they are present.

9. Given the nature and scope of air transport activities, the lack of a level playing field as well as harm from anti-competitive transactions or behaviours in the airline sector may have a deleterious effect on other sectors as well as the economy as a whole.

10. This Background Note highlights the most pressing and timely concerns that competition authorities are likely to face with respect to the international air transport sector. It focuses on civil international air transportation for passengers. Vertical aspects (e.g. airline-agent relationship) and purely cargo and domestic matters are excluded for purposes of the present Roundtable and Background Note. Section 1 describes the current regulatory framework and main features of the airline industry. Section 2 provides an overview of the competitive landscape in which airlines operate, and Section 3 addresses antitrust enforcement and airline competition issues.

1. Features of the airline industry

11. This section provides background on the airline industry operating environment, focusing first on liberalisation and de-regulation (section 1.1.), then on various business models that have sprung up following liberalisation (section 1.2.). This section turns next to airlines' financial distress, a recurrent problem in the airline industry (section 1.3.).

1.1. Liberalisation of the air transportation industry

12. In contrast to many other industries with transnational reach, airlines' commercial freedom is subject to many restrictions. Airlines operating international air transport services have to comply with different and often complex international and national regulatory regimes. Applicable regimes may control the market by putting in place a specific economic regulation, but they may also pursue policy considerations in such diverse areas as environment safety, consumer and environmental protection. While these additional policy considerations also have an impact on economic dynamics, the overview of the regulatory framework provided below is limited to economic regulation.

13. *Regulation of air transportation.* The Chicago Convention of 1944 established the International Civil Aviation Organization (ICAO), a specialised agency of the United Nations charged with the co-

ordination and regulation of civil international aviation. At the same time, the Convention established formally that every State has “complete and exclusive sovereignty over airspace above its territory”.⁸ This principle still influences and limits today’s international air transportation, since it gave every States the power to decide who is allowed to fly through *its* airspace, including landing and take-off. The Convention also strengthens that international air transport services should be established on the basis of “equality of opportunity and operated soundly and economically”.⁹ As of 2013, the Chicago Convention had 191 state signatories. In contrast, the regulation of domestic air services has been left to individual countries.

14. The WTO-GATS Annex on Air Transport Services applies to international air services, but traffic rights and traffic-related services, which form the largest part of air transport services, have been excluded.¹⁰ This explains why most of air transport services are regulated and negotiated by sovereign states, predominantly through bilateral air service agreements (ASAs).

15. ASAs are the main legal basis on which international air services are provided today. ASAs typically determine the economic conditions, under which airlines can access, operate and provide services across the two signatory countries (reciprocal traffic rights). Such conditions can be far reaching, e.g. setting routes, frequencies and capacities. According to IATA, as of 2007, there were over 3,000 active ASAs. This means that, despite the global nature of air transportation, airlines continue to operate under complex, fragmented and diversified regulatory frameworks.

16. Most bilateral ASAs include restrictions on foreign ownership and control, under which airlines operating designated international air transport services, must be “substantially owned and effectively controlled” by one of the contracting states.¹¹ While such restrictions are to some extent justified by various safety and security reasons, they effectively “impose an artificial industry structure on the air carrier sector that does not exist in other industries”,¹² thereby limiting the airlines’ commercial freedom. In particular, the ownership and control rules restrict the possibility for cross-border mergers and acquisitions, a restriction that does not exist in other industries.

17. Besides state-imposed regulation, airlines have launched a number of self-regulation initiatives, which have also shaped how the airline industry operates. In particular, the International Air Transport Association (IATA) was established in 1947 to provide technical support to ICAO and to adopt industry standards.¹³ Today, IATA members represent approximately 85% of total air traffic worldwide.¹⁴

18. *De-regulation and liberalisation.* Liberalisation in the aviation sector presaged major structural changes. First, in 1978, the United States’ (U.S.) Congress passed the Airline De-regulation Act, which effectively liberalised the U.S. domestic aviation market after 40 years of restrictive regulation. A year later, US Congress adopted the International Air Transportation Competition Act with a view of promoting liberalised bilateral ASAs with other countries. A major break-through with respect to international aviation took place in 1992 when the U.S. signed the first Open Skies agreement with the Netherlands,

⁸ ICAO (1944), Chicago Convention, First Edition.

⁹ ICAO (2006), Chicago Convention, Ninth Edition.

¹⁰ WTO, General Agreement on Trade in Services (GATS), Annex on Air Transport Services, April 1994.

¹¹ The ownership restriction determines the maximum percentage of airline shares that can be owned by foreign nationals.

¹² ICAO (2013), ‘Working Paper on Air Carrier Ownership and Control Clauses in Bilateral Air Services Agreements’.

¹³ For information about IATA, see: <http://www.iata.org/about/Pages/index.aspx>.

¹⁴ See section 3.3.c. below for further developments on IATA standards.

which eliminated capacity and frequency constraints for flights between the two countries. Today, the U.S. has over 100 open-skies agreements.¹⁵

19. After the U.S., many other countries followed suit and undertook to liberalise their airline sector, which often included privatisation of state-owned airlines. New Zealand started liberalising its airline sector in 1983, Canada in 1984 and Australia in 1990. The European Union (E.U.) implemented liberalisation measures during the period from 1988 to 1997. Although many countries have liberalised their aviation sector, as of 2007 only 17% of international air traffic was conducted in a liberalised operational environment.¹⁶ Thus, despite important progress, many countries still have to liberalise “their” airline sectors.¹⁷ Liberalisation may vary across countries taking into account “the unique characteristics of their own economic, political, and physical conditions”.¹⁸

20. *Impact of liberalisation:* Various authors have examined the impact of liberalisation on such diverse and at the same time inter-related aspects as connectivity, network structure, competition, consolidation and pricing. While mixed findings have been reported, it is safe to say that liberalisation has produced some clear benefits. With increased competition, prices have fallen, productivity has increased, airline networks have been optimised and the number of passengers has increased.¹⁹ In addition to the positive impact on competition, liberalisation of the airline sector decidedly has a potential to significantly contribute to the growth of the overall economy.

21. De-regulation and liberalisation of the air transport sector raise continuing questions regarding government intervention. Air transport “markets” were not a given: both governments and airlines are learning how to navigate the growingly liberalised environments and market dynamics. Open market forces may still fail sometimes and lead to economic inefficiency, market foreclosure or consumer harm. One of the main regulatory changes following liberalisation was the progressive adoption of competition laws around the world.

1.2. Business models and industry consolidation

22. De-regulation and liberalisation of civil air transportation have opened the door to dramatic changes in the airline industry. Two essential game changers distinguish the airline industry of today from that of 1975: low-cost carriers (LCCs) have entered the markets, leading to a range of new business models. In parallel, the industry has been marked by a consolidation trend, which essentially took place through airline alliances.

a. LCC entry and new business models

23. *LCC entry.* De-regulation of air transport markets dominated mostly by state-owned or legacy carriers enabled entry by low-cost carriers (LCCs) in various parts of the world. LCCs penetrated the air

¹⁵ For the full list of the US Open Skies partners, see: <http://www.state.gov/e/eb/rls/othr/ata/114805.htm>.

¹⁶ IATA (2007).

¹⁷ For example, ASEAN countries have to fully liberalise air transport services by 2015.

¹⁸ Shaw, *et al.* (2009).

¹⁹ For a critical study of the impact of de-regulation, see e.g. Goetz and Vowles (2009) who identified “The Good, the Bad and the Ugly” of de-regulation and liberalisation policies over a 30-year period. The Good referred to higher passenger volumes, more service to the most popular destinations and lower fares on average. The Bad referred to financial and employment instability, lower quality of airline services overall, fewer flights and higher fares for flights to smaller places. The Ugly referred to the loss of \$30 billion overall and the bankruptcy of high-profile carriers over the period 2000-2005.

transport markets by offering low-fare, point-to-point and no-frill flights, mainly on short-haul routes where there was sufficient potential demand from price-sensitive consumers. Overall, LCCs have grown rapidly. Worldwide they account for 26% of total seat capacity and for 22% of total frequency.²⁰

24. In parallel to LCC entry, legacy carriers undertook a number of steps to rationalise their operations by replacing point-to-point structure with a hub-and-spoke network. A hub-and-spoke network, which typically consists of a central airport (the hub) and many secondary airports (spokes), has emerged as the most efficient model for this type of airlines: it allows airlines to optimise their operations by exploiting economies of scale, scope and density.

25. Shortly after the industry liberalisation, the landscape of the aviation markets was thus relatively simply to describe as it featured two main business models: full-service carriers (FSCs), i.e. legacy airlines; and LCCs, the new entrants.²¹ The main characteristics that distinguish FSC and LCC business models are summarised in Table 1 below:

Table 1. Comparison of FSC and LCC business models

Features	FSCs	LCCs
Core business	Passenger and Cargo	Passenger
Consumer base	All – economy and business	Economy
Network	Hub-and-spoke often at main airports	Point-to-point often between secondary airports
Coverage	Domestic, international and intercontinental	Domestic and continental
Ticketing	Round-trip ticket	One-way ticket
Ticket selling	Various distribution channels (e.g. agency, direct)	Direct on-line
Aircraft	Cabin divided into economy and premium (first/business) class	Single class cabin
Fleet	Diversified	Uniform
Product bundling/differentiation	Frills (i.e. complimentary services)	No frills
Customer management	FFP	No FFP

26. These features have to various extents contributed to the fact that LCCs have lower operating costs than legacy carriers.²² But LCCs have also lower profit margins than legacy carriers (due to no premium class), which requires a high load factor. Over time, as legacy carriers seek to improve their cost efficiency in order to respond to competition from LCCs, cost advantage of low-cost carriers may be reduced and price competition alone may become unsustainable.

²⁰ International Transport Forum data.

²¹ Charter carriers are included in the low-cost carrier category: they provide low-cost air services and focus mainly on tourism, short-haul flights and price-sensitive holiday passengers.

²² Differences in operating costs typically have their source in higher seating density and higher daily aircraft utilisation. According to IATA (2006), in 2004 the operating costs per available seat kilometre (ASK) of the three largest US network airlines were 36% higher than those of Southwest (the main US low-cost carrier). In Europe, this difference was also quite substantial as operating costs of legacy carriers in 2004 were 40% and 64% higher than those of EasyJet and Ryanair respectively.

27. *Hybridisation.* In response to increasing competition and changing consumers' behaviours, airlines continuously adapt their business models. This evolution is reflected by the hybridisation of airlines' business models. There is growing consensus that "there is now a continuum of different business models in play rather than a simple categorization by discrete groups".²³ Klophaus et al (2012), for example, having examined European airlines operating on the four largest LCC markets in Europe (Germany, Italy, Spain and the UK), found that it was more appropriate to classify the airlines as: (i) pure LCC, (ii) hybrid carrier with dominating LCC characteristics, (iii) hybrid carrier with dominating full-service airline characteristics, and (iv) full-service airline.²⁴ Examples from the industry reveal the ongoing hybridisation of airlines' business models. As illustrated in Box 1 below, features that were previously seen as pertaining to a specific business model may no longer be seen as such.

Box 1. Hybridisation of airlines' business models

On the FSC side: Certain FSCs have moved to offer low-cost services. Aer Lingus, has turned from the typical network carrier model to a low cost model that specialises in long-haul routes. Other legacy carriers, such as Qantas, Singapore or Lufthansa responded to competition from LCCs by creating their own LCC: Jetstar, Tiger and German Wings respectively. Some legacy airlines set up a joint venture to offer low-cost air services.²⁵ In addition, FSCs are un-bundling their offer, separating no-frill flights from ancillary services, and pricing them separately.²⁶ FSCs are also increasingly offering tickets via their own website rather than through traditional distribution channels.²⁷ Fleet homogeneity or heterogeneity also no longer allows differentiating between FSC and LCC,²⁸ as FSCs today tend to rely on homogenous fleet, at least on short-haul routes.

On the LCC side: Some LCCs have adopted the FSC model. Virgin Australia, for example, initially a LCC known as Virgin Blue, has become a full-service airline operating both domestic and international flights. LCCs are also increasingly offering FSC-like services, such as frequent flyers programs, priority boarding and extra luggage, as opposed to their traditional no-frill offer.²⁹ These new services reflect LCCs' move towards attracting demand from more customer segments (e.g. business passengers). LCCs further seek to geographically expand their networks by offering long-haul routes and by moving to primary airports: e.g. Air Berlin, Aer Lingus and Meridiana have launched long-haul routes, whereas Ryanair has expanded to Brussels International Airport.³⁰

28. The on-going hybridisation of airline business models is not surprising. Both established and new airlines need to have flexible business models to continuously adapt and remain profitable in a competitive environment. When examining competitive interactions between firms operating different business models,

²³ Lohmann and Koo (2013).

²⁴ Klophaus *et al.* (2012). See also CAPA (2013), 'Airlines in Transition Reports', which address some of the key transformational issues faced by the aviation industry including hybridisation, as LCCs evolve towards full service and as legacy airlines look for LCC solutions.

²⁵ E.g. Jetstar Japan was created by Qantas and Japan Airlines while Jetstar Hong Kong was created by Qantas and China Eastern Airlines.

²⁶ For example, some airlines have stopped offering complementary food for economy passengers (e.g. North American airlines), while others have started introducing fees for checked baggage (e.g. KLM and British Airways on their European routes) or charging for seat reservation.

²⁷ Traditional distribution channels include mainly Global Distributions Systems (GDSs) and on-line or brick and mortar travel agencies.

²⁸ Klophaus *et al.* (2012) and Gillen and Gados (2008).

²⁹ Such as Air Berlin in Europe and WestJet in Canada.

³⁰ While various authors have questioned the viability of the long-haul low-cost carrier model, it remains to be seen whether LCCs operating transatlantic routes can successfully compete with legacy airlines on such markets. See e.g. Wit and Zuidberg (2012) and Morrell (2008).

LCC-FSC competition seems more effective than LCC-LCC competition. In other words, LCCs have put downward price pressure primarily on FSCs, while potentially avoiding to compete head-to-head against other LCCs.³¹

b. Consolidation and co-operation through alliances

29. Liberalisation of air transport increased competition and prompted airlines not only to rationalise their own structure (e.g. hub-and-spoke), but also to find opportunities for growth through co-operation and consolidation with other airlines. This mainly took place in the airline industry through alliances. “Alliances” refer in this paper to any kind of horizontal co-operation agreement falling short of a merger, which may vary widely in scope and strength, as explained further in this section. The reasons for airlines to enter into an alliance are primarily legal and economic:

- *Legal rationale.* Multinational companies and cross-border mergers are common in most industries. In the airline industry, cross-border mergers between airlines are uneasy due to nationality and ownership restrictions remaining in most open skies or ASAs. Under open skies agreements, the signatory countries grant *their* respective air carriers an operating license and traffic rights to fly between both countries. For that, they usually require that carriers be owned or controlled by nationals or by the state. A merger would usually entail a switch of control and ownership, leading the merged or acquired airline to lose its nationality, hence its traffic rights on international routes. This is why consolidation at international level is essentially achieved through alliances. Alliances, although varying in depth, allow indeed for co-operation and pooling of activities while preserving allied airlines’ ownership and control.³²
- *Economic rationale.* Alliance strategies are rooted in network economics and in the globalisation of the economy: airlines’ network and worldwide presence has become a comparative and competitive advantage.³³ It would be unsustainable however for each airline to serve alone every destination, while demand patterns vary in number, density, time and geography. Alliances enable airlines to broaden and deepen their network, to grow and to rationalise their costs, without expanding their own aircraft capacity or route offering. Alliances are thus seen as the second-best option after mergers to bring upon economies of density, scale and scope. Indian’s SEBI authority recalled the benefit-enhancing potential of alliances in its 2013 decision re: Jet Airways and Etihad’s alliance:

Commercial co-operation agreements are entered into by airlines to expand their respective networks to compete more effectively with other airlines, [...]. Such an agreement merely facilitates rationalization of costs, efficiencies of scale and the ability to service different parts of the world by leveraging the presence of the partner airlines in that market.³⁴

30. Early airline alliances consisted primarily in basic bilateral interlining (arms-length) arrangements. Interlining occurs when a passenger flies using just one ticket for the whole journey, with

³¹ Cento (2008) argues that “some LCCs have tried to avoid mutual competition”. Further studies may however need to evaluate the degree to which LCCs exert a competitive constraint on FSCs rather than other LCCs.

³² Whereas at domestic level (i.e. between carriers from the same country), consolidation occurs mainly through mergers.

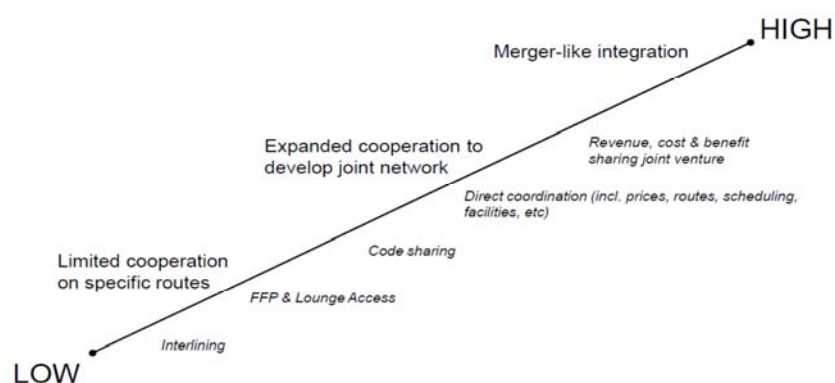
³³ Notably vis-à-vis strong and dynamic competition from LCCs and from Gulf carriers (although Qatar Airways joined Oneworld on 30 October 2013). See EU/DOT Alliance Report (2010).

³⁴ India, Securities and Exchange Board decision, *Acquisition of Shares of Jet Airways by Etihad* (2014).

multiple flight legs and distinct carriers. Interlining makes multi-carrier journeys seamless: at a transit airport, passengers do not have to collect their luggage or to check in again, and their baggage will automatically follow through to their final destination.³⁵ Deeper and more effective interlining co-operation emerged through code-sharing agreements. Under a code-share agreement, a flight operated by one carrier (“operating carrier”) can be marketed by partner airlines too (“marketing carriers”) under their own code and designator. In other words, code-sharing allows two or more airlines to share the same flight while selling tickets on this flight as their own. Towards the late 1990s, co-operation grew on a multi-lateral level and resulted in the crystallisation of the industry around three global branded alliances: Star, SkyTeam and OneWorld.³⁶ These global alliances capture 55% of the global market share, measured in available seat-kilometres for total scheduled passengers.³⁷ The remaining 45% is shared among LCCs and other non-allied airlines.

31. The following graph, from the EU/USDOT report on alliances, summarises the main types of airline alliances according to their degree of co-operation and integration.³⁸

Figure 1: Spectrum of Alliance Cooperation*



* Source: Airline industry presentations, DOT

32. As shown in the above graph, every alliance may vary in width and depth. In practice, alliances may consist in a complex combination of features and should thus be examined on a case-by-case basis. Although various typologies may be offered to classify airline alliances, most alliances fall in one of these two categories:

- *Low-level to mid-level co-operation:* these are “traditional” or “standard” alliances ranging from basic interlining agreements, to co-operation pertaining to airport lounges, terminals, IT platforms, check-in operations, frequent flyer programs or code-sharing. Star, SkyTeam and OneWorld fall in this first category, to varying degrees.

³⁵ Beuve-Méry and Struk (2007).

³⁶ Star Alliance was established in 1997, Oneworld in 1999 and SkyTeam in 2000.

³⁷ CAPA, Centre for Aviation (2011).

³⁸ EU/DOT Alliance Report (2010).

- *High-level co-operation and integration (“joint ventures”)*: these are far-reaching agreements involving (i) coordination on competition parameters, such as prices, schedules, capacity, facilities and other sensitive information; (ii) sharing costs, revenue and/or profits; and/or (iii) acquiring a (minority) interest in allied airlines.

33. The latter category of alliances, namely far-reaching joint ventures, are deemed more likely to achieve merger-like synergies and efficiencies. At the same time, they may require substantial investments by the allied airlines to implement the foreseen level of integration, and integration can be difficult to adjust or unwind if needed. Integrated joint ventures among actual or potential competitors are also more likely to give rise to competition concerns.³⁹

34. Alliance dynamics and inter-alliance competition may evolve over time, depending on the regulatory and economic environment in which allied and non-allied airlines operate. Today’s driving alliance dynamics and trends are summarised in Box 2 below:

Box 2. Recent trends in airline alliance dynamics

Growth. The evolution of airline alliances and partnerships has been rapid and far reaching,⁴⁰ co-operation between airlines has overall increased in breadth and depth.⁴¹

Stratification. Within the three global alliances, Star, SkyTeam and OneWorld, more integrated joint ventures are being set up by sub-groups of allied airlines.⁴² Code-share agreements and joint ventures are also concluded between alliance members and non-allied airlines.⁴³ These spin-offs may provide additional benefits while at the same disturbing the global alliance dynamic.

Regulatory. As long as nationality and ownership limitations are contained in ASAs stand firm, deeply integrated JVs will remain airlines’ main strategy to access global markets.⁴⁴ On the regulatory side though, “there are some signs of a less protectionist approach, with more openness to considering cross-border ownership and control, facilitating greater use of equity stakes.”⁴⁵

³⁹ See section 3.2. below for a competition assessment of alliances.

⁴⁰ CAPA (2013), ‘Airlines in Transition Part 1’.

⁴¹ EU/DOT Alliance Report (2010).

⁴² For example, (i) Star Alliance’s United/Continental, Lufthansa and Air Canada engaged into a transatlantic joint venture involving extensive cooperation on pricing, capacity and scheduling coordination as well as the sharing of revenues, (ii) Star Alliance’s Air Canada and United engaged into a US/Canada revenue-sharing joint venture, (iii) SkyTeam’s Delta, Northwest, Air France, KLM, Alitalia and Czech Airlines engaged into a transatlantic joint venture involving a metal neutral joint venture between Delta, Northwest, Air France and KLM, and (iv) Oneworld’s American Airlines, British Airways, Finnair, Iberia and Royal Jordanian Airlines engaged into a transatlantic joint venture involving cooperation on all flights and services.

⁴³ Nowadays, 14% of Star Alliances routes and 38% of OneWorld routes are operated with non-members. CAPA (2013) ‘Airline Alliances – what Future? Global, Multilateral and Bilateral Partnerships are Evolving’.

⁴⁴ Ibid.

⁴⁵ CAPA (2013), ‘Airlines in Transition Part 1’.

Equity. Equity-based alliances are emerging as a growing consolidation model. Equity investments, such as Etihad's or Lufthansa's minority stakes in other airlines, can secure and deepen an existing partnership,⁴⁶ signal a proprietorial position,⁴⁷ prevent a competitor from taking a partner over, and facilitate mutual learning.

LCC entry. Global alliances members are predominantly FSCs or legacy carriers. Alliances do not exclude the possibility of opening up to LCCs, provided it would be mutually beneficial.⁴⁸ A recent phenomenon of alliance hybridisation is slowly emerging, as SkyTeam, for instance, unveiled in 2012 a platform for partnership with selected LCCs.⁴⁹ Whether cautious openings will benefit or disrupt alliances and competition altogether, remains to be seen. LCCs may also find more opportunities in strategic bilateral JVs with selected FSCs.

Gulf carriers. Alliances have faced a shift of global power towards Asia in recent years.⁵⁰ Gulf carriers in particular - Emirates, Etihad and Qatar Airways – post the world's strongest growth rates and attract growing international demand. Qatar Airways joined OneWorld in 2013, but Emirates and Etihad are pursuing their own partnership strategies.⁵¹ These carriers are described as the main threat and destabilising factor to global alliances and legacy carriers. At the same time, Gulf carriers' success may incentivise inter-alliance competition to remain attractive and competitive.

35. Accordingly, while global alliances are still at the heart of co-operation and consolidation in the industry, strategic joint ventures within and outside global alliances, hybridisation processes, and Gulf carriers' growth, will keep shaping and shaking the alliance world. The evolution and consolidation of the airline industry through alliances suggests that *alliance competition* may to some extent replace airline competition.

1.3. *Financial distress and government intervention*

36. The airline industry has been famous throughout the years for featuring a large number of distressed companies, bankruptcies and market exits. Is financial distress inherent to the industry? Are most airlines condemned to face financial difficulties at some point? What explains that legacy carriers are struggling, whereas most low-cost carriers⁵² and new full-service carriers⁵³ have been successful? Is it a

⁴⁶ CAPA (2013) 'Airline Alliances – what Future? Global, Multilateral and Bilateral Partnerships are Evolving'.

⁴⁷ As of January 2014, Etihad's investments included 29% of Airberlin, 40% of Air Seychelles, 19.9% of Virgin Australia, 24% of Jet Airways, 3% of Aer Lingus, 49% of Air Serbia and 33.3% of Darwin Airline, CAPA (2014).

⁴⁸ See discussion with alliance representatives and leaders in CAPA (2013) 'Airline Alliances – what Future? Global, Multilateral and Bilateral Partnerships are Evolving'.

⁴⁹ Star is considering a similar opening, mainly targeting Brazil and India: CAPA (2013), 'Star Alliance Considers New Platform for Low-Cost Airlines, Targeting Brazil's Azul & India's IndiGo'.

⁵⁰ Airline Leader, 'Global Airline Alliances: Transformed by Antitrust Immunity, but Confronted by Uncertainty'.

⁵¹ Emirates entered into partnership agreements with Qantas (Oneworld member) and Tap Portugal (SkyTeam member), whereas Etihad is developing its own alliance network through equity-based investments and code-sharing agreements. For further commentary on Gulf carriers' impact on alliances, see e.g. Parker (2013) and CAPA (2013), 'Airlines in Transition Part 1'.

⁵² E.g. easyJet, Ryanair, Southwest and Spirit. Some LCCs discontinued their operations however, such as SkyEurope (2009) Wind Jet (2012) in Europe.

⁵³ E.g. Gulf carriers: Emirates, Etihad and Qatar Airways.

matter of good management, business model, market structure, state support, legacy labour agreements, de-regulation or remaining regulations?

37. The primary question to most observers is whether de-regulation and liberalisation made air carriers less viable financially. As S. Borenstein points out, at the time when carriers were state-owned and heavily regulated, most of them were consistently *unprofitable* or “chronic loss-makers”.⁵⁴ Their financial distress was only less visible due to systematic subsidisation of the failing carriers. “Firms could count on surviving even after chronic losses, and this expectation left its mark on their behaviour.”⁵⁵

38. Financial distress can result from a combination of internal and external factors. Internal factors primarily pertain to bad management decisions, including excess capacity investments, inflated personnel, excessive bureaucracy, unprofitable routes and ineffective network planning. External factors often consist in fuel price volatility, financial and economic crises, shifting demand, labour costs or increased competition (for example from LCCs). Japan Airlines, for example, faced serious financial difficulties in 2010 as a result of excess capacity (fleet) and personnel, unprofitable routes, bureaucratic management and a drop in demand during the financial crisis.⁵⁶ These reasons can become all the more important when airlines facing changes in the market are confronted with rigidity stemming from labour legislations or the lack of flexibility in their operations.

39. Effective competition may also play a role in some airlines’ financial difficulties: in highly competitive markets, only the most profitable and well-managed carriers may be sustainable. This holds true for any industry, as competition rewards the most efficient players at the expense of the others. On the other hand, *unfair* competition may cause or exacerbate financial distress: state-supported new entrants (as alleged of some LCCs and Gulf carriers), tax-free airports, and low-cost employment in some regions, are often pointed to as reasons for legacy carriers’ difficulties. Unfair competition raises the broader and uneasy question of what a level playing field is in the airline sector.

40. An airline may have recourse to various tools to achieve financial recovery, one of which is consolidation, through mergers and alliances. Although consolidation is likely subject to merger control, competition authorities tend to take serious financial distress into account in assessing merger effects, and may actually approve an otherwise anticompetitive merger if it would not be worse than losing the failing airline absent the merger. The acquisition of Olympic Air by Aegean Airlines, for instance, was first rejected in 2011 by the European Commission as entailing anti-competitive effects. In 2013, the same merger was approved on failing firm grounds.⁵⁷

41. Where business recovery tools fail, governments face the question of whether or how to respond. In the airline industry, failure may also have certain harmful consequences, such as reduced access and frequency of air transport, adverse labour and social impact, lower coverage of small or remote areas, negative impact on related businesses. These are reminders that, although privatised, airlines serve the public interest and global economy, and airlines are not easy to replace. These various policy concerns explain why governments have sometimes adopted rescue, bail-out or state aid plans.⁵⁸ Such aids usually come with strings attached, i.e. conditions to ensure sustainable recovery. A number of government aids

⁵⁴ McCarthy (2013).

⁵⁵ Kornai *et al.*

⁵⁶ JFTC, Presentation by Commissioner Odagiri, 2014.

⁵⁷ European Commission decisions *Aegean Airlines/Olympic Air I* (2011) and *II* (2013).

⁵⁸ Government “intervention” may take various forms, e.g. capital injection, subsidies, loan grant, debt forgiveness, tax advantage, or partial (re-)acquisition by the State.

have proven successful, such as the bail-out of American carriers in 2001 and the rescue of Japan Airlines in 2010.⁵⁹

42. Government aid can also be controversial, as it carries various dangers, let alone the risk of a failed rescue plan. The first danger is that state intervention may distort the playing field. As pointed by ICAO, “some governments may be tempted to lend support to their airlines through means that could deny the airlines of other States a fair and equal opportunity to compete.”⁶⁰ A second danger is that state aid may increase inefficiencies overall, as it sends a strong signal to the business that inefficient airlines could be rescued.⁶¹ The challenge consists thus in determining whether the adverse consequences of letting a carrier fail, outweigh the risks of un-levelling the playing field and of inducing potential longer-run inefficiencies.

43. While competition laws ensure that *companies’* practices do not distort competition, they cannot generally prevent *state-induced* distortions of competition. The European Union is the only jurisdiction in the world that has adopted binding “state aid law”, including rules and limitations applicable to state aid envisaged by EU governments.⁶² These rules aim to ensure fair competition and a level playing field across EU member States and companies; they have been applied to air transport.⁶³ Concerns with subsidies can arise at global level. They are sometimes, but not consistently, addressed in bilateral ASAs through the enumeration of non-permissible state aid mechanisms likely to adversely affect a fair and competitive environment.⁶⁴

⁵⁹ In 2001, the United States offered struggling American airlines US\$ 5 billion in emergency aid (post 9/11) and loan guarantees up to US\$10 billion.⁵⁹ The loan programme allowed airlines to recover, some of which merged afterwards. Absent the bailout, airlines may have gone bankrupt before any merger and stabilisation opportunity. More recently, Japan adopted a revitalisation plan in 2010 to rescue collapsing legal carrier Japan Airlines. Revitalisation conditions included divestitures of affiliated companies and reductions in capacity (aircrafts) and in labour costs. Two years later, the airline posted record profits. Other rescue plans may prove less successful, as shown by the current financial difficulties faced by Air India and Malaysian Airlines despite prior government intervention.

⁶⁰ ICAO (2013), Working Paper on Fair Competition in International Air Transport.

⁶¹ This phenomenon is described by economist J. Kornai as the “soft budget constraint syndrome”; see Kornai, ‘The Soft Budget Constraint’, <http://faculty.vassar.edu/kennett/Kornai.htm> and further developments at <https://www.sss.ias.edu/files/papers/econpaper19.pdf>.

⁶² It also sets for a notification system under which governments must submit their aid plan for approval by the European Commission. Articles 107 to 109 of the Treaty on the Functioning of the European Union contain the main dispositions regarding State aid in the European Union. These articles are complemented by European Commission guidelines, including specific guidelines regarding rescue and restructuring aids (Community Guidelines on State Aid for Rescuing and Restructuring Firms in Difficulty) in force since 2004. The European Commission is currently in the process of reviewing its guidelines for rescue and restructuring aid for non-financial undertakings in difficulty.

⁶³ At the same time, they may put the competitiveness of the EU industry at a competitive disadvantage in relation to the rest of the world, where state aid remains un-regulated.

⁶⁴ These provisions follow the ICAO guidelines: ICAO (2004), Manual on the Regulation of International Air Transport http://www.icao.int/sustainability/Documents/Compendium_FairCompetition/InternationalOrganisations/ICAO-doc/ICAO-Doc9626_en.pdf. See also ICAO (2013), Working Paper on “Fair Competition in International Air Transport”, 18-22 March 2013, http://www.icao.int/sustainability/Documents/Compendium_FairCompetition/InternationalOrganisations/ICAO-doc/ATConf6-wp004_en.pdf.

2. Competitive landscape of the airline industry

44. To understand the competitive landscape in which airlines operate today, two central questions are addressed in this section: What does an airline need to enter and compete in the provision of passenger air transportation services? And what do airlines really compete on? The first question pertains to essential inputs and potential barriers to market entry, such as take-off and landing slots (section 2.1). The second question deals with the main parameters on which airlines compete, namely price and quality (section 2.2).

2.1. “What does an airline need to enter and compete?”

45. In the initial years of liberalisation of the air transport market, the airline industry was described as being close to perfectly contestable.⁶⁵ A perfectly contestable market exists where there are no barriers to entry and no barriers to exit, so that potential competitors can engage in so-called ‘hit-and-run’ competition. This means that entry must be reversible and costless. While liberalisation of international air transport markets is still ongoing, the current experience with de-regulated markets makes it clear that this industry is to a large extent characterised by high barriers to entry, and thus can hardly be described as very contestable.⁶⁶

46. To enter the market and compete in the provision of air transport services, a company essentially needs aircrafts (e.g. through ownership or lease), operating licences and traffic rights, personnel, feeder access, take-off and landing slots, and access to airport facilities (e.g. check-in facilities and gates). Some of these inputs are not scarce (e.g. aircrafts), whereas other inputs may be limited in number or size (e.g. airport facilities) and constitute barriers to entry. This type of barriers to entry is usually referred to as exogenous or structural.

47. Other barriers to entry may instead originate from the behaviours of firms present in the market, which raise the costs for new entrants. These barriers to entry are usually referred to as endogenous or strategic. Frequent flyer schemes, which increase consumers’ loyalty, are a good example.

a. Exogenous/structural barriers

48. Airport congestion today is arguably the most critical barrier deterring entry into certain routes. Airport congestion occurs where demand exceeds airport capacity.

49. According to IATA, as of April 2014, there were around 167 congested airports in the world: 100 in Europe, 36 in the Asia-Pacific region, 13 in North Asia, 11 in Middle East and Africa and only 7 in America. Various studies show that the problem of congestions is most acute at major *hub* airports, such as London Heathrow, Frankfurt and New York JFK.

50. Given the gap between demand and airport capacity, and the unlikely expansion of most congested airports, governments have adopted congestion management measures consisting essentially in creating slots and introducing slot allocation rules.⁶⁷ A slot is defined by IATA as “a permission given by a coordinator for a planned operation to use the full range of airport infrastructure necessary to arrive or depart at a Level 3 airport on a specific date and time.” A Level-3 airport is an airport that cannot meet

⁶⁵ Bailey and Baumol (1984).

⁶⁶ Baumol and Willig (1986); Goetz (2002); and Goetz and Vowles (2009).

⁶⁷ To reduce the demand-to-capacity ratio, it is debated in the economic literature that policy-makers should opt for capacity management and/or for demand management measures. See e.g. Airport slot allocation: a time for change. See e.g. Madas and Zografos (2010).

demand, either due to insufficient infrastructure/capacity or due to government-imposed restrictions.⁶⁸ Slots consist thus mainly in take-off and landing rights permission at constrained airports.

51. The scarcity of slots at capacity-constrained airports has led to the emergence of various primary and secondary slot allocation regimes. Primary slot allocation refers to the first time a slot is established and allocated (by the government or an appointed co-ordinator) to an air carrier. Secondary slot allocation refers to slot trading between the primary slot holders and candidate airlines seeking new or additional airport slots.

52. Given the importance of slots for the operation of air transport services, it is essential that slot-allocation regimes contribute to the creation of a level-playing field. Primary slot allocation should therefore be guided by principles of neutrality, transparency and non-discrimination and should ensure the most efficient use of slots by airlines. In many airports, however, slots have been allocated to incumbent carriers, granting them a privilege based on their historical presence, but not on an efficiency evaluation. New entrants would only be able to acquire slots if an incumbent carrier decided to return its slots to the “pool”. The returned slots would then be re-allocated (by the pool co-ordinator) to another airline. Some systems would favour re-allocation of returned slots to new entrants.⁶⁹

53. In various jurisdictions, like the EU, so-called “grandfather rights” were granted to primary slot holders: if the slot holder operates at least 80% of its assigned slots during a given scheduling period, it can keep the same slots for the next period. If the slot holder has not reached the threshold, the unused slots have to be re-allocated (“use it or lose it” rule).⁷⁰ Slot holders under such regime are not allowed to sell or to buy slots as they wish. They may be allowed to exchange slots on a one-to-one basis, but this requires that both airlines already be slot holders. As a result, there is no slot market and there is no such principle as free or equal access under these primary slot allocation regimes. As pointed by the UK’s OFT (now CMA), the “current system creates rigid incumbent slot holdings that are slow to respond to changes in demand conditions and this inertia creates significant barriers to entry and expansion”.⁷¹

54. In addition, the “use it or lose it” rule has led to adverse strategies and inefficiencies. A slot-holding airline may decide to use a slot only to keep it, whereas the slot could be used more efficiently by another airline. Slot holders’ withholding strategies, combined with rigid slot allocation rules, raise barriers to entry and expansion at most constrained airports. The above concerns have led most policy makers around the world to favour the creation of a slot *market*, namely a market allowing for secondary slot trading among airlines. This secondary slot market would allow airlines to sell or lease their slots freely to other airlines, whether new entrants or expanding competitors.

55. The IATA 2013 Worldwide Slot Guidelines crystallise the co-existence of two slot regimes:

⁶⁸ IATA (2013), Worldwide Slot Guidelines.

⁶⁹ Article 6 of regulation (EC) No 793/2004 of the European Parliament and of the Council of 21 April 2004 provides that 50% of slots placed in the pool of available slots shall be distributed to new entrants. The question is whether new entrants could effectively compete with limited slot re-allocation.

⁷⁰ EU Regulation 95/93 on common rules for the allocation of slots at Community airports, amended by Regulation 793/2004 and by Regulation 545/2009 regarding the use it or lose it rule for slots allocated for the summer season of 2010.

⁷¹ UK OFT (now CMA) (2005).

1.7.1 *The key principles of slot allocation are: [...]*

h) Historic slots may not be withdrawn from an airline to accommodate new entrants or any other category of aircraft operator. Confiscation of slots for any reason other than proven intentional slot misuse is not permitted.

i) Slots may be freely transferred or exchanged between airlines, or used as part of a shared operation, subject to the provisions of these guidelines and applicable regulations.

56. The principle of inherited primary slots harms competition and efficiency. At the same time, leaving slot trading wholly in the hands of slot holders may carry on new competition risks. Slot-holders may notably refuse to sell or lease their slots to exclude strong competitors or new entrants. This is why most congestion management studies conclude like H. Fukui that “the current bilateral slot trading system does not, on its own, necessarily secure effective slot trading”.⁷²

57. To address these pitfalls, governments have considered adopting a hybrid approach: allowing for secondary slot trading while imposing conditions on trading mechanisms to promote competition and efficiency. Such conditions pertain essentially to *how* an airline is allowed to sell or lease its slots. The main mechanisms capturing the attention of governments and economists today are auctions, congestion or peak-load pricing, and trading through a clearing house.⁷³ The US rescinded a project to auction slots at three New York airports,⁷⁴ whereas the EU is still weighing various market-based mechanisms to deal with the capacity trading at constrained airports.⁷⁵ Certain transport authorities may also consider imposing sanctions and fines against airlines for intentional misuses of slots.⁷⁶

58. Competition law can tackle anti-competitive slot trading tactics only to a limited extent: a slot trading tactic may indeed, but rarely, amount to a restrictive agreement or an abuse of dominance.⁷⁷ Absent a specific and detectable competition infringement, competition rules would generally be inapplicable to harmful slot-trading tactics. Sector-specific regulation could then play an important role in promoting competition and consumer welfare by setting appropriate slot trading rules in congested airports.

b. Endogenous/strategic barriers

59. Post-liberalisation, airlines have elaborated various strategies to reduce customers’ propensity to switch from one airline to another. The main strategy consists in rewarding customers for flying regularly with the same carrier. The three most common types of loyalty schemes are: frequent flyer programmes

⁷² For further developments on the pros and cons of slot trading, see UK OFT (now CMA) (2005) and Fukui (2010).

⁷³ For a detailed analysis of various slot allocation schemes, see Holder *et al.* (2004); Madas and Zografos (2010) (promoting congestion pricing as the most efficient tool at cluster airports); Vaze and Barnhart (2011) (on the conditions for congestion pricing to be effective); and Fukui (2010).

⁷⁴ In the US, in 2009, Obama’s Transportation Secretary rescinded plans for the introduction of a slot auction mechanism for 10% of slots at New York’s JFK, LaGuardia and Newark airports (<http://www.iata.org/publications/airlines-international/august-2010/Pages/06.aspx>).

⁷⁵ In the EU, the European Commission’s Directorate General for Mobility and Transport introduced a legislative proposal regarding the introduction of market-based mechanisms across the EU. The proposal has been reviewed, modified and accepted by the European Parliament. The next step is for the Council of the European Union to deliver its first reading position.

⁷⁶ Gleave (2011).

⁷⁷ See section 3.3. on exclusionary unilateral conduct pertaining to slots and essential inputs.

(FFP), corporate discount schemes (CDS) and travel agent commissions.⁷⁸ This section concentrates on FFPs and CDSs.⁷⁹

60. FFPs are personal loyalty programmes open to all travellers which enable them to accumulate bonus points. According to a survey carried out by *Official Airline Guides*, 90% of all business travellers are members of an FFP for a total of 120 million subscribers, a quarter of whom are active FFP members.⁸⁰ FFP points are generally awarded per flight and vary depending on destination, length and fare category. These points can be exchanged for free services (e.g. free travel or free hotel accommodation) and enhanced service level (e.g. priority boarding or class upgrade). A frequent flyer would usually qualify for those benefits once he/she has accumulated points beyond given thresholds set by the airline.

61. The first FFP was introduced in 1981 by American Airlines⁸¹ and, since then, such programmes have been a characteristic of most FSCs.⁸² FFPs have evolved over time. Hybridisation of business models has led some LCCs, such as Vueling, Wizzair or Norwegian, to adopt FFPs.⁸³ Many schemes have been broadened to include everyday spending at grocery stores, hotels or gas stations and therefore target everyday spenders, even though they may not be frequent air travellers.⁸⁴ The most advanced forms of FFPs, such as Air Canada's Aeroplan or Qantas' Frequent Flyer, belong to so called "autonomous next generation programs" and are managed by separate companies.⁸⁵ Another major evolution concerns alliances, which have introduced reciprocity in the ability to earn and use points across FFPs of various partner airlines.

62. CDSs are specific private contracts negotiated between an airline and a company, enabling the latter to obtain discounts on tickets purchased by its managers and employees.⁸⁶ CDSs arrangements can offer companies lower net fares, or might be a way of transferring the benefits of FFPs from individual employees to the company. Airlines usually require that the company guarantee a minimum turnover to benefit from discounts or apply proportionality between discounts and number or type of flights booked.⁸⁷ CDSs may also include clauses stating that the relevant airline should be given preference or that the company's engagement should last for at least a year.⁸⁸ With the development of airline alliances and code-sharing, CDSs may increasingly cover more than one airline.⁸⁹

⁷⁸ ECA (2005).

⁷⁹ As described in the introduction, this Background Note, for the most part, does not aim to address vertical dynamics, such as airline-agent relationships.

⁸⁰ This survey is pointed out in Hanlon (2007).

⁸¹ Boer and Gudmundsson (2012), page 18.

⁸² See Barrett (2001); and Tomová and Ramajová (2014), page 787.

⁸³ Tomová and Ramajová (2014), page 788.

⁸⁴ According to Boer and Gudmundsson (2012), page 23: more than 50% of points are earned on non-flying activities.

⁸⁵ Ibid. These new entities will often be owned by airlines even though investment by a third party is possible.

⁸⁶ According to Hanlon (2007), Chapter 3. Competition Issues, page 95: a company has between 5 and 20 corporate contracts (9 on average) with airlines.

⁸⁷ ECA (2005), page 7.

⁸⁸ ECA (2005), page 19.

⁸⁹ Hanlon (2007), Chapter 3, Competition Issues, page 95.

63. FFPs and CDSs offer clear direct benefits to consumers, through better quality and/or lower prices. They may also increase rivalry between airlines, which compete on offering the best loyalty programme and rewards. However they may also lock-in companies (beneficiaries) because the discounts offered may reduce their willingness to switch to other airlines. Whether such benefits increase consumer surplus and social welfare requires balancing FFPs' and CDSs' benefits against their potential anti-competitive effects.⁹⁰

64. Governments may also decide to address concerns of competition distortion and consumer harm by imposing a regulatory ban on FFPs. This may be necessary where FFPs are found to reduce competition, but do not constitute competition law infringements. Norway, for example, decided in 2002 to prohibit the possibility of earning points through SAS's FFP on all domestic routes.⁹¹ This ban was based on the strong loyalty effects generated by the FFP, which locked in customers. Norwegian, a LCC, entered the market during the ban period. According to the LCC, the ban was a decisive factor in its decision to enter the market.⁹²

2.2. "What do airlines compete on?"

a. Price

65. Airlines compete first and foremost on prices, i.e. on how much they charge for their flight tickets.

66. The price at which a consumer can buy a plane ticket varies depending on a variety of factors, such as travel date and time, origin and destination, travel class, booking method, number of purchased tickets or loyalty programs.⁹³ These differences are in part related to drivers of costs (e.g. flying farther away is more costly), but they also represent ways to discriminate between customers depending on their ability and willingness to pay.⁹⁴ The number and level of fares published in airline tariff manuals may therefore vary significantly for a specific flight by a given airline.⁹⁵

67. In an attempt to lower costs and to attract no-frill customers, LCCs, led by Ryanair, have started introducing complete "à la carte" services by un-bundling services.⁹⁶ Under this system, a no-frill flight is proposed and priced distinctly (basic fare) from ancillary services (e.g. priority seating or extra luggage), each of which has a separate price tag. This prompted legacy carriers to also un-bundle their offer and depart from the usual "all-in" flight experience. A danger arising from un-bundled offers is that it may lead to "drip pricing". Drip pricing is a pricing technique by which firms advertise only part of a product's price and reveal other charges later, as the customer goes through the buying process. The additional charges can be mandatory charges or optional fees for upgrades and add-ons.

⁹⁰ See section 3.3.a. for a competition assessment of loyalty scheme under exclusionary conduct claims.

⁹¹ Decision V2002-28 of the Norwegian Competition Authority.

⁹² The ban was renewed by the government in 2007, and discontinued in 2013: the government believed that the ban against abuses of dominant position and the work of the Competition Authority would suffice to ensure that airlines did not use loyalty schemes in an anti-competitive manner.

⁹³ Hanlon (2007), Chapter 6. Pricing power, page 239.

⁹⁴ Beloba *et al.* (2009).

⁹⁵ Hanlon (2007), Chapter 6. Pricing power, page 239.

⁹⁶ Forsyth *et al.* (2013), Chapter 10, A la Carte Pricing to Generate Ancillary Revenue: the Case of Ryanair, page 185.

68. Un-bundled offers may bring significant consumer benefits by allowing them to choose from various menu options, and to tailor products or services to their needs. But price partitioning can also cause harm to consumers, by misleading their choice by making prices less transparent and comparisons more complicated. Competition and consumer protection agencies have raised concerns about the use of drip pricing and some of them have taken or prompted action against potentially harmful drip pricing strategies.

Box 3. Drip pricing risks in the airline industry: Regulatory and enforcement actions

EU: The European Parliament and Council have adopted a Regulation on common rules for the operation of air services under which.⁹⁷

- The final price to be paid shall at all times be indicated and shall include the applicable air fare or air rate as well as all applicable taxes, and charges, surcharges and fees which are unavoidable and foreseeable at the time of publication.
- Optional price supplements shall be communicated in a clear, transparent and unambiguous way at the start of any booking process and their acceptance by the customer shall be on an ‘opt-in’ basis.

UK: In a market study report on price advertising, the OFT (now CMA) indicated that it is *less likely* to consider enforcement action where a trader has e.g.:⁹⁸

- Included all compulsory charges in the upfront price;
- Given information with the headline price about compulsory elements of a product that attracts variable charges (e.g. payment methods).

In September 2011, the OFT opened an investigation into payment surcharges in the airline industry. The 14 airlines under investigation had not complied with the above OFT report on price advertising. The OFT was concerned that airlines' payment surcharges were a 'drip-fee' or 'price partitioning' device, which concealed the true price of their services. The airlines under scrutiny gave formal undertakings to the OFT, whereas others brought voluntary changes to their pricing practices. The OFT concluded that, as a result of this enforcement action, free payment by debit card would become the industry standard for UK passengers.⁹⁹

69. The disparity in air fares is further reflected in the existence of two parallel “pricing worlds”. On the one hand, there is the world of public transparent prices. Airlines file their prices with companies such as SITA or ATPCO,¹⁰⁰ which in turn make fares available to Global Distribution Systems.¹⁰¹ Global Distribution Systems use sophisticated algorithms to display air fares instantaneously in a comparative format based on consumers’ search criteria.¹⁰² These are the prices everyone can see by looking for flights and quotes on Expedia or Travelocity for example. Airlines may also make air fares public on their own websites. On the other hand, there is also a whole world of non-public prices resulting from corporate contracts or obtained through frequent flyer programmes. These various pricing worlds may complicate pricing analyses, notably when it comes to assessing the impact of potential anti-competitive conducts on air fares.

⁹⁷ EU Regulation 1008/2008, article 23.

⁹⁸ UK OFT, Advertising of Prices, market study (2010).

⁹⁹ UK OFT decision, *Airline Payment Surcharges* (2012).

¹⁰⁰ Borenstein (2004), page 235: “A central clearinghouse for distribution of fare change information”.

¹⁰¹ Global Distribution Systems (GDSs) are also called Computer Reservation Systems (CRSs).

¹⁰² For a description of this distribution system, see Borenstein (2004), pages 235 and 236.

70. Finally, pricing by airlines may undergo important changes following IATA's proposal to introduce a New Distribution Capability, which would tailor prices and ancillary services to the prospective consumer's personal information.¹⁰³ This customisation system, if implemented, would take price discrimination one step further. This may raise consumer protection concerns, as well as competition ones.¹⁰⁴

b. Quality

71. Price is not the only factor that affects consumers' demand for airline services; quality is another important competitive variable.

72. Data published by the US DoT in the Air Travel Consumer Report or by the Association of European Airlines identify various parameters affecting airline service quality: schedule and on-time performance, number of flight cancellations, rate of missing baggage, frequency of overbooking, number of customer complaints.¹⁰⁵ This list could be extended for long-haul flights to include leg space, variety of entertainment offers, availability of staff on board, and quality of the food.

73. The issue about quality is that "while the importance of quality is undisputed, the task of providing a comprehensive definition of quality is rather more complex".¹⁰⁶ Quality is a multi-dimensional and subjective factor, depending on airlines' offer and consumer preference. Airlines' marketing strategies are increasingly considering quality as an important variable that may affect consumer choice: while LCCs have put a considerable focus on offering lower prices, FSCs are trying to attract consumers by providing better schedules, higher on-time performance, departure and arrival from/to easier-to-access airports, greater baggage allowance, free drinks and snacks, and the like. In addition global branded alliances have also developed marketing strategies along quality arguments, such as a wider network, better connectivity and seamless interlining experience.

74. Empirical research on the impact of competition on quality is still under-developed. An empirical study on US data shows that the frequency and the length of flight delays are higher on routes where only one carrier operates a direct service; thus suggesting that more competition improves punctuality.¹⁰⁷

75. Decisions by competition authorities and courts would usually assess price effects first, but quality consideration and efficiencies may also weigh in the determination of pro- and anti-competitive effects. For example, in 2007, the European Commission blocked the Ryanair/Aer Lingus merger on grounds that "the ability to increase Aer Lingus fares would further relax the competitive constraint faced

¹⁰³ Resolution 787 (Enhanced Airline Distribution) adopted by IATA in October 2012 and tentatively approved by the US Department of Transportation in May 2014, aims to introduce XML as the industry standard for electronic data interchange and may also progressively introduce a new distribution system for airline pricing and product information. See US DOT, Application for Approval of an Agreement (Resolution 787) by the International Air Transport Association (IATA Application), Order to Show Cause (2014). The scope of the DOT's approval does not however cover the introduction of a new distribution system; it mainly concerns the introduction of XML as an industry standard.

¹⁰⁴ See Section 3.2.c. on cartels and horizontal restrictions.

¹⁰⁵ See e.g. Tiernan *et al.* (2008).

¹⁰⁶ OECD (2013).

¹⁰⁷ Mazzeo (2003); and Greenfield (2014) who finds that the effects of competition on airline delays are three times stronger than previous examination suggested.

by Ryanair, allowing it to increase fares of ancillary services or to reduce quality without risking to lose as many customers as in the absence of the merger”¹⁰⁸.

76. Understanding the competitive landscape of the airline industry, including essential inputs to enter and the parameters on which airlines compete, plays a major role in assessing the competition impact of airlines’ behaviours.

3. Airline competition issues and antitrust enforcement

77. Already in 1988, the OECD argued that “the removal of restrictions on market entry, capacity, frequency and pricing resulted in greater emphasis being placed on the use of normal competition law to safeguard against anti-competitive behaviour and abuse of market power”.¹⁰⁹ Today, many competition authorities around the world effectively apply their respective competition law regimes to assess the impact of airlines’ behaviour on competition.

78. Airlines are increasingly operating cross-border. Despite co-operation among certain competition authorities, sometimes enshrined in ASAs, there is no harmonisation of competition law regimes and enforcement applicable to international air transport. The same conduct or agreement may therefore face various approaches to determine whether it promotes or harms competition and consumer welfare.

79. This section provides an overview of some of the most pressing competition issues arising in the airline sector. Following a brief overview of the relevant competition markets (section 3.1), this section examines, under competition laws, airlines’ various forms of horizontal collaboration, including alliances, mergers and cartels (section 3.2) as opposed to airlines’ unilateral conducts (section 3.3).

3.1. Market definition in the airline industry

80. A correct definition of the relevant market is critical in most competition cases. Different definitions will likely lead to different outcomes as to whether the conduct or transaction at stake is anti-competitive.

81. A relevant market has always a product and a geographic dimension. In transport sectors, however, the product dimension itself already includes a geographic aspect as any transportation service, be it by rail, air, sea or road, requires relocation of a person or goods from one place to another. Consequently, the delineation of relevant markets in the airline sector typically starts with the identification of the point of origin (O) and the point of destination (D), the so-called O&D approach.

82. The O&D methodology reflects the demand-side perspective whereby passengers consider all alternative means of travelling from a given O to a given D. Airlines, however, often claim that a supply-side perspective, whereby hub-and-spoke carriers compete on the size and coverage of their respective networks “may be an important parameter of competition in the context of a merger of two network airlines and thus should be duly taken into account for the purpose of market definition”.¹¹⁰ Even though

¹⁰⁸ European Commission decision, *Ryanair/Aer Lingus* (2007), para. 487.

¹⁰⁹ OECD (1988).

¹¹⁰ See European Commission decision *United Airlines/Continental* (2010). On the network approach see also European Commission decisions *US Airways/American Airlines* (2013); *IAG/BMI* (2012); *Aegean Airlines/Olympic Air I* (2011) and *Iberia/British Airways* (2010).

both the US DoT and the European Commission acknowledge the importance of supply-side substitution, they find demand-side substitution to play a determining role.¹¹¹

83. Under the O&D approach, relevant air transport markets would usually be defined as city pairs or airport pairs (if there is more than one airport at either end of a given city-pair). The airport-pair approach may be found “failing to take account of competition (particularly by LCCs) from adjacent airports and likely to result in an incomplete picture of the competitive landscape”.¹¹² In such instances, competition authorities must determine the extent to which air transport services at one airport constrain the provision of similar services at another airport. Where such constraint exists, a city-pair approach is considered to be more appropriate.

84. The traditional O&D approach may need to be broadened when competition authorities evaluate the competitive effects (notably network effects) of an alliance. The DoT, for example, has long assessed effects of such transactions at three levels: network level, country-pair level, and city-pair level.¹¹³ The US DOT/EU Report on alliances highlights growing consideration for network factors since “carriers make decisions relating to an individual city-pair by assessing not only the O&D market but also implications for their overall networks.”¹¹⁴

85. Whether indirect flights covering a specific O&D can effectively substitute direct flights, depends on a number of factors, which may also be country-specific, and should be assessed on a case-by-case basis. Such substitutability usually arises only with respect to long-haul routes. The European Commission acknowledged indeed that when the length of the journey is over six hours, one-stop flights may constitute a competitive alternative with respect to direct flights. This is for example the case when one-stop flights are marketed as connecting flights on the O&D pair in the computer reservation system.¹¹⁵ In contrast, the US DoT when assessing the application for antitrust immunity lodged by American Airlines, British Airways, Iberia, Finnair and Royal Jordanian Airlines found that on transatlantic routes “non-stop service is a separate product from connect service”.¹¹⁶

86. With respect to short-haul routes, alternative means of transport may occasionally be found to belong to the same market. For example, in the British Airways/SN Brussels Airways case, the Commission found that the relevant market in the Brussels-London O&D was broader than the direct air services and included rail transport, since rail was seen as a competitive alternative to air for both non-time and time-sensitive passengers.¹¹⁷ In reaching such a conclusion, the Commission examined frequencies,

¹¹¹ EU/DOT Alliance Report (2010), paras. 77-79.

¹¹² Brueckner *et al.* (2014).

¹¹³ EU/DOT Alliance Report (2010), para. 79. See also US DOT Final Orders in US-Japan Alliance (2010) and Air Canada, Austrian, BMI, Continental, Lufthansa, LOT, SAS, Swiss, TAP (2009).

¹¹⁴ EU/DOT Alliance Report (2010), para. 79. To a large extent, the European Commission’s decisional practice still follows the O&D approach. See e.g. European Commission decisions *Continental/United/Lufthansa/Air Canada* (2013) and *British Airways/American Airlines/Iberia* (2010).

¹¹⁵ European Commission decisions *Lufthansa/Austrian Airline* (2009), *United/US Airways* (2001) and *SAS/Spanair* (2002).

¹¹⁶ US DOT, Public Version Comments of the Department of Justice on American Airlines, British Airways, Iberia, Finnair, Royal Jordanian Airlines (2009). See also US DOT Public Version Comments of the Department of Justice on the Show Cause Order on Air Canada, Austrian, BMI, Continental, Lufthansa, LOT, SAS, Swiss, TAP, United (2009), in which the DoJ stated that “in transatlantic routes covered by this Application, nonstop service is a separate product”.

¹¹⁷ European Commission decision *British Airways/SN Brussels Airlines* (2003), para. 23.

timetables and the length of the journey. More recently, in the Olympic/Aegean Airlines merger case, the Commission concluded that, on the Athens-Mykonos route, the relevant market comprised both air and ferry services as the two means of transportation were substitutable for all categories of passenger, given the comparable travel time and frequency of services.¹¹⁸

87. Regarding customer segments, competition authorities have found in some cases that business (premium or time-sensitive) and leisure (non-time-sensitive, economy class) passengers belonged to different markets.¹¹⁹ However, some authors warn that this distinction may no longer accurately capture the whole spectrum of customer segmentation.¹²⁰

3.2. *Horizontal strategies: alliances, mergers and cartels*

88. Competition law enforcement traditionally approaches horizontal agreements under one or two regimes: merger control or restrictive agreements. When it comes to the airline sector, however, the line is harder to draw. As seen above (under section 1.2.b) horizontal co-operation agreements have emerged as the dominant and leading trend in the airline industry, ranging from light alliances to deep co-operation and integration agreements. What competition standards and enforcement mechanisms are available to trigger scrutiny over airlines' alliances, is the central subject of this section (section a). Multi-national mergers are rare in the airline industry, but recent cases shed light on airline merger dynamics and how their competition impact is assessed (section b). Cartel law enforcement applies to airlines' hard core cartel and restrictive agreements not cleared as alliances or mergers. Potential collusion-inducing features of the airline industry may also be assessed under cartel rules (section c).

a. *Alliances*

89. As long as cross-border mergers are not permitted, airlines consolidate their networks through international alliances.¹²¹ Airline alliances cover a wide range of horizontal agreements with varying degrees of depth, breadth and commitment. Indeed the term "alliance" is not defined by policy or law.¹²² Although every alliance needs to be examined on a case-by-case basis and may raise varying antitrust concerns, the table below summarises the main degrees of co-operation.

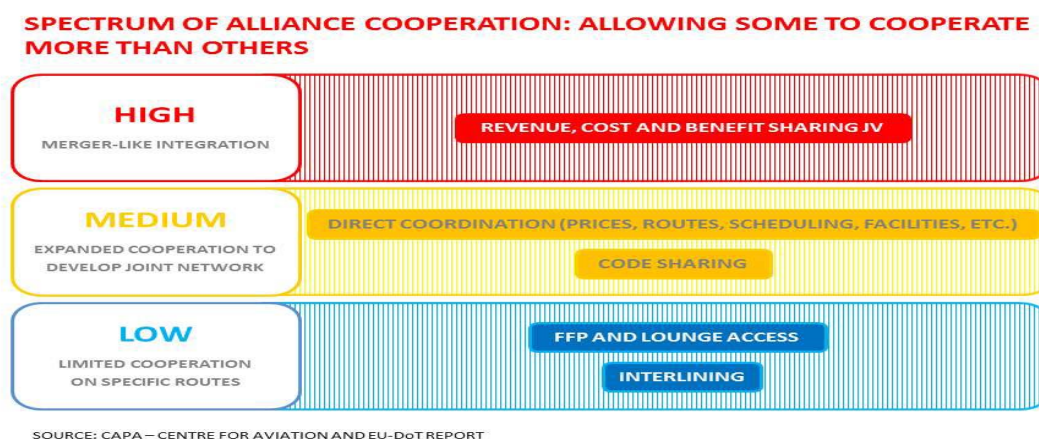
¹¹⁸ European Commission decision *Aegean Airlines/Olympic Air I* (2011).

¹¹⁹ See e.g. European Commission decisions *BA/AA/IB* (2010), *Lufthansa/SN Airholding* (2009) and *Air France/KLM* (2004) and UK OFT decision *Air France/City Jet* (2008).

¹²⁰ Teichert *et al.* (2008). Also Mason (2000) found that the price elasticity of business passengers is influenced by the company size, which explains why small and medium businesses are more likely to use LCCs.

¹²¹ Cross-border mergers among airlines are prevented by nationality and ownership restrictions contained in most ASAs. Mergers and acquisitions may however take place at domestic and intra-EU level. See section 1.2.b. for further explanation of the rationale for alliances. See e.g. N.B. (2011): "If we accept that businesses in other sectors need to become multinationals to remain competitive, why wouldn't we accept the same changes in air travel?"

¹²² OECD (2011), Latin American Competition Forum, pt. 22. See section 1.2.b. of this Paper for a description of the various types of alliances.



90. Synergies induced by alliances can improve passenger service and experience, while allowing airlines to grow and to reduce their costs.¹²³ At the same time, alliances may harm competition, e.g. by raising entry barriers and leading to higher fares, especially on hub-to-hub and non-stop routes.¹²⁴ Both the potential for synergies and the risk of anti-competitive effects may increase with the depth of co-ordination and integration within the alliance. Assessing the competition impact of airline alliances is therefore critical. This section examines competition enforcement applied to alliances, along the following questions:

- Which competition *concerns* arise from alliances?
- Have airline alliances succeeded in leading to *efficiencies*?
- Which competition *enforcement tools* apply to airline alliances?
- What *decisions and remedies* apply to airline alliances?

i. Which competition concerns arise from airline alliances?

91. Competition enforcement usually considers that competition concerns may arise if an alliance gives rise to overlaps, especially on non-stop and hub-to-hub routes, and if it involves co-ordination on sensitive parameters, such as prices, schedules, routes, or sharing of their capacity, revenue or costs. In such context, an alliance could eliminate competition between participants who used to offer competing services.¹²⁵ Two types of considerations are essential in the competition assessment of alliances:

- *Barriers to entry*: In the airline sector, barriers to entry or expansion may result from the infrastructure needed (e.g. slot, gate and feeder access) and from the airlines' own business

¹²³ Synergies are deemed to increase according to the depth and width, the economies of scale, scope and density, and the binding effect of the alliance.

¹²⁴ OECD (2011), Latin American Competition Forum, pt. 22.

¹²⁵ That is why antitrust concerns have especially arisen regarding “non-stop overlaps”. See Gillespie and Richard (2011) and IATA (2011), p. 8. The co-operating airlines could indeed decide to restrict the supply of ticket inventory to non-stop or hub-to-hub passengers, forcing fares higher.

model (e.g. hub-and-spoke model, loyalty programs).¹²⁶ In an alliance context, the question is whether the combination of the participating airlines' infrastructure may lead to horizontal and vertical foreclosure effects. This assessment is often complex, given the dynamic nature of the airline industry and the variability of key inputs (e.g. fuel prices, slot trading). The alliance itself may be set up to pre-empt entry: a study by Goetz and Shapiro estimates that the likelihood of an incumbent airline to enter into an alliance (such as code sharing) increases by 25% when it is threatened by LCC entry.¹²⁷

- *Network effects*: Network dynamics tend to be taken into account in defining relevant markets, but they fail to be consistently addressed as part of the competition assessment of airlines alliances. Too much emphasis on overlapping routes may overlook the disruptive effects alliances can have on other routes of the network. Network dynamics may in fact create incentives to reduce flights, re-direct routes or increase price even on non-overlapping routes.

92. The goal of the above assessment is to determine the alliance's impact on price and quality. Most economic studies agree that airline alliances have the adverse effect of increasing fares for *non-stop* passengers on overlapping routes, due to the immediate reduction of competition.¹²⁸ This increase may be significant and varies according to the number and strength of independent competitors remaining on these routes (if any),¹²⁹ and the likelihood of entry or expansion. The impact of alliances on fares for *interlining* passengers, on the other hand, is a highly debated question.¹³⁰ Airlines argue that one of the main benefits of an alliance is the reduction of these fares.¹³¹

93. Competition analyses of alliances generally put little emphasis on the risk of co-ordinated effects. Internal co-ordination is of course at the heart of most alliances and may require immunity or remedies to operate. Co-ordinated effects may also arise as a result of the alliance outside its realm, in two respects:

- Whether post-alliance, member airlines would have increased incentives to collude *with outside competitors*.¹³²
- Whether, taking multi-market contacts into account, the alliance would increase mutual forbearance (i.e. decrease competition) *among member airlines* outside the scope of their alliance.¹³³ This may lead to find consumer harm beyond the risk of fare increase on overlapping routes.

¹²⁶ For further details on barriers to entry and inputs needed to compete in the airline sector, see section 2.1.

¹²⁷ See e.g. Goetz and Shapiro (2012).

¹²⁸ For a recent study on price-increasing effects, see Gilo and Simonelli (2014). See also Brueckner and Whalen (2000); Brueckner *et al.* (2011) and IATA (2011).

¹²⁹ Gillespie and Richard (2011).

¹³⁰ Gillespie and Richard (2011); Brueckner and Pels (2007); and Brueckner *et al.* (2011).

¹³¹ Alliance effects on interlining passengers are thus addressed under the alliance efficiency section below.

¹³² If airlines A, B and C enter into an alliance, whereas airline D is an independent competitor on routes also served by A, issues may arise if the alliance increases the risk of co-ordination between A and D.

¹³³ If airlines A, B and C set up an alliance which covers 50 routes served by the member airlines, while outside this alliance airlines A and B are competitors on another set of 20 routes, issues may arise if the alliance increases risks of co-ordination between A and B on any of those 20 routes where they are supposed to keep competing independently. For further developments on multi-market contacts, see section

94. Horizontal effects may also consist in a reduction, due to the alliance, in the value and ability to compete of independent competitors. Whether such impact qualifies as anti-competitive or as competition on the merits, deserves scrutiny. Additional horizontal effects may arise in the case of a joint venture being set up between airlines which simultaneously belong to a wider alliance.¹³⁴ In assessing the overall competition impact of an alliance, these disruptive and potentially anti-competitive effects should be weighed in the balance.

95. Mapping competition risks according to the type, depth and width of airline alliances in light of enforcement experiences around the world, may represent a useful tool to assess promptly, consistently and effectively an alliance's competition risks.

ii. *Have alliances succeeded in bringing upon efficiencies?*

96. The main controversy around airline alliances revolves around their ability to deliver efficiencies and to increase consumer surplus. It has been argued that alliance-based networks have been the principal driving force behind price reductions and traffic gains. There is growing scepticism however as to whether alliances truly have the potential to benefit consumers and whether any form of antitrust immunity or exemption remains necessary and justified. Various economic studies conclude that efficiency predictions were over-optimistic, both at consumer and at airline level.

Consumer efficiencies

97. Airlines usually claim that entering into an alliance would allow them to offer more flights, new routes, and more choice to consumers. The alliance would be able to connect more passengers to a wider range of destinations, including small cities, which could otherwise not be served profitably by a single airline.¹³⁵ Depending on its scope, the alliance may also provide reciprocal use of lounges and FFP benefits and a more seamless experience (e.g. co-ordinated ticket booking, check-in, schedule and luggage handling).

98. Most of the above efficiencies are qualitative. When it comes to price, empirical studies find that alliances could lower prices only for *interlining* passengers.¹³⁶ According to the EU/DOT Alliance Report (2010), the more integrated an alliance, the more interlining fares are likely to drop. This fare reduction generally results from the removal of double marginalisation.¹³⁷ These positive price effects stemming from alliances are disputed however, notably by an economic study of the US DOJ.¹³⁸

3.2.c. on cartels. See also Li and Netessine (2011), 'Partnering with competitors – An Empirical Analysis of Airline Alliances in Multimarket competition'.

¹³⁴ See section 1.2.b. for further details on alliance dynamics.

¹³⁵ As described in IATA (2011), alliances may be the only way to meet passenger demand for air services "from anywhere to anywhere".

¹³⁶ See e.g. Brueckner *et al.* (2014), Armantier and Richard (2008), Bilotkach (2005), Brueckner and Whalen (2000). Brueckner and Whalen estimate that the fare discount on interlining routes may attain 25% as a result of alliance co-operation.

¹³⁷ Traditional interlining (without code-sharing) may involve double marginalisation due to the fact that each airline might try to maximise profit on its own segment, which would lead to a higher total fare for interlining passengers.

¹³⁸ Gillepsie and Richard (2011). For further discussion see Horan (2010), Brueckner *et al.* (2011) and Whalen (2007). DOJ findings are contradicted by Brueckner *et al.* who found that code-sharing, alliance service, and antitrust immunity each separately reduce fares below the traditional interline level.

99. Measuring whether alliance benefits for interlining passengers can compensate for anti-competitive effects, remains an uncertain exercise.¹³⁹ Studies find that both consumer and total surplus are likely to increase post-alliance, despite harm to non-stop or hub-to-hub passengers, suggesting that alliance benefits may outweigh its negative impact.¹⁴⁰ Other studies underline that welfare results are in large part attributed to improvements other than prices,¹⁴¹ questioning whether quality benefits may outweigh negative pricing effects.¹⁴² Consumer benefits may also become increasingly uncertain due to the fast-changing and growing complexity of alliances.¹⁴³ *Ex post* monitoring of alliances can be a powerful enforcement tool to confirm whether alliance efficiencies remain effective over time.

Airline efficiencies

100. Economies of traffic density, of scale and of scope constitute the clearest motivation for airlines to enter into an alliance, since it offers the possibility to optimise capacity management across a wider network, hence opportunities for revenue growth and cost savings. Such benefits would normally increase with the level of integration of the alliance – e.g. joint ventures involving schedule co-ordination or revenue sharing would decrease overall costs.

101. Gains at airline level have played a key role in airlines' application for alliance authorisation and immunity. The EU/DOT Alliance Report (2010) describes supply-side benefits that can result from alliances, such as lower costs, increased capacity and higher density.¹⁴⁴ Industry and economic experts however question whether alliances have achieved any of the promised efficiencies. Alliance representatives acknowledge too that alliances succeeded at generating revenue growth, but question whether they achieved any cost savings.¹⁴⁵ Other studies doubt that alliances have been profitable at all.¹⁴⁶ Alliances may also induce additional costs and investments to ensure their implementation and effectiveness.

102. Post-alliance net costs should be estimated as part of the alliance cost-benefit analysis. Regarding independent competitors, total airline surplus is rarely evaluated as part of the antitrust analysis of alliances. In a weak competitive environment, would an alliance mean financial distress risks and “join or sink” for rival airlines?

103. Airlines would sometimes claim that cost synergies could not be attained due to antitrust enforcement and restrictions (e.g. carve outs), which touches on the enforcers' difficult task to assess alliances' competition impact and to design appropriate remedies.

¹³⁹ Economic studies e.g. Brueckner (2001 and 2003) and Brueckner and Proost (2009), found that the beneficial impact of alliances on interlining markets (i.e. markets that need both carriers) are “likely to offset” their potential negative impact on hub-to-hub passengers.

¹⁴⁰ Brueckner *et al.* (2011).

¹⁴¹ Armantier and Richard (2008).

¹⁴² The cost-benefit compensation is also more likely to be satisfied if the enforcer accepts to take into account synergy opportunities arising on a market, while anticompetitive effects arise on a distinct market.

¹⁴³ See section 1.2.b. above on recent trends in alliance dynamics.

¹⁴⁴ EU/DOT Alliance Report (2010).

¹⁴⁵ CAPA (2013), ‘Airline Alliances – what future? Global, multilateral and bilateral partnerships are evolving’ and Li and Netessine (2011), ‘Partnering with Competitors – Effects of Alliances on Airline Entry and Capacity Decisions’. Cost synergies, if any, may result from pooling up certain activities (IT system, check-in, etc.) or purchases (e.g. fuel).

¹⁴⁶ Flores Fillol and Moner-Collonques (2007).

iii. *Which competition enforcement tools apply to airline alliances?*

104. Across OECD jurisdictions, competition enforcement reveals that there is no single or harmonised mechanism to trigger scrutiny of airline alliances. Alliances can be caught and assessed through one or more of the following regimes:

- Immunity regime
- Merger control
- Cartel enforcement

105. *Immunity regime.* Various jurisdictions, such as Australia, Japan, South Korea and the United States, have adopted a specific authorisation or immunity regime applicable to airline alliances.¹⁴⁷ The power to grant antitrust immunity is usually vested in the transport, regulatory or competition authority of the country. The assessment underlying immunity grants may be based on competition laws, as well as on other policy considerations (e.g. ensuring access to transportation services across the country). Immunity grants were initially used by governments as a foreign policy tool to prompt governments of foreign alliance members to enter into an open skies agreement. The alliance between American Airlines and Japan Airlines, for instance, was granted formal immunity on their trans-pacific routes as part of the open skies agreement concluded between Japan and the United States.¹⁴⁸

106. The immunity system is usually preventive and voluntary. Airlines may apply for immunity if their alliance is likely to give rise to both efficiencies and anti-competitive effects. Antitrust immunity is irrelevant to harmless alliances, such as traditional inter-lining or most code-sharing agreements.¹⁴⁹ The three global branded alliances, for instance, Star, SkyTeam and OneWorld, exist each as a whole without antitrust immunity. Within each of these global alliances, limited groups of allied airlines built more integrated forms of alliances (joint ventures) that necessitated antitrust immunity to operate.¹⁵⁰

107. Whether immunity systems are desirable from a competition policy perspective is a debated question.¹⁵¹ Immunity systems do not serve purely as a shelter against antitrust enforcement. In fact, they offer the possibility of an early competition assessment of alliances that may otherwise not fall under merger control or not necessarily be caught under cartel law. The scope of immunity grants is limited to the alliance agreement under scrutiny, i.e. the airlines, the routes and the co-ordinating activities described in the alliance documents. Any further change in scope, depth or membership would require a refreshed assessment and immunity grant.

¹⁴⁷ E.g. the US DOT has the statutory authority to approve and to grant immunity from U.S. antitrust laws to agreements relating to international air transportation (49 U.S.C. §§41308-41309).

¹⁴⁸ Since 1992, the US Department of Transportation has granted immunity to more than 20 international airline alliances (joint ventures), allowing them e.g. to co-ordinate pricing and scheduling. Gillespie and Richard (2011).

¹⁴⁹ Code-sharing or co-operation regarding check in, gate terminal, lounge, luggage, would not usually require immunity. Immunity may however be needed for closer cooperation including pricing co-ordination and revenue or profit sharing. The need for antitrust immunity may also depend overall on whether the airlines involved are competitors or not. See IATA (2011) p. 5.

¹⁵⁰ See e.g. US DOT Final orders regarding American Airlines, British Airways, Iberia, Finnair, Royal Jordanian Airlines (2010), Air Canada, Austrian, BMI, Continental, Lufthansa, LOT, SAS, Swiss, TAP, United (2009) and Delta, Northwest, Air France, KLM, Alitalia, Czech Airlines.

¹⁵¹ Bilotkach (2005) and (2011) and Brueckner (2001).

108. *Merger control.* International airline alliances would rarely go as far as to involve the acquisition by one airline of the control or ownership of the other airline. This would result in the loss of cross-border air transport rights granted by ASAs, which make such rights conditional upon ownership of the airlines by their own nationals. Airline alliances may nonetheless be far-reaching to the point of being subject to merger control.¹⁵² This occurs, for example, where the alliance involves the acquisition of an influential minority interest, the transfer of management powers or a highly integrated joint venture structure. In some jurisdictions, these features satisfy merger control thresholds.

109. Merger control is usually preventive. Unlike immunity grants, which may be based on broader public interest considerations, merger control is most generally conducted under competition rules only. This raises the question and risk of “enforcement tool shopping” by alliance members in jurisdictions where both merger control and immunity systems are applicable.¹⁵³

110. Merger control may increasingly apply to airline alliances for two reasons: the growing trend towards equity-based alliances on the part of airlines, and the willingness in some jurisdictions to extend merger control to functional criteria and minority interests.¹⁵⁴ Box 4 below discusses recent merger decisions that illustrate the relevance and importance of assessing *ex ante* the competition effects of far-reaching alliances.

Box 4. Alliances: *ex ante* assessment under merger control

Brazil – 2014: In May 2014, Brazil’s competition authority approved Air France-KLM and GOL Linhas Aéreas Inteligentes’s (GOL) exclusive long-term strategic partnership for commercial co-operation between Brazil and Europe. This partnership involved the acquisition by Air France-KLM of a 1.5% equity stake in GOL, expanded code-sharing, enhanced joint sales activities, reciprocal customer benefits on both FFPs in Brazilian and European markets and co-operation in the field of aircraft maintenance. The competition authority granted unconditional approval for this partnership.

India – 2013: In November 2013, the Competition Commission of India approved Etihad Airways and Jet Airways’ investment, shareholders’ and commercial co-operation agreements. This partnership involved acquisition by Etihad Airways of a 24% equity stake in Jet Airways and co-operation in the form of e.g. joint scheduling, pricing, marketing, distribution, sales representation and co-ordination, airport representation and handling. The authority found that this partnership would enable the airlines to offer new or improved services and, thanks in particular to economies of traffic density, to offer services at lower cost. The authority also found that the equity infusion by Etihad would be particularly beneficial to Jet Airways, as it faced some financial difficulties. After the parties removed certain aspects from their arrangement, the authority unconditionally approved the partnership.¹⁵⁵

¹⁵² “Control” contemplated by competition rules may indeed differ from “control” defined by ASAs and corporate laws.

¹⁵³ A strategic choice could be made as to whether to apply for immunity or to file for merger control depending upon the review standard and enforcement history of the authority/ies in charge.

¹⁵⁴ OECD (2008).

¹⁵⁵ Competition Commission of India, *Etihad/Jet Airways* (2013).

Canada – 2012: In 2012, Canada’s Competition Tribunal approved a consent agreement in respect of Air Canada and United’s profit-sharing joint venture. The joint venture involved joint pricing, route planning and scheduling, co-ordinated marketing, harmonisation of sale processes and revenue sharing on all US-Canada routes. The Competition Commissioner considered that this far reaching joint venture had to be assessed under the merger rules. A consent agreement was reached with the parties approving the joint venture, but excluding 14 routes on which price co-ordination, revenue and cost pooling, and sharing of commercially sensitive information were prohibited.

111. *Cartel enforcement.* Cartel enforcement usually occurs *ex post* and is a residuary enforcement means where alliances cannot be subject to merger control or cannot be granted antitrust immunity. *Ex post* enforcement difficulties arise notably where remedies include the dismantling of a far-reaching and integrated alliance.

112. Alliances may sometimes be justified following an exemption, a self-assessment or a rule of reason approach. This is the case where evidence shows that the alliance is necessary and proportionate to achieve an objective of public interest (e.g. operation of new routes or provision of services to remote areas), without unduly harming competition. Along these lines, the EU for example has adopted a “self-assessment” mechanism as part of its cartel enforcement, under which the parties to a restrictive agreement should evaluate whether their agreement raises competition concerns. The parties should also remedy them, subject to the risk of antitrust enforcement if competition concerns remain.

113. Table 2 below shows the various enforcement tools adopted in different OECD jurisdictions to assess alliances.

Table 2. Competition Enforcement Tools applicable to Airline Alliances in OECD jurisdictions	
Australia	<p>Merger: Merger control if alliance involves acquisition of shares or assets (no control test).</p> <p>Immunity: If alliance is restrictive, application for authorisation (antitrust immunity) to the ACCC.</p> <p>Cartel: Residuary <i>ex post</i> enforcement under cartel rules.</p>
Canada	<p>Merger: Merger control if caught under broad merger definition (significant interest).</p> <p>Cartel: Otherwise subject to scrutiny under ‘agreements between competitors’ with no specific exemption mechanism.</p>
Chile	<p>Merger: Any alliance may be subject to voluntary notification for merger control (no control test).</p> <p>Cartel: Otherwise <i>ex post</i> scrutiny under restrictive agreement.</p>
European Union, Iceland, Norway, Switzerland¹⁵⁶	<p>Merger: Merger control only if alliance is a full-function JV (control test).</p> <p>Cartel/self-assessment: Self-assessment under cartel law and horizontal guidelines, and <i>ex post</i> enforcement if restrictive agreement.</p>

¹⁵⁶ Agreement on the European Economic Area, Part IV, Chapter 1 for Iceland and Norway; and Agreement between the European Community and the Swiss Confederation of Air Transport, articles 8 to 11 for Switzerland.

Israel	<p>Merger: Merger control if alliance is JV that meets merger thresholds (minority interest may be caught).</p> <p>Authorisation: Application for prior authorisation is required if arrangement is restrictive - Assessment and grant by the Director General of the Israel Antitrust Authority or the Antitrust Tribunal.</p> <p>Block exemption/self-assessment: Prior authorisation not required if alliance falls under Block Exemption for Arrangements between Air Carriers, which exempts some alliance activities (e.g. joint FFP and code-sharing) - based on self-assessment</p> <p>Cartel: If no authorisation, <i>ex post</i> enforcement under restrictive agreement.</p>
Japan	<p>Merger: Merger control if alliance meets merger definition criteria (minority interest may be caught).</p> <p>Immunity: Antitrust immunity regime for airline alliances: assessed and granted by the Ministry of Land and Transportation.</p> <p>Cartel: Otherwise <i>ex post</i> enforcement under unreasonable restraint of trade.</p>
Mexico	<p>Merger: Merger control if alliance meets merger thresholds (no control test, minority interests are caught).</p> <p>Cartel: Residual <i>ex post</i> enforcement under cartel law; with no specific exemption mechanism.</p>
New Zealand	<p>Merger: Merger control if alliance is JV that involves acquisition of assets or shares (no minimum controlling/shareholding level).</p> <p>Authorisation: If alliance concerns price or capacity, application for authorisation - assessed and granted by the Minister of Transport.</p> <p>Cartel: Absent authorisation, <i>ex post</i> enforcement under prohibition of restrictive trade practices</p>
South Korea	<p>Merger: Merger control if alliance meets merger criteria (control test).</p> <p>Immunity: Antitrust immunity regime available for restrictive alliances - assessed and granted by KFTC and Ministry of Land, Infrastructure and Transport.</p> <p>Cartel: Absent immunity, <i>ex post</i> enforcement under restrictive agreements.</p>
Turkey	<p>Merger: Merger control if alliance is full-function joint venture (control test).</p> <p>Exemption: Possible application to the Competition Authority for individual exemption.</p> <p>Cartel: Absent exemption, <i>ex post</i> enforcement under restrictive agreements.</p>
United States	<p>Merger: Merger control if alliance is long-lasting JV between competitors (no control test; exempted if 'investment only').</p> <p>Immunity: Antitrust immunity regime: upon voluntary application - assessment and grant by Department of Transportation.</p> <p>Cartel: Absent merger immunity, <i>ex post</i> enforcement under cartel law and horizontal guidelines.</p>

114. Whether under a cartel, immunity or merger control regime, what matters as a priority is that international airline alliances be liable for antitrust scrutiny and remedies where needed to preserve competition. All three enforcement approaches aim at drawing a (fine) line between economic benefits and cartel-like concerns inherent to airline alliances. These enforcement approaches differ however as to their standard of review, procedure, timing, remedies and outcome.¹⁵⁷ Airlines participating in alliances must

¹⁵⁷ For a detailed comparison of the EU and the US regimes applicable to alliances, see e.g. the EU/DOT Alliance Report (2010).

therefore juggle with various competition regimes if they want legal certainty over their combined and cross-border operations. The effectiveness of competition enforcement may be jeopardised if diverging or incompatible decisions are adopted in respect of the same alliance. This diversity makes it even more crucial for competition and regulatory authorities to co-operate and for governments to consider alternatives to the ownership restrictions contained in ASAs.¹⁵⁸

iv. What decisions and remedies apply to airline alliances?

115. Depending on the applicable enforcement regime, decisions and judgments adopted in relation to alliances may consist in merger approval, antitrust immunity grant, competition exemption, comfort letter, consent agreement. Although differing in nature, all alliances decisions strive towards the main objective: to weigh the pros and cons of the alliance under scrutiny, and to design appropriate remedies, conditions or commitments to address antitrust concerns.

116. Alliance remedies consist to a large extent in merger-like remedies, with a focus on structural remedies such as slot and gate divestitures. Behavioural remedies may be added, including obligations to make certain inputs (e.g. feeder traffic) or information (e.g. codes and fare combinability) available to non-participating airlines and new entrants. Several jurisdictions have adopted carve-outs as an alliance-specific remedy, which require that participating airlines exclude certain routes from their alliance.¹⁵⁹ Carved-out routes are typically hub-to-hub or overlapping routes on which the parties would enjoy market power¹⁶⁰ Contrary to divestitures, which imply the transfer of asset to a third party competitor, carved-out routes remain in the hands of the member airlines; they are just prevented from co-operating or integrating their activities on those routes.

117. Today's main debate revolves around the appropriateness and effectiveness of remedies imposed in the alliance context. Designing suitable, effective and proportionate remedies is a challenging task for enforcers, especially given the network and dynamic nature of the industry, and the complexities of airlines' and alliances' business models and strategies. It is widely recognised that remedies can remove competition concerns arising on routes or at hubs where air fares may increase or access to key inputs may be foreclosed due to the alliance. At the same time, remedies may reduce efficiencies and synergies arising from the alliance, by forcing the parties to remain competitors in some markets while at the same time becoming allies in other markets.¹⁶¹ A cost-benefit evaluation of remedies is thus essential.

118. Metal neutrality was recently introduced as a *sine qua non* condition for alliance approval or immunity and sometimes described as "the most important development in aviation since the invention of jet aircraft".¹⁶² Metal neutrality was proposed for the first time by SkyTeam members Delta, Northwest, Air France and KLM and it obtained DoT approval with immunity grant.¹⁶³ Under a metal-neutral joint

¹⁵⁸ For example, the EU and the US closely co-operate by monitoring and sharing their enforcement experience. In 2010, the European Commission and the US DOT published EU/DOT Alliance Report (2010). As to the implications of ASAs, see section 1.1. above on (de)regulation of air transport; and Havel (2009).

¹⁵⁹ E.g. Canada and the United States.

¹⁶⁰ For example, in the US DOT Final Order in Delta Air Lines, Air France, KLM, CSA Czech Airlines, Alitalia (2002), routes from Atlanta/Cincinnati to Paris CDG (all three hubs of either Air France or Delta) were initially carved out from the alliance for U.S. point of sale time-sensitive travellers.

¹⁶¹ Gillespie and Richard (2011) pt. 7 and IATA (2011).

¹⁶² Guest (2011).

¹⁶³ Metal neutrality was proposed for the first time by SkyTeam members Delta, Northwest, Air France and KLM and was approved in US DOT Final Order in Delta, Northwest, Air France, KLM, Alitalia, Czech

venture, it does not matter to allied airlines which airline carries the passengers and derives revenues on the flight, as the airlines involved have entered into a long-term cost and revenue sharing alliance. Metal neutrality is an incentive for allied airlines to focus on improving networks, schedules, etc. at joint venture level, rather than on growing their own revenue at airline level. This would ensure maximising the alliance synergies and efficiencies, to the benefit of consumers. Immunisation or authorisation of JVs on metal neutrality condition is the clearest sign that enforcers have turned to ensuring inter-alliance competition, away from inter-airline competition.¹⁶⁴ Given the increasing trend towards more integrated forms of alliances and the variable geometry of each alliance, it remains to be seen whether metal neutrality will suffice to ensure effective inter-alliance competition overall.

b. Mergers

119. Mergers addressed under this section pertain to horizontal mergers that go beyond alliances, i.e. it covers essentially full mergers or acquisitions of majority control (hereinafter jointly referred to as “mergers”). Conditions contained in open skies agreements (ASAs) leads to distinguish between domestic and international mergers. For the reasons discussed above (see section 1.2.b.), international mergers – namely mergers between carriers with different nationalities – are rare and difficult for airlines to achieve. This also explains why airlines remain national and would usually grow internationally through alliances. On the other hand, so-called domestic mergers relate to mergers between two carriers from the same country (same “flag”),¹⁶⁵ even if they can have a wide geographic scope including domestic, regional and international routes. Domestic mergers may deserve antitrust scrutiny and attract international attention as much as international mergers, as shown by the recent approvals of the domestic US Airways/American Airlines and Aegean Airlines/Olympic Air mergers.¹⁶⁶

120. Major international airline mergers started with Air France/KLM in 2004 under the full liberalisation of the intra-EU air transport market.¹⁶⁷ Multi-national mergers are often built on a corporate structure that would preserve the merging airlines’ nationality:

- The Air France/KLM merger involved transatlantic routes and flights; both France and the Netherlands had concluded open skies agreements with the United States. The deal was structured in a way that would preserve each airline’s traffic rights as per their country’s bilateral

Airlines (2008). Metal neutrality enabled the airlines to obtain antitrust immunity from the US DOT, which had rejected the alliance plan in an earlier decision: US DOT Final Order in Delta, Northwest, Air France, KLM, Alitalia, Czech Airlines (2006).

¹⁶⁴ Enhancing inter-alliance competition was one of the reasons for which the DOT granted immunity in US DOT Final Order in American Airlines, British Airways, Iberia, Finnair, Royal Jordanian Airlines (2010). This was meant to enable Oneworld to compete more effectively with SkyTeam and Star Alliance. See also Reitzes and Moss (2008) who address questions arising from inter-alliance competition.

¹⁶⁵ E.g. by virtue of being owned or controlled by the same government or by nationals from the same country.

¹⁶⁶ United States District Court for the District of Columbia decision, *United States of America, et al. v. US Airways and AMR Corporation* (2014) and European Commission decision, *Aegean Airline/Olympic Air II* (2013). Further details on recent mergers may notably be found in the OECD delegations’ contributions for this Roundtable on Airline Competition (e.g. contributions by Canada, Chile, India, the UK and the US).

¹⁶⁷ The liberalisation followed the adoption of a third package of legislative measures. Article 4(2) of Regulation 2407/92 created an EU-wide nationality rule for ownership with regards to intra-EU traffic rights.

agreements.¹⁶⁸ A number of other intra-EU mergers followed, including e.g. Lufthansa/Swiss, Lufthansa/Austrian Airlines, Lufthansa/Brussels Airlines, and British Airways-Iberia.

- Outside the EU framework, the LAN/TAM merger (2011) has been the only recent and major international airline merger to date. The merger pertained to the full acquisition by LAN (Chile's flag carrier) of the control of TAM (Brazil's main carrier). The deal was also structured so as to preserve TAM's traffic rights under Brazil's own bilateral ASAs.¹⁶⁹

121. The competition assessment of international mergers resembles to a large extent the assessment of international alliances: competition authorities would usually identify overlapping markets, determine whether the merged entity would enjoy market power on those markets, and assess anticompetitive effects and/or efficiencies that would stem from the merger.¹⁷⁰ Merger efficiencies have been easier to find where the merger consolidates complementary airline networks, rather than overlapping routes.¹⁷¹ Recent decisions on "domestic" mergers illustrate that competition authorities' concerns are primarily captured on overlapping routes. In US Airways/American Airlines, the DOJ identified risks of both unilateral and coordinated effects on a large number of overlapping routes and at Reagan National airport, and concluded that potentially passed-on efficiencies were not sufficient. The airlines and the DOJ did however reach a settlement, including important remedies, which cleared the merger. The settlement would facilitate entry of low-cost carriers at key slot-constrained and gate-constrained airports.¹⁷² Regarding the same merger, the European Commission identified a potential monopoly on one overlapping route. It cleared the merger subject to remedies because of a lack of efficiency pass-on to consumers on that route. In Aegean/Olympic, anti-competitive concerns were found on overlapping routes, but the European Commission approved the transaction on failing firm grounds.¹⁷³

122. The LAN/TAM judgment of Chile's Competition Tribunal illustrates further how important it is that the assessment of an international airline merger goes beyond overlapping routes, as summarised in Box 5 below.

¹⁶⁸ The merger structure included e.g. various corporate and ownership arrangements and the set-up of the Air France/KLM holding company.

¹⁶⁹ The merger gave LAN's major shareholders 70% of LATAM and the CEO position while enabling TAM's major shareholders to retain 80% of TAM's voting shares in order to satisfy Brazilian foreign ownership rules (the Brazilian foreign ownership cap was 20%).

¹⁷⁰ For a discussion of such competition concerns and efficiencies, see section 3.2.a. above.

¹⁷¹ Which explains why for instance the US DoJ cleared the United/Continental merger (which united largely complementary networks – see USA DOJ, Press Release, (2010)), whereas it blocked the United/US Airways merger plan (see USA DOJ, Press Release, (2001)). For further detail, see OECD (2011), Latin American Competition Forum, pt 105-106.

¹⁷² Slots at Reagan National and LaGuardia airports were sold to Southwest, Virgin America and JetBlue. See: <http://www.businessweek.com/news/2014-03-10/american-slots-at-reagan-laguardia-sold-for-425-million-1>.

¹⁷³ European Commission decision, *Aegean Airline/Olympic Air II* (2013).

Box 5. LAN/TAM: Illustration of a dynamic and industry-specific competition assessment of an international airline merger

In January 2011, Chile's Competition Tribunal (TDLC) approved a merger by way of a stock-swap takeover of TAM by LAN to form LATAM, the largest Latin American airline.

To assess the merger's anti-competitive effects and efficiencies and to design effective remedies, the TDLC took into account various industry parameters: overlapping and non-overlapping routes, network dynamics, multi-market contacts, and pre-existing horizontal agreements and alliances.

The TDLC identified risks of diminished competitive intensity and unilateral anti-competitive effects, especially a risk of fare increase and offer limitation, e.g. on the overlapping Santiago-Sao Paulo route and on the non-overlapping Santiago-Lima route. On these routes, the merged entity's market power would be exacerbated by the fact that the Sao Paulo and Lima airports would become some of the merged entity's hubs, as well as strategic points of entry and exit to and from South America. The TDLC also determined that competition would be reduced on various overlapping and non-overlapping routes due to the merged entity's enhanced connectivity. The existing direct and indirect scheduled flights of LAN and TAM as well as their code-sharing agreements with other airlines would lead the merged entity to enjoy a dominant position on routes between Santiago and Europe. Multi-market contacts, LAN's past collusive conduct, and the fragmentation of South American skies further supported the TDLC's view that the merger would rise entry barriers and entail risks of co-ordinated effects.

The TDLC considered, on the other hand, that this merger would also represent a natural movement in a network industry; it could significantly enhance the connectivity of Chile and lead to the creation of a more efficient and better connected air carrier. Potential efficiencies pertained to revenue synergies stemming from a better offering (notably through better FFP and seat offerings), new routes becoming profitable and better connectivity for passengers. Cost synergies, thanks to joint purchasing and services, were further identified as potential efficiencies.

In light of these anti-competitive and efficiency-enhancing effects, the TDLC approved the merger subject extensive remedies: the remedies were aimed to facilitate entry by new competitors, to prevent abusive unilateral conduct and to prevent co-ordination risks. These remedies were structural and behavioural, including slots divestitures, frequent flyer programme extensions, schedule limitations and the obligation on the parties to resign from one of their alliances, while refraining from joining the alliance joined by Avianca, the parties' closest competitor in Latin America.

The merger was subject to additional reviews by Chile's Supreme Court and Constitutional Court and by Brazilian authorities.¹⁷⁴ Chile's courts confirmed the TDLC judgment, and Brazil's antitrust authority imposed remedies in line with the remedies imposed by the TDLC.

123. Merger remedies are influenced by the fact that mergers are the most integrated and long-lasting form of airline consolidation, as opposed to alliances which may vary in degree of co-operation and integration. In the alliance context, airlines may be allies and competitors at the same time. Therefore, many jurisdictions would remedy alliances' competition concerns by carving out overlapping routes and forcing member airlines to remain competitors on these routes. The carved-out routes stay in the hands of their respective airline. In a merger context, like the Air France/KLM, US/American and LAN/TAM mergers, the merging parties no longer take business decisions separately and cease to compete altogether in quite a definitive manner. That is why competition authorities around the world tend to consistently adopt structural remedies, especially slot, route and gate divestitures (at congested airports), to address mergers' anticompetitive risks. Divestitures are the most direct way of allowing third party expansion or

¹⁷⁴ The merger was reviewed by CADE and approved by the antitrust agencies of the Brazilian Ministries of Justice and Finance.

new entry, as much as horizontal airline mergers are the most direct way of removing a competitor from the markets. Structural divestitures are combined with behavioural remedies in most merger cases - e.g. obligations on the merging airlines to ensure combinability of fares, access to loyalty programs and distribution channels, capacity or price constraints - all of which help sustain the viability of new entrants.

124. The effectiveness of remedies, including slot divestitures, is sometimes questioned, as they do not always yield the desired entry or pro-competitive results. An *ex post* study of the Air France/KLM merger concludes that the merger, despite extensive remedies, harmed consumers and reduced overall social surplus.¹⁷⁵ This should prompt competition authorities to monitor merger remedies and to carry out regular assessments of post-merger welfare consequences.¹⁷⁶ In countries where mergers are reviewed by competition authorities, whereas alliances are reviewed by transport authorities (under the immunity regime), co-operation between these authorities is essential to avoid inconsistencies between merger and alliance decisions.¹⁷⁷

c. Cartels and horizontal restrictions

125. Since the liberalisation of air transportation, airlines are free to set their own fares and schedules and to develop their own business strategy to compete in the air transport markets. Most air transport markets today are highly concentrated (oligopolistic) following decades of bankruptcy, mergers and alliances. Unless airlines are subject to antitrust immunity or authorisation in respect of certain collusive activities, cartel law and enforcement against e.g. airlines' collusion on competition parameters, such as fares, schedules, output, capacity or other sensitive information, as well as allocating markets or customers among them.

126. *Cartel enforcement.* The last few years have been marked by the fuel surcharge cartel case which involved around 20 airlines worldwide. The cartel was investigated by competition authorities around the world, from New Zealand, to the United States, to the European Union. Participating airlines that were not granted immunity or amnesty (for whistle-blowing) were subject to sanctions, including fines totalling US\$1.6 billion in the United States and €799 million (US\$1.1 billion) in the European Union.¹⁷⁸ These airlines are also facing damage claims in civil courts. This fuel surcharge cartel applied to a large extent to air freight (cargo), but some airlines were also found guilty of colluding on fuel surcharges in passenger markets.¹⁷⁹ Rather than collusion on final prices, the fuel surcharge cartel reveals airlines' ability to

¹⁷⁵ Brueckner and Pels (2005). The merger did not only bring together Air France and KLM, it also brought together the old SkyTeam and Northwest-KLM alliances to which each airline was a member.

¹⁷⁶ Bilotkach and Lakew (2014) argue that airline consolidation leads to more consumer welfare losses in smaller communities.

¹⁷⁷ If antitrust scrutiny and remedies by the competition authority were to become more stringent, airlines could game around the system by setting up a JV falling short of merger control thresholds to qualify for alliance review by the transport authority. In fact, no artificial line should be drawn between alliances and mergers insofar as their review under competition rules is concerned.

¹⁷⁸ The following airlines were subject to the European Commission's investigation: Air Canada, Air France-KLM, British Airways, Cathay Pacific, Cargolux, Japan Airlines, LAN Chile, Lufthansa and Swiss, Martinair, SAS, Swiss, Singapore Airlines and Qantas.

¹⁷⁹ In 2012, the UK OFT (now CMA) issued a decision that British Airways and Virgin Atlantic engaged in anti-competitive practices relating to pricing of air passenger fuel surcharges on long-haul flights. British Airways was fined £58.5 million, whereas Virgin escaped fines under the OFT's leniency policy. See OFT decision, British Airways and Virgin Atlantic (2012). A similar case was brought by South Africa's Competition Commission against South African Airways, SA AirlinK, and South African Express Airways for co-ordination the implementation of a fuel surcharge increase on passenger airline services. A consent order was approved by the Competition Tribunal, by which commitments and fines were imposed. See

conspire on an input (fuel) mark-up, while preserving price differentiation at customer level. The cartel also reveals the width of possible price-fixing in the airline industry, both in geographic scope and in the number of airlines involved.¹⁸⁰

127. As explained in section 3.2.a. above, airline alliances may also qualify as restrictive agreements, where they involve e.g. co-ordination on fares, schedules and capacity, or sharing of revenue and profits. Unless such alliances are granted antitrust exemption or immunity, they may be subject to cartel enforcement and applicable sanctions. South Africa provides revealing case law regarding the treatment of alliances under cartel law.

Box 6. SAA/Lufthansa: Cartel enforcement against non-exempted alliance

South African Airways (SAA) applied in 1999 for an exemption for a bilateral agreement with Qantas.¹⁸¹ SAA and Qantas obtained an exemption from cartel law, which since then has been renewed several time and last time in 2013.¹⁸²

In the course of evaluating the above SAA/Qantas application, the Competition Commission discovered that SAA had entered into a number of other bilateral agreements, for which no exemption had been sought. A separate investigation was opened against these pre-existing agreements. The Commission found that one of these older bilateral agreements regulated the relationship between Lufthansa and SAA, including meetings and communications relating to price changes and fare harmonisation on flights which they both operated between Cape Town/Johannesburg and Frankfurt.

In 2006, the Competition Commission concluded against SAA and Lufthansa's bilateral agreement. By consent orders, the Commission imposed sanctions and commitments on both parties. The commitments included the obligation to adopt compliance programmes, and the prohibition from engaging in any price co-ordination with competing airlines. The consent orders were approved by judgment of the Competition Tribunal in July 2006.¹⁸³

128. *Collusion fac(ilita)tors*. Three features of the airline industry may facilitate collusion and require antitrust monitoring: (i) multi-market contacts,¹⁸⁴ (ii) IATA, the airlines' worldwide trade association and (iii) airlines' sophisticated IT pricing and marketing platforms, e.g. ATPco, Innovata and OAG.

129. Multi-market contacts refer to an economic situation where two or more companies compete against each other in different markets to various degrees. Imagine airlines A and B compete on the Brussels-New York pair and on the Paris-Chicago pair. Airline A has a higher market share on the first market, whereas airline B is stronger on the second market. Airlines A and B may thus be in contact regularly and in different places. This multi-contact situation may lead to a phenomenon called "mutual forbearance", i.e. a reduction in the intensity of competition through familiarity, reciprocal incentives and

South African Competition Tribunal decision in Competition Commission and South African Airways, SA AirlinK and South African Express Airways (2006).

¹⁸⁰ For further analysis, see LeClair (2012).

¹⁸¹ See South African Competition Act 1998, Section 10.

¹⁸² For the latest renewal see South Africa Competition Commission decision regarding Notice 127 of 2013.

¹⁸³ South Africa, Competition Tribunal cases, *Competition Commission v. South African Airways* (2006) and *Lufthansa* (2006), respectively.

¹⁸⁴ See e.g. OECD (1999).

deterrence.¹⁸⁵ For example, if airline A decides to offer a discounted price on Brussels-New York, airline B may retaliate through lower fares on Paris-Chicago, which can be costly to airline B. To avoid cross-market price wars, airlines may prefer to compete less vigorously in each of these markets.¹⁸⁶ Multi-market contacts may therefore be liable for reduced competition, including higher fares and worse on-time performance, as evidenced by economic studies.¹⁸⁷

130. The International Air Transport Association (IATA) is the worldwide trade association for airlines, representing some 240 passenger and cargo airlines and accounting for approximately 85% of total air traffic.¹⁸⁸ It was founded in 1945, and first aimed at providing technical support to ICAO. IATA's Tariff and Schedule Conferences, including direct price setting, were established to support a multilateral interlining system among airlines. IATA's Tariff Conferences were initially granted antitrust immunity by competition authorities, including in Australia, the European Union and the United States. But following growing competition concerns and scepticism as to whether IATA's price co-ordination was still justified and necessary, the immunity grants were repealed by 2008.¹⁸⁹ As a result, IATA adapted its co-ordination mechanisms and today's tariff conferences are limited to setting technical aspects to facilitate interlining.¹⁹⁰ In parallel, IATA plays a crucial role in improving e.g. safety, environment and technical standards for the airline industry. Still, by bringing competitors together and by issuing common standards, antitrust monitoring is required. This is particularly true where IATA adopts standards that may induce a change in competition dynamics. For example, IATA recently proposed a New Distribution Capability (NDC), which is a new model for the provision of personalised pricing offers to air transport consumers.¹⁹¹ The NDC ticket selling model may improve customer satisfaction through customised offers, but it may as well weaken competition by making air service quotes less transparent and comparable. Also where IATA develops industry standards, it should avoid raising entry barriers. One way to ensure market access is by making standards accessible on a non-discriminatory basis.¹⁹² To monitor and control such standards, certain competition and regulatory authorities, like the US DOT, have put in place a notification system

¹⁸⁵ In other words, "a prospect of advantage in one market from vigorous competition may be weighed against the danger of retaliatory forays by the competitor in other markets." See Edwards, C. (1965), US Senate, as cited by Pettigrew, A. M., Thomas, H. and R. Whittington (2006), *Handbook of Strategy and Management*, Sage; and http://lexicon.ft.com/term?term=multi_market-competition.

¹⁸⁶ Prince and Simon (2009).

¹⁸⁷ Miller (2010), Evans and Kessides (1994) and Prince and Simon (2009).

¹⁸⁸ About IATA: <http://www.iata.org/about/Pages/index.aspx>.

¹⁸⁹ The European Union (2006 and 2007), the USA (2007) and Australia (2008) all decided to repeal the immunities. See IATA (2013), *Multilateral Interlining Without Antitrust Immunity: Adapting to a New Regulatory Environment*.

¹⁹⁰ See <http://www.iata.org/whatwedo/passenger/tariffs/pages/e-tariffs.aspx> on e-Tariff and <http://www.iata.org/whatwedo/workgroups/Pages/tariff-conference.aspx> on Tariff Conferences.

¹⁹¹ NDC would offer airlines the possibility to make tailored and targeted offers based on the collection of consumer information. IATA's Resolution 787 aims to set XML as a technical standard and to introduce this NDC. The US DOT in Agreement Among Member Carriers of the International Air Transport Association Concerning an Agreement (Resolution 787) of the Passenger Services Conference, Order to Show Cause, approved the use of XML as a technical standard but does not exempt the NDC for which an approval might be required in the future.

¹⁹² For instance, in 2010, the European Commission revised its rules for the assessment of co-operation agreements between competitors. The updates mainly affected the standardisation chapter and provided guidance on ensuring that once a standard has been adopted it is given on "fair, reasonable and non-discriminatory" (FRAND) terms; see European Commission Press Release, 14 December 2010.

enabling the authority to determine whether the proposed standards pursue a consumer interest, while avoiding unnecessary restrictions to competition.¹⁹³

131. Last, following price and schedule de-regulation, airlines have developed their own pricing and marketing schemes, relying often on sophisticated IT platforms. For ticket selling purposes, these platforms may be found at various levels, including upstream data collection companies (such as ATPco, OAG and Innovata), intermediate computer reservation system (such as Amadeus, Sabre and Travelport) and downstream travel agencies (such as Expedia and Orbitz).¹⁹⁴ Next-generation fare content distribution mechanisms are emerging, as illustrated by airlines' new direct booking systems. Airlines have also elaborated complex yield management and price discrimination mechanisms to maximise capacity use. The US DOJ back in 1992 found airlines liable of price-fixing and multi-market co-ordination through ATPco, and imposed modifications to some of the system features.¹⁹⁵ This shows the importance of keeping such platforms under scrutiny and weighing whether antitrust enforcement is required. An ex post study of the DOJ settlement questions nonetheless whether it reduced collusion at all: "prices fell in response to the (DOJ) investigation but increased following the settlement, while the number of tickets sold declined. The importance of multimarket contact also declined and then recovered. The ATP case has at best a temporary effect on airline collusion."¹⁹⁶ Today's increasing complexity and fast pace of marketing platforms, especially if shared, owned or used by competing airlines, make competition intervention and assessment uneasy. Often such platforms carry on the potential of bringing efficiencies and consumer benefits. Such benefits need be evidenced and weighed against potential restrictions of competition. Absent blatant cartelisation through such platforms, the test would usually revolve around whether the claimed efficiencies and consumer benefits could (or not) be achieved through less restrictive means.

3.3. *Unilateral practices: exclusion/predation in the airline sector*

132. Competition issues in the airline sector arise more frequently with respect to horizontal forms of co-operation (i.e. alliances, cartels and mergers) than unilateral conduct. Still, airlines may adopt various unilateral practices that can be harmful to consumers. Harmful unilateral conducts would commonly pertain to (a) exclusionary pricing and selling strategies or to (b) restrictions of access to essential inputs.

133. Such conducts can be caught under antitrust laws only if the company enjoys market power. Determining whether an airline enjoys market power requires that the relevant markets be carefully defined. Usually markets are defined on an O&D basis.¹⁹⁷ However numerous routes and city pairs (especially from/to small or remote areas) may only support one carrier, hence competition authorities have to carefully determine whether the absence of competition is to the result of exclusionary conducts on the part of that airline, or whether it merely reflects an unavoidable industry structure. In addition, market

¹⁹³ The US DOT has adopted a three-tier notification system for IATA resolutions and best practices, according to the degree of antitrust risk they may entail. For example, purely technical rule would be in the low or no-risk tier (tier 1), whereas antitrust-sensitive initiatives that require close scrutiny, approval or immunity, would fall in the high-risk tier (tier 3).

¹⁹⁴ Most airlines make their fares and schedules available to data collection companies in real time. These companies then sell the information to CRSs. CRSs provide IT software able to compute and compare available flights and quotes. CRS software is used in turn by agencies (on-line agencies like Expedia or brick and mortar agencies).

¹⁹⁵ United States District Court for the District of Columbia, *United States of America v. Airline Tariff Publishing Company* (1994). For further developments see Borenstein (2004).

¹⁹⁶ Miller (2010).

¹⁹⁷ See section 3.1. on market definition.

power should be assessed not only on a given O&D, but also in light of the airline's network and alliances to which it belongs.

a. Exclusionary pricing and selling strategies

134. Exclusionary unilateral strategies have a long history in competition law and they are frequently claimed by plaintiffs, but actual findings continue to be rare. Two main types of unilateral exclusionary strategies have attracted scrutiny by competition enforcers: predatory pricing strategies and loyalty-enhancing selling strategies.

135. *Predatory pricing.* Low pricing by a dominant firm may attract antitrust scrutiny if it enables the airline to exclude or weaken its competitors, potentially allowing it to charge supra-competitive prices at a later stage. What may seem effective price competition in the short run may thus harm consumer in the longer run.

136. Although most jurisdictions around the world recognise the potentially harmful effects of predatory pricing, there is no consensus on the legal test. The challenge is indeed to draw a line between anti-competitive predation and effective competition through meeting a competitor's price. The legal tests for such determination usually vary along one or more of the following prongs.¹⁹⁸

- Is the airline charging a price below cost? There is agreement across competition authorities that "below-cost pricing" is an essential element in a predation case. There is much debate however, on the cost proxy to determine whether a price is really below cost or not (e.g. should one use average avoidable costs or average variable costs). Two factors make the price-cost assessment particularly complex in the airline industry: an airline may prefer to sell a ticket at a highly discounted price (so-called discounted stand-by fare) rather than to leave a seat empty. As Professors Areeda and Hovenkamp highlight: "the seat is going out anyway, full or empty, and any price above the cost of serving the additional passenger will make the additional sale profitable". In addition, a high share of airlines' costs are fixed and common costs, which can be allocated across the network (a feeder route may be at cost to generate higher profit on the long haul from the hub), which makes cost calculation and allocation difficult.
- Would the airline be able to recoup its loss (once competition has been excluded or weakened)? In some jurisdictions, like the US, the airline's ability to recoup its loss is an additional condition for predatory pricing to be deemed unlawful monopolisation.¹⁹⁹ Others, like the EU, would not see recoupment as a necessary factor.²⁰⁰
- Is there evidence of an exclusionary strategy or scheme on the part of the dominant carrier? Some jurisdictions may require, as a cumulative or alternative condition, that the airline's exclusionary strategy be demonstrated.²⁰¹

137. Irrespective of the differences in legal tests, predatory pricing is one of the most commonly alleged violations of competition laws with respect to airlines' unilateral conduct.²⁰² Case law shows that

¹⁹⁸ For a recent comparative analysis of predatory pricing tests, see ICN (2012).

¹⁹⁹ US Supreme Court, *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*, (1993).

²⁰⁰ European Court of Justice, *France Télécom SA v. Commission*, (2009) and *AKZO v. Commission* (1991).

²⁰¹ *Ibid.*

²⁰² For example, between 1993 and 1999, the US DoT received seventeen informal complaints concerning anticompetitive pricing and capacity additions by established carriers. See Oster and Strong (2001).

investigating and policing predatory pricing is a difficult task. The *Lufthansa/Germania* decision issued by the German Bundeskartellamt remains a landmark predatory pricing case involving the airline industry. It shows e.g. that a predatory pricing claim requires fact-intensive analysis. It also shows that an abuse of dominance may be established even where the dominant airline's fare appears on the surface to be higher than its competitor's offer.

Box 7. Lufthansa – Predatory pricing: a detailed and comparative pricing analysis

In 2002, the German competition authority (Bundeskartellamt) adopted a decision against Lufthansa for charging predatory prices for tickets for the Frankfurt-Berlin route, on which Lufthansa was dominant. The predatory prices and decision concerned mostly business customers.

Until 2001, Lufthansa was the only carrier offering regular flights on the Frankfurt-Berlin route. Its tickets were priced at €240 one way. In 2001, Germania started operating flights between Frankfurt and Berlin at a price of €99 for a one-way flexible economy ticket without substantial restrictions. In reaction to this, Lufthansa introduced a round-trip ticket for €200, to which Germania responded by bringing its one-way ticket price down to €55. Such a price, however, did not allow Germania to recoup all its costs, so the company raised its price back to €99, at the same time as Lufthansa raised its prices to €105 also for a one-way ticket.

Although Lufthansa's and Germania's one-way offers were similar in price and purchase conditions, Lufthansa would offer customers additional benefits and services, such as more frequent flights and a FFP. This led the authority to find that Lufthansa's price should exceed Germania's by at least €35 to represent a comparable offer in terms of price-performance ratio: by charging €105 for its ticket, Lufthansa did not cover its average total costs per paying customer. Such below-cost pricing constituted an abuse of dominance because it could be proved that these prices were part of an overall strategy aimed at eliminating competition. The exclusionary strategy was inferred from the fact that Lufthansa had: i) introduced these new prices only on this route, ii) deviated from its standard ticket conditions to mirror those offered by Germania and iii) already used a similar strategy in the past. The authority further established that Lufthansa's strategy lacked objective justification, since it could only run Germania out of the market, without helping Lufthansa gain new customers or increase revenues.

The authority concluded that Lufthansa abused its dominant position on the Frankfurt-Berlin route. It restricted Germania's opportunity to compete on the market and deterred entry by other potential competitors, therefore substantially affecting competition in the market. The authority required that Lufthansa's one-way ticket price be at least €35 above Germania's, when the latter was charging €99 or less for a one-way ticket. If Germania was to increase its prices between €99 and €134, the only obligation of Lufthansa was to not price its tickets less than €134. And if Germania was to offer a price exceeding €134, Lufthansa would be free from any pricing obligation. The measure was applicable with immediate effect for two years.

138. Other competition authorities around the world have considered claims of predatory pricing in the airline industry.²⁰³ Recently the Turkish Competition Authority (TCA) has reviewed an alleged abuse of a dominant position through predatory prices by Turkish Airlines. While the authority had come to the conclusion that no such abuse had been committed,²⁰⁴ Ankara's Administrative Court annulled the TCA's decision,²⁰⁵ and the TCA has opened new investigation in August 2013.²⁰⁶

²⁰³ See also Canada Competition Tribunal decision, *Canada (Director of Investigation and Research) v Air Canada* (2003). For a detailed overview of predatory pricing problems in the airline sector, see for example Forsyth *et al.* (2005).

²⁰⁴ Turkish Competition Authority decision, *Turkish Airlines v. Pegasus* (2011).

²⁰⁵ Ankara Administrative Court decision, *Turkish Airlines v. Pegasus* (2013).

139. In the US, cases of predatory conduct were instigated both by the DoJ and by private plaintiffs and concerned the response of dominant carriers to the entry of LCCs. For example, the DoJ brought a case against American Airlines, whereas Spirit Airlines brought a similar case against Northwest Airlines. In both cases the plaintiffs unsuccessfully argued before the courts that defendants engaged in a predatory strategy by increasing flight frequency, and adding bigger aircraft that could carry more passengers. The American Airlines case, summarised below, shows that competition enforcers may take action against predatory conduct adopted through capacity increase (i.e. incremental actions) without claiming predatory pricing. Cost calculations were relevant to show a profit sacrifice and the fact that the incremental action was aimed at excluding competition.

Box 8. American Airlines – Predatory conduct: United States v AMR Corporation

In 2000, the US DoJ brought a case against AMR Corporation, the parent company of American Airlines, alleging that it had engaged in predatory strategies in four city-pair markets. These markets all involved the airline's hub at Dallas/Fort Worth International Airport, where AMR served more than 70% of boarded passengers.

In the 1990s, several LCCs, such as Vanguard, entered various routes operated by AMR and some of them managed to gain a significant share of these markets. In response, AMR lowered prices to match LCCs' prices. After 17 months, Vanguard entered into three more city pairs, serving them from Dallas. AMR responded by adding capacity (by adding flights and switching to larger aircrafts); and changing yield management (by increasing the number of seats available at the lowest fare). This strategy effectively led Vanguard to exit the Dallas-Wichita route. In the wake of this exit, AMR raised its prices from \$70 to \$117, and the number of passengers decreased significantly. A similar strategy was adopted on other routes against other new entrants: Western Pacific Airlines in the Dallas-Colorado market and SunJet Airlines in the Dallas-Long Beach market.

The DoJ brought suit under Section 2 Sherman Act alleging that AMR's strategy sought to "add unprofitable capacity in order to deprive the LCCs of sufficient passengers to survive on the routes".²⁰⁷ In its view, such strategy satisfied the Brooke Group criteria, as it involved the sacrifice of short-term profits that could be recouped once competitors had exited the market. The DoJ's challenged focuses on the capacity additions by AMR after the expansion of Vanguard's operations from Dallas airport. The DoJ argued that AMR was liable for predatory conduct, by sacrificing profits on the capacity increase. The ideal measure of cost in a predation case would be marginal cost. Because marginal cost is difficult to determine on the basis of conventional accounting methods, average variable cost (AVC) is often used as a proxy. The DoJ argued that in some situations considering only AVC would disguise the nature of the predatory conduct if it happened through incremental action (i.e. capacity increase). The predatory effect should thus, in the DoJ's view, be assessed on the basis of incremental cost. To reliably measure incremental costs that are incurred when capacity is added, the DoJ put forward four tests:²⁰⁸

- The 1st test sought to demonstrate that adding capacity led to a decline in fully allocated earnings (FAUDNC) and variable earnings (VAUDNC) and to foregone profits in other markets.²⁰⁹
- The 1st and 4th tests aimed to prove predation on the ground that, by foregoing higher profits in some other routes, AMR's strategy had reduced airline's profitability.
- The 2nd looked into AMR's long-run costs rather than costs incurred exclusively during the period under

²⁰⁶ Turkish Competition Authority decision, *Turkish Airlines v. Pegasus* (2013).

²⁰⁷ United States District Court for the District of Kansas, *United States of America v AMR Corporation, American Airlines, AMR Eagle Holding Corporation* (2001).

²⁰⁸ Ibid.

²⁰⁹ FAUDNC stands for Fully Allocated earnings plus Upline/Downline contribution Net of Costs.

investigation.

- The 3rd test sought to determine the long-term profitability of certain routes.
- The 4th test purported to measure incremental costs and revenues directly, by showing that profits are sacrificed when the expected revenue from incremental passengers falls below the average avoidable cost (AAC) resulting from added capacity.

On appeal, both the District Court and the Court of Appeals rejected all tests, relying instead an overall AVC standard, and concluded that the Government failed to demonstrate that AMR had priced below an appropriate measure of cost.²¹⁰

The grounds on which the courts relied appear to be an incorrect economic analysis, as the approach “wrongly aggregated predatory conduct with lawful, profitable conduct, and thus camouflaged the anticompetitive nature of the capacity additions.”²¹¹ Moreover, the decisions appear to ignore that profits were sacrificed, meeting the Brooke Group criterion. Sacrificing profits does not require that overall profits on a route must be negative. Many observers would argue that the courts did not sufficiently consider the plausibility of the tests (particularly considered jointly), the consumer harm from the elimination of the competition and deterrence of future competitors, and that AMR’s own sophisticated variable cost estimates used for corporate decision-making showed AMR was selling extra capacity at a loss during the period of alleged predation. According to the case record, AMR’s own capacity planning models suggested the company would benefit from offering less capacity on the routes in question. Thus despite the court decisions, predatory conduct claims could be reasonably made in response to increased capacity and may be raised in the future if appropriate fact patterns are present.

140. Given the specific features of the airline sector, various authors have sought to devise a test that would allow determining whether established airlines engage in predation, arguing that cost-based tests are incapable of detecting predation in airline markets. In particular, such costs tests sought to determine the existence of predation by comparing pre- and post-entry revenues, costs and capacity of the established airline.²¹² Hence competition authorities should carefully consider whether the framework traditionally used to determine if a price is predatory is appropriate to this sector.

141. *Exclusionary selling strategies.* Airlines have developed various selling strategies that may be found abusive or anti-competitive under antitrust law.

²¹⁰ While the Court of Appeals acknowledged that alternative proxies to marginal cost beyond AVC could be accepted, it agreed with the District Court’s decision to reject all the tests proposed by the DoJ. With respect to Tests Two and Three, the courts found that these two tests, which relied on fully allocated costs and included many fixed costs, would amount to applying an average total cost test, which had been implicitly ruled out by the Supreme Court in the Brooke Group case where the Court mentioned only incremental costs. Tests One and Four, on the other hand, “necessarily involve a great deal of speculation and often result in injury to the consumer and a chilling of competition” since they seek to determine whether a company has sacrificed some profits to compete more effectively. Moreover, Test One was found to be invalid as a matter of law since it treated foregone profits as costs, and therefore could condemn an activity that is profitable as predatory. Test Four, on the other hand, which included arbitrarily allocated variable costs, was found to be insufficient to satisfy the DoJ’s burden of proof. The Court of Appeals explained that rather than comparing incremental revenue to average avoidable cost as argued by the DoJ, Test Four did compare incremental revenue to a measure of both average variable and average avoidable cost.

²¹¹ United States Court of Appeals, (Tenth Circuit), *United States of America v AMR Corporation, American Airlines, AMR Eagle Holding Corporation*, Brief for Appellant.

²¹² See for example, Dodgson *et al.* (1991) and Gorin and Belobaba (2008).

142. A first type of exclusionary selling strategy can be found in reward schemes aimed to increase customer loyalty. Such schemes are very common in the airline industry (FFPs and CDSs have been discussed in section 2.1.) and, if adopted by a dominant airline, may be caught and prohibited under antitrust law.

143. Antitrust case law on rebate and discount strategies abounds, which may be anti-competitive depending on their loyalty-enhancing and exclusionary effects.²¹³ According to competition authorities the following potentially anticompetitive effects should be considered when assessing loyalty programmes in any industry:

- Tying effects: one product must be purchased with another product and affect consumers' choice;
- Foreclosure effects: access to the market is made more difficult by the lock-in effect created by the scheme discounts;
- Loyalty effects: tying consumers to one supplier by offering benefits that trigger extensive behavioural loyalty.²¹⁴

144. In the airline sector, discounting would usually be granted, among other benefits, as part of an airline's CDS.²¹⁵ Exclusionary effects may also arise from FFP or CDS benefits other than monetary discounts (e.g. priority boarding). The difficulty with assessing their effect on competition relates to the difficulty of drawing a legal test that takes the complex characteristics and conditions of the FFPs and CDSs into account. Emch, for example, argues that "many of the FFP's specific features may be at odds with the law [on rebates] as it stands".²¹⁶ Therefore, loyalty-enhancing strategies adopted by airlines with market power should be assessed on a cautious case-by-case basis.

145. A rare example of antitrust enforcement against an airline's FFP is provided by the Swedish Competition Authority (SCA).²¹⁷ The SCA found SAS liable for abusing its dominant position by extending its EuroBonus programme to domestic flights. SAS had a market share of approximately 70% in the Swedish market for scheduled domestic passenger flights. The SCA concluded that EuroBonus programme had strong loyalty-inducing benefits hampering competition from alternative carriers.²¹⁸ On appeal, the Swedish Market Court considered that the programme was capable of distorting market incentives, especially when the person accruing the benefits (i.e. the employees) was not the one paying for the programme (i.e. the employer). The Court also found that EuroBonus programme could be used to influence prices by reducing customers' responsiveness to price, and that the programme had a price-raising effect. The Market Court therefore confirmed the SCA's finding that SAS's programme had

²¹³ European Court of Justice, *British Airways v Commission* (2007) and South Africa, Competition Appeal Court of South Africa, *South African Airways v. Comair/Nationwide* (2010). See also ICN (2009).

²¹⁴ ECA (2005), pages 22 and 23.

²¹⁵ CDS are the main scheme for discounts, whereas FFPs would typically grant enhanced or additional services. See section 2.1 for further details.

²¹⁶ Emch (2007).

²¹⁷ To date, EU Courts (the General Court and the Court of Justice) have not ruled on the legality of FFPs in the context of Article 102 TFEU (prohibiting abuse of dominance).

²¹⁸ The decision is available at: <http://www.kkv.se/beslut/98-0920.htm> (only in Swedish).

exclusionary effects. It prohibited the EuroBonus programme on domestic routes where SAS or any airline cooperating with SAS faced competition, as well as on routes considered by new entrants.²¹⁹

146. Another type of exclusionary selling strategy that may be adopted by airlines to foreclose or limit competition consists in prevent agencies that sell their tickets from dealing with new entrants. In South Korea, for example, the KFTC found in 2010 that Korean Air and Asiana Airlines abused their dominant position in the domestic and international air passenger markets by effectively restricting travel agencies from offering LCCs' air tickets. Both airlines managed to impose such restrictions by threatening travel agencies with "limited or unfavourable ticket supply for business seasons and popular routes" in case they were dealing with LCCs.²²⁰ Moreover, to further increase the effectiveness of its foreclosure strategy, Korean Air offered conditional rebates to major travel agencies.

147. If travel agencies' inability to sell tickets can effectively block new entrants from accessing a share of the consumers, such practices may be anti-competitive. The extent to which market entry depends on the access to travel agents may be country specific and more important in countries with low Internet access or usage. In countries where Internet is widely used for direct ticket booking, the risk of foreclosure through agents is lower.

b. Refusals to grant access to essential inputs

148. Another way for airlines to exclude or to limit competition is by restricting competitors' access to essential inputs, i.e. scarce inputs that are necessary to operate. Such essential inputs may consist in e.g. physical or technical infrastructure, such as airport slots, gates, feeder access or check-in systems.²²¹ The question here is whether access restrictions are caused by the airlines and can be caught under antitrust law. In general access restrictions may give rise to antitrust concerns essentially if (i) the airline under scrutiny enjoys market power, (ii) the airline has control over the input access, and (iii) the restricted input is in fact essential to enter and compete on the market. In these cases, market power should be assessed at the input market level, i.e. the upstream market where airlines acquire the inputs necessary to compete downstream in the provision of air transport services.

149. Slot restricting strategies would differ depending upon the slot allocation regime in force.²²² Under a primary allocation system, an airline may adopt a slot-hoarding strategy, i.e. use unprofitable slots only to keep them.²²³ Under a secondary slot trading system, slot holders could refuse to sell or lease their slots to new entrants or expanding competitors, and could favour instead partners or weak players. They could also impose non-compete conditions or restrictions on further slot acquisitions. These strategies may in any case amount to an abuse of dominance or unlawful monopolisation only if the slots are essential for the entrant to compete on the downstream market. If slots at nearby airports are available and would enable competing airlines to offer services on the same city pair, access restrictions may hardly be seen as distorting competition.

150. To date, it appears that courts have not yet ruled on slot-restriction strategies under abuse of dominance or monopolisation rules. This is because detection of such strategies is difficult and competition authorities may need to examine profitability data on each specific route to determine if the use of the slots

²¹⁹ Sweden, Market Court, *Konsortiet Scandinavian Airlines System vs Konkurrensverket*, (2001).

²²⁰ KFTC, *Abuse of market dominance by Korean Air and Asiana Airline*, (2010). For a more detailed overview of the case see OECD (2011) Annual Report on Competition Policy Developments in Korea.

²²¹ See also section 2.1. above.

²²² See section 2.1.a. for further details on slot allocation regimes.

²²³ Fukui, H. (2012).

is unprofitable and therefore could be deemed abusive.²²⁴ The European Commission's decision in *Sea Containers v. Stena Sealink*, although in a different sector, sets an interesting precedent, to the extent that it considers slots to be an essential facility.²²⁵ In this case, Sea Containers, a new competitor, successfully argued under abuse of dominance case, that Stena Sealink refused access to 'berth slots' that were necessary for the operation of a new ferry service. Sealink offered in the end to grant access to slots at times considered by Sea Containers to be essential.²²⁶

4. Conclusion

151. The airline sector has undergone a significant evolution in the last four decades. The focal point of this evolution is the widespread shift from regulation to liberalisation and de-regulation that has taken place in various parts of the world. This shift has transformed the structure of the airline sector and has, in many ways, affected its competitive intensity. On the one hand, low-cost carriers have entered the market, triggering a sector-wide evolution in airlines' business models and have increased competition in the industry. On the other hand, diverse forms of horizontal co-operation have flourished, mostly through alliances, which increased consolidation of the industry. Barriers to entry moreover remain and evolve, resulting from limited infrastructure (such as airport slots) and airlines' own strategies (such as frequent flyers programmes). These changes and current industry features raise challenges and affect the assessment that competition authorities must carry out. This assessment is even more crucial given the lack of a level playing field, the fast-moving environment and the importance of the airline sector to the global economy and consumers.

152. This Background Note explained why and how horizontal forms of co-operation have become the defining dynamic of the airline sector, to the point that alliance competition has to some extent replaced airline competition. The Note has also stressed that there is no single enforcement mechanism that competition authorities use to examine the effects of airline alliances on competition. Given the cross-border nature of airline services, the lack of harmonised mechanism creates scope for conflicting assessment of alliances.

153. Cross-border airline mergers are limited by nationality restrictions contained in bilateral air services and open skies agreements. The removal of these restrictions would unleash further liberalisation and open up opportunities for additional merger synergies. International mergers, as well as domestic mergers of airlines with international networks, make co-operation between competition authorities even more of essential importance.

154. The overview of mergers and alliances revealed the difficult task of determining and weighing in their respective competition risks and potential efficiencies. This is particularly true given the network structure, hybrid business models and multi-market contacts that characterise the airline industry. Although competition authorities have at their disposal a wide range of remedies, of which slot divestitures and route carve-outs are the ones most frequently imposed, their adequacy and effectiveness is questioned. This should prompt further *ex post* assessment as to whether they are and remain effective to enhance consumer welfare overall.

155. While competition concerns in the airline sector arise more frequently with respect to horizontal co-operation forms (i.e. alliances, mergers or cartels), airlines' unilateral strategies may also entail competition risks. This Note examined whether current legal standards are able to detect and address anti-

²²⁴ Gleave (2011).

²²⁵ European Commission decision, *Sea Containers v. Stena Sealink* (1993).

²²⁶ The Commission therefore did not order interim measures.

competitive behaviour in the airline industry. In particular, it remains to be seen whether predatory pricing tests are robust enough to detect airlines' predatory strategies through both price cuts as well as non-price instruments (such as capacity addition). Also, as countries increasingly consider allowing slot trading between airlines, it remains to be seen how exclusionary slot-holders' tactics could be effectively apprehended under antitrust laws.

156. The competition concerns addressed in this Note highlight the central role competition authorities must play in ensuring effective airline competition, to the benefits of air transport consumers.

BIBLIOGRAPHY

A. OECD

- OECD (2013), Roundtable on the Role and Measurement of Quality in Competition Analysis, DAF/COMP(2013)17.
- OECD (2011), Latin American Competition Forum, Session IV: Competition Issues in the Air Transport Sector, Background Note, DAF/COMP/LACF(2011)9.
- OECD (2011), Annual Report on Competition Policy Developments in Korea, DAF/COMP/AR(2011)29.
- OECD (2008), Roundtable on Minority Shareholding, DAF/COMP(2008)30.
- OECD (1999), Roundtable on Airline Mergers and Alliances, DAF/CLP(2000)1.
- OECD (1997), Roundtable on Competition Policy and International Airport Services, DAF/CLP(98)3.
- OECD (1988), Deregulation and Airline Competition.

B. Jurisdictions

- Australia, Australian Competition and Consumer Commission (ACCC), *International Air Transport Association*, A90855, 9 November 2006, <http://registers.accc.gov.au/content/index.phtml/itemId/762379/fromItemId/401858/display/acccDecision>.
- Canada, Competition Tribunal, *the Commissioner of Competition v. Air Canada, United Continental Holdings, Inc., United Airlines, Inc. and Continental Airlines Inc.*, CT-2012-001, 24 October 2012.
- Canada, Competition Tribunal, *Canada (Director of Investigation and Research) v. Air Canada*, 26 C.P.R. (4th) 476, 22 July 2003.
- Chile, Tribunal de Defensa de la Libre Competencia, *LAN/TAM*, 37/2011, 21 September 2011.
- EFTA, Agreement on the European Economic Area, 3 January 1994.
- EU, Treaty on the Functioning of the European Union (TFEU), Articles 101, 102, 107, 108 and 109.
- EU, Regulation (EC) No 545/2009 of the European Parliament and of the Council amending Regulation (EEC) No 95/93 on Common Rules for the Allocation of Slots at Community Airports, 18 June 2009.
- EU, Regulation (EC) No 487/2009 on the Application of Article 81(3) of the Treaty to Certain Categories of Agreements and Concerted Practices in the Air Transport Sector, 25 May 2009.
- EU, Regulation (EC) No 1008/2008 of the European Parliament and of the Council on Common Rules for the Operation of Air Services in the Community, 24 September 2008.

EU, Regulation (EC) No 793/2004 of the European Parliament and of the Council amending Council Regulation (EEC) No 95/93 on Common Rules for the Allocation of Slots at Community Airports, 21 April 2004.

EU, Regulation (EC) No 1/2003 on the Implementation of the Rules on Competition Laid Down in Articles 81 and 82 of the Treaty, 16 December 2002.

EU, Regulation (EEC) No 95/93 on Common Rules for the Allocation of Slots at Community Airports, 18 January 1993.

EU, Regulation (EEC) No 2407/92 on Licensing of Air Carriers, 23 July 1992.

EU, European Court of Justice, *France Télécom SA v. Commission*, C-202/07 P, 2 April 2009.

EU, European Court of Justice, *British Airways v. Commission*, C-95/04 P, 15 March 2007.

EU, European Court of Justice, *AKZO v. Commission*, C 62/86, 3 July 1991.

EU, European Commission, Community Guidelines on State Aid for Rescuing and Restructuring Firms in Difficulty, (2004/C 244/02), 1 October 2004.

EU, European Commission, *Aegean Airlines/Olympic Air II*, COMP/M.6796, October 2013.

EU, European Commission, *American Airlines/US Airways*, COMP/M.6607, 5 August 2013.

EU, European Commission, *Continental/United/Lufthansa/Air Canada*, COMP/AT.39595, 23 May 2013.

EU, European Commission, *Ryanair/Aer Lingus*, COMP/M.6663, 27 February 2013.

EU, European Commission, *LAG/BMI*, COMP/M.6447, 30 March 2012.

EU, European Commission, *Aegean Airlines/Olympic Air I*, COMP/M.5830, 26 January 2011.

EU, European Commission, *United Airlines/Continental Airlines*, COMP/M.5889, 27 July 2010.

EU, European Commission, *British Airways/Iberia*, COMP/M.5747, 14 July 2010.

EU, European Commission, *British Airways/American Airlines/Iberia*, COMP/39.596, 14 July 2010.

EU, European Commission, *Lufthansa/Austrian Airlines*, COMP/M.5440, 28 August 2009.

EU, European Commission, *Lufthansa/SN Airholding*, COMP/M.5335, 22 June 2009.

EU, European Commission, *Ryanair/Aer Lingus*, COMP/M.4439, 11 October 2007.

EU, European Commission, *Air France/KLM*, COMP/M. 3280, 11 February 2004.

EU, European Commission, *British Airways/SN Brussels Airlines*, COMP/A.38.477/D2, 10 March 2003.

EU, European Commission, *SAS/Spanair*, COMP/M.2672, 5 March 2002.

EU, European Commission, *United/US Airways*, COMP/M.2041, 12 January 2001.

- EU, European Commission, *Sea Containers v. Stena Sealink*, 94/19/EC, 21 December 1993.
- EU, European Commission, Press Release, ‘Europe’s Airports 2030: Challenges Ahead’, MEMO/11/857, 1 December 2011, http://europa.eu/rapid/press-release_MEMO-11-857_en.htm?locale=en.
- EU, European Commission, Press Release, ‘Competition: Commission Adopts Revised Competition Rules on Horizontal Co-Operation Agreements’, MEMO/10/676, 14 December 2010, http://europa.eu/rapid/press-release_MEMO-10-676_en.htm?locale=en.
- EU, European Commission, Press Release, ‘Competition: Commission Ends Block Exemption for IATA Passenger Tariff Conferences for Routes Between the EU and non-EU Countries’, IP/07/973, 29 June 2007, http://europa.eu/rapid/press-release_IP-07-973_en.htm.
- EU, European Commission, Press Release, ‘Competition: Commission Revises Block Exemption for IATA Passenger Tariff Conferences’, IP/06/1294, 2 October 2006, http://europa.eu/rapid/press-release_IP-06-1294_en.htm.
- EU, European Commission, Press Release, ‘Commission Opens Proceedings Against Air France for Favouring Amadeus Reservation System’, IP/99/171, 15 March 1999, http://europa.eu/rapid/press-release_IP-99-171_en.htm.
- EU/Switzerland, Agreement between the European Community and the Swiss Confederation on Air Transport, 21 June 1999.
- EU/USA, European Commission and the United States Department of Transportation, ‘Transatlantic Airline Alliances: Competitive Issues and Regulatory Approaches’, a report by the European Commission and the United States Department of Transportation, 16 November 2010.
- Germany, Bundeskartellamt (9th Decision Division), *Lufthansa*, B 9 – 144/01, 18 February 2002.
- India, Competition Commission of India (CCI), *Etihad/Jet Airways*, C-2013/05/122, 12 November 2013.
- India, Securities and Exchange Board of India (SEBI), *Acquisition of Shares of Jet Airways by Etihad*, WTM/RKA/CFD-DCR/17/2014, 8 May 2014.
- Japan, JFTC, ‘Competition Policy and the Governmental Support for Revitalizing a Failing Company – The Case of Japan Airlines in Japan’, Presentation by Mr Odagiri, Commissioner, at the OECD Global Forum, 24 February 2014.
- South Africa, Competition Act, Act No.89 of 1998, Section 10.
- South Africa, Competition Appeal Court of South Africa, *South African Airways v. Comair/Nationwide*, 92/CAC/MAR10, (2011).
- South Africa, Competition Tribunal, *Competition Commission v. South African Airways, SA Airlink and South African Express Airways*, 20/CR/Mar05, 12 July 2006.
- South Africa, Competition Tribunal, *Competition Commission v. South African Airways*, 42/CR/Apr10 (014928), 6 June 2012.
- South Africa, Competition Tribunal, *Competition Commission v. Singapore Airlines*, 45/CR/Apr12 (014977), 15 May 2012.

DAF/COMP(2014)14

- South Africa, Competition Tribunal, *Competition Commission v. South African Airways*, 43/CR/May06, 12 July 2006.
- South Africa, Competition Tribunal, *Competition Commission v. Lufthansa*, 47/CR/May06, 12 July 2006.
- South Africa, Competition Commission, Notice in Terms of Section 10(7) of the Competition Act 89 of 1998, Notice 127 of 2013, 14 February 2013.
- South Korea, KFTC, *Abuse of market dominance by Korean Air and Asiana Airline*, KFTC/2009시감3291/2010.8.31, 31 August 2010.
- Sweden, Market Court, *Konsortiet Scandinavian Airlines System v. Konkurrensverket*, Dnr A 14/99, 2001.
- Turkey, Turkish Competition Authority, *Turkish Airlines v. Pegasus*, 13-47/645-M, 13 August 2013.
- Turkey, Ankara Administrative Court (11th Chamber), *Turkish Airlines v. Pegasus*, E.2012/1727, K.2013/1083, 11 July 2013.
- Turkey, Turkish Competition Authority, *Turkish Airlines v. Pegasus*, 11-65/1692-599, 30 December 2011.
- UK, Office of Fair Trading (OFT) (now Competition and Markets Authority (CMA)), *Airline Payment Surcharges*, CRE-E/27017, July 2012.
- UK, OFT (now CMA), *British Airways and Virgin Atlantic*, CE/7691-06, 19 April 2012.
- UK, OFT (now CMA), *Advertising of prices, Market Study*, December 2010.
- UK, OFT (now CMA), *Air France/City Jet of VLM Airlines*, ME/3535/08, 10 June 2008.
- UK, OFT (now CMA) and Civil Aviation Authority (CAA) (2005), 'Competition Issues Associated with the Trading of Airport Slots, A Paper Prepared for DG TREN by the UK Office of Fair Trading and the Civil Aviation Authority, www.caa.co.uk/docs/589/oft832.pdf.
- USA, U.S. Code, Title 49, Subtitle VII, Part A, Subpart ii, Chapter 413, § 41308 and 41309 (49 U.S.C. §§41308-41309).
- USA, Sherman Anti-Trust Act (1890), U.S. Code, Title 15, Chapter 1 (15 U.S.C. §§1-38).
- USA, United States Supreme Court, *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 21 June 1993.
- USA, United States Court of Appeals, (6th Circuit), *Spirit Airlines v. Northwest Airlines*, 431 F.3d 917, 15 December 2005.
- USA, United States Court of Appeals, (10th Circuit), *United States of America v. AMR Corporation, American Airlines, AMR Eagle Holding Corporation*, 335 F.3d 1109, 3 July 2003.
- USA, United States Court of Appeals, (Tenth Circuit), *United States of America v. AMR Corporation, American Airlines, AMR Eagle Holding Corporation*, Brief for Appellant, 01-3202.
- USA, United States District Court for the District of Columbia, *United States of America et al. v. US Airways and AMR Corporation*, 1:13-cv-01236 (CKK), 13 March 2014.

- USA, United States District Court for the District of Kansas, *United States of America v. AMR Corporation, American Airlines, AMR Eagle Holding Corporation*, 140 F. Supp. 2d 1141, 27 April 200.
- USA, United States District Court for the District of Columbia, *United States of America v. Airline Tariff Publishing Company, et al.*, 92-2854 SSH, 10 August 1994.
- USA, Department of Justice (DOJ), Press Release, United Airlines and Continental Airlines Transfer Assets to Southwest Airlines in Response to Department of Justice's Antitrust Concerns, 27 August 2010, http://www.justice.gov/atr/public/press_releases/2010/262002.htm.
- USA, DOJ, Press Release, Department of Justice and Several States Will Sue to Stop United Airlines from Acquiring US Airways, 27 July 2001, <http://www.justice.gov/opa/pr/2001/July/361at.htm>.
- USA, Department of Transportation (DOT), Agreement Among Member Carriers of the International Air Transport Association Concerning an Agreement (Resolution 787) of the Passenger Services Conference, Order to Show Cause, OST-2013-0048, 21 May 2014, <http://www.regulations.gov/#!documentDetail;D=DOT-OST-2013-0048-0415>.
- USA, DOT, Comments by the American Antitrust Institute (AAI) on the Application for Approval of Agreement among Member Carriers of the International Air Transport Association concerning an agreement (Resolution 787) of the Passenger Services Conference, OST-2013-0048, 1 May 2013.
- USA, DOT, US-Japan Alliance, Final Order, DOT-OST-2010-0059, 10 November 2010.
- USA, DOT, American Airlines, British Airways, Iberia, Finnair, Royal Jordanian Airlines, Final Order, OST-2008-0252 20 July 2010.
- USA, DOT, American Airlines, British Airways, Iberia, Finnair, Royal Jordanian Airlines, Public Version Comments of the Department of Justice, OST-2008-0252 21 December 2009.
- USA, DOT, Air Canada, Austrian, BMI, Continental, Lufthansa, LOT, SAS, Swiss, TAP, United, Final Order, OST-2008-0234, 10 July 2009.
- USA, DOT, Air Canada, Austrian, BMI, Continental, Lufthansa, LOT, SAS, Swiss, TAP, United, Public Version Comments of the Department of Justice on the Show Cause Order, 26 June 2009.
- USA, DOT, Delta, Northwest, Air France, KLM, Alitalia, Czech Airlines, Final Order, DOT-OST-2007-28644, 22 May 2008.
- USA, DOT, International Air Transport Association Tariff Conferences Proceedings, Final Order, OST-2006-25307, 30 March 2007.
- USA, DOT, Delta, Northwest, Air France, KLM, Alitalia, Czech Airlines, Final Order, DOT-OST-2004-19214, 6 February 2006.
- USA, DOT, Delta, Air France, KLM, Alitalia, Czech Airlines, Final Order, DOT-OST-2001-10429, 18 January 2002.

C. Literature

- Airline Leader, 'Global Airline Alliances: Transformed by Antitrust Immunity, but Confronted by Uncertainty', <http://www.airlineleader.com/this-months-highlights/global-airline-alliances-transformed-by-antitrust-immunity-but-confronted-by-uncertainty>.
- Armantier, O. et O. Richard (2008), 'Domestic Airline Alliances and Consumer Welfare', *RAND Journal of Economics*, vol. 39, no. 3, pp. 875-904.
- Ash, J. F. (2002), 'Airline Alliances Much to Be Gained, But Risks Abound', Global Aviation Associates, http://www.intervistas.com/downloads/Alliances_Final.pdf.
- Bailey, E. E. and W. J. Baumol (1984), 'Deregulation and the Theory of Contestable Markets', *Yale Journal of Regulation*, vol. 1, pp. 111-137.
- Balfour, J. (2004), 'EC Competition Law and Airlines Alliances', *Journal of Air Transport Management*, vol. 10, pp. 81-85.
- Barla, P. and C. Constantatos (2006), 'On the Choice between Strategic Alliance and Merger in the Airline Sector: The Role of Strategic Effects', *Journal of Transport Economics and Policy*, vol. 40, part 3, pp. 409-424.
- Barrett, S.D. (2001), 'Market Entry to the Full-Service Airline Market – a Case Study from the Deregulated European Aviation Sector', *Journal of Air Transport Management*, vol. 7, pp. 189-193.
- Baumol, W. J. and R. D. Willig (1986), 'Contestability: Developments Since the Book', *Oxford Economics Papers*, New Series, vol. 38, Supplement: Strategic Behaviour and Industrial Competition, pp. 9-36.
- Belobaba, P., Barnhart, C. and A. Odoni (2009), *The Global Airline Industry*, John Wiley & Sons Ltd.
- Beuve-Méry, H. and M. Struk (2007), 'Commission Brings Air transport in Line With Other Industries by Phasing out the Block Exemptions that have Existed in this Sector Since 1988', *Competition Policy Newsletter*, No 3.
- Bilotkach, V. and P. A. Lakew (2014), 'On Sources of Market Power in the Airline Industry: Panel Data Evidence from the US Airports', *Transportation Research Part A*, vol. 59, pp. 288-305.
- Bilotkach, V. and K. Hüscherlath (2011), 'Antitrust Immunity for Airline Alliances', *Journal of Competition Law & Economics*, 7(2), pp. 335-380.
- Bilotkach, V. (2005), 'Price Competition Between International Airline Alliances', *Journal of Transport Economics and Policy*, vol. 39, part 2, pp. 167-189.
- Boer, E. R. de and S. V. Gudmundsson (2012), '30 years of frequent flyer programs', *Journal of Air Transport Management*, vol. 24, pp.18-24.
- Borenstein, S. and N. L. Rose (2013), 'How Airlines Market Work... Or Do They? Regulatory Reform in the Airline Industry', <http://www.nber.org/chapters/c12570.pdf>.
- Borenstein, S. (2004), 'Rapid Price Communication and Coordination: The Airline Tariff Publishing Case (1994)' in Kwoka, J. and L. White (eds.), *The Antitrust Revolution: Economics, Competition, and Policy*, 4th ed. Oxford University Press.

- Breyer, S. (2011), 'Airline De-regulation, Revisited', Bloomberg Businessweek, <http://www.businessweek.com/stories/2011-01-20/airline-de-regulation-revisitedbusinessweek-business-news-stock-market-and-financial-advice>.
- Brueckner, J. K., Lee, D. and E. Singer (2014), 'City-Pairs Versus Airport-Pairs: A Market-Definition Methodology for the Airline Industry', *Review of Industrial Organisation*, vol. 44, pp. 1-25.
- Brueckner, J. K., Lee, D. and E. Singer (2011), 'Alliances, Codesharing, Antitrust Immunity, and International Airfares: Do Previous Patterns Persist?', *Journal of Competition Law & Economics*, 7(3), pp. 573-602.
- Brueckner, J. K. (2009), 'Price vs. quantity-based approaches to airport congestion management', *Journal of Public Economics*, vol. 93, pp. 681-690.
- Brueckner, J. K. and S. Proost (2009), 'Carve-Outs Under Airline Antitrust Immunity: In the Public Interest?', *GCP: The Antitrust Chronicle*.
- Brueckner, J. K. and E. Pels (2007), 'Institutions, Regulation, and the Evolution of the European Air Transport, Advances in Airline Economics' in Lee, D. (ed.), *The Economics of Airline Institutions, Operations and Marketing*, vol. 2.
- Brueckner, J. K., E. Pels (2005), 'European Airline Mergers, Alliance Consolidation, and Consumer Welfare', *Journal of Air Transport Management*, vol. 11, pp. 27-41.
- Brueckner, J. K. (2003), 'International airfares in the age of alliances: The effects of codesharing and antitrust immunity', *Review of Economics and Statistics*, vol. 85, pp. 105-118.
- Brueckner, J. K., (2001), 'The Economics of International Codesharing: An Analysis of Airline Alliances', *International Journal of Industrial Organization*, vol. 19, pp. 1475-1498.
- Brueckner, J. K. and T. W. Whalen (2000), 'The Price Effects of International Airline Alliances', *Journal of Law and Economics*, vol. 43, issue 2, pp 503-545.
- Butler, G. F. and M. R. Keller (1992), 'The cost-constrained global airline industry environment: what is quality?', *Transportation Quarterly*, vol. 46, pp.599-618.
- CAPA (2014), 'Airberlin Receives a Vote of Confidence from Etihad, but How Will the Relationship Evolve Now?', <http://centreforaviation.com/analysis/airberlin-receives-a-vote-of-confidence-from-etihad-but-how-will-the-relationship-evolve-now-147713>.
- CAPA (2013), 'Airline Alliances – what Future? Global, Multilateral and Bilateral Partnerships are Evolving', <http://centreforaviation.com/analysis/airline-alliances---what-future-global-multilateral-and-bilateral-partnerships-are-all-evolving-144593>.
- CAPA (2013), 'Star Alliance Considers New Platform for Low-Cost Airlines, Targeting Brazil's Azul & India's IndiGo', <http://centreforaviation.com/analysis/star-alliance-considers-new-platform-for-low-cost-airlines-targeting-brazils-azul--indias-indigo-135468>.
- CAPA (2013), 'Airlines in Transition Part 4: Bridging the Gap Between Full Service and Low-Cost or Hybrid Airlines', <http://centreforaviation.com/analysis/airlines-in-transition-part-4-bridging-the-gap-between-full-service-and-low-cost-or-hybrid-airlines-106777>.

- CAPA (2013), 'Airlines in Transition Part 3: How Full Service Airlines are Reshaping Models to be More Competitive', <http://centreforaviation.com/analysis/airlines-in-transition-part-3-how-full-service-airlines-are-reshaping-models-to-be-more-competitive-105757>.
- CAPA (2013), 'Airlines in Transition Part 2: Where are Smaller Airlines in the New Partnership World?', <http://centreforaviation.com/analysis/airlines-in-transition-part-2-where-are-smaller-airlines-in-the-new-partnership-world-105500>.
- CAPA (2013), 'Airlines in Transition Report, Part 1: The Natural History of Airline Alliances', (<http://centreforaviation.com/analysis/capa-airlines-in-transition-report-part-1-the-natural-history-of-airline-alliances-105278>).
- Cento, A. (2008), *The Airline Industry: Challenges in the 21st Century*, Physica-Verlag, Springer.
- Dobruszkes, F. (2009), 'Does liberalisation of air transport imply increasing competition? Lessons from the European case', *Transport Policy*, vol. 16, pp. 29-39.
- Dodgson, J., Katsoulacos, Y., and R. Pryke (1991), 'Predatory behavior in aviation', *Commission of the European Community Official Publication*.
- Domberger, S. and A. Sherr (1989), 'The impact of competition on pricing and quality of legal services', *International Review of Law and Economics*, vol. 9, no. 1, pp. 41-56.
- Emch, A. (2007), 'Frequent Flyer Programmes under Article 82 EC – Is the Sky the Only Limit?', *World Competition*, vol. 30, no. 4, pp. 645-673.
- European Competition Authorities (ECA) (2005), 'Loyalty Programmes in Civil Aviation', http://www.gvh.hu/data/cms1001733/ECA_Loyalty%20programmes%20in%20civil%20aviation_2005_Summer.pdf.
- Evans, W. N. and I. N. Kessides (1994), 'Living by the "golden rule": multimarket contact in the U.S. airline industry', *Quarterly Journal of Economics*, vol. 109, no. 2, page 341-366, <http://www.jstor.org/stable/2118466?seq=3>.
- Flores-Fillol, R and R. Moner-Colonques (2007), 'Strategic Formation of Airline Alliances', *Journal of Transport Economics and Policy*, vol. 41, part 3, pp. 427-449.
- Forbes, S.J. (2008), 'The effect of air traffic delays on airline price', *International Journal of Industrial Organisation*, vol. 26, no. 5, pp. 1218-1232.
- Forsyth, P., Gillen, D., Hüschelrath, K., Niemeier, H-M and H. Wolf (2013), *Liberalization in Aviation, Competition, Cooperation and Public Policy*, Ashgate.
- Forsyth, P., Gillen D. W., Mayer, O.G. and H-M Niemeier (2005), *Competition versus Predation in Aviation Markets: A Survey of Experience in North America, Europe and Australia*, Ashgate.
- Forsyth, P., King, J. and C. L. Rodolfo (2006), 'Open Skies in ASEAN', *Journal of Air Transport Management*, vol. 12, pp. 143-152.
- Fukui, H. (2012), 'Do carriers abuse the slot system to inhibit airport capacity usage? Evidence from the US experience', *Journal of Air Transport Management*, vol. 24, p. 1-6.

- Fukui, H., (2010), 'An empirical analysis of airport slot trading in the United States', *Transportation Research*, part B 44, pp. 330–357.
- Gagnepain, P. and P. L. Marín (2006), 'Regulation and Incentives in European Aviation', *Journal of Law and Economics*, vol. 49, no. 1, pp.229-248.
- Gillen, D. and A. Gados (2008), 'Airlines within airlines: Assessing the vulnerabilities of mixing business models', *Research in Transportation Economics*, vol. 24, pp. 25-35.
- Gillespie, W. and O. M. Richard (2011), 'Antitrust Immunity and International Airline Alliances, Discussion Paper, Economic Analysis Group (EAG), USA Department of Justice (DOJ), <http://www.justice.gov/atr/public/eag/267513.htm>.
- Gilo, D. and F. Simonelli, 'The price-increasing effects of domestic code-sharing agreements for non-stop airline routes, 2014, forthcoming.
- Gleave, S. D. (2011), 'Impact Assessment of Revisions to Regulation 95/93', Final Report, Prepared for European Commission DG MOVE, <http://ec.europa.eu/transport/modes/air/studies/doc/airports/2011-03-impact-assessment-revisions-regulation-95-93.pdf>.
- Goetz, A. R. (2002), 'Deregulation, Competition, and Antitrust Implications in the US Airline Industry', *Journal of Transport Geography*, vol. 10, pp. 1-19.
- Goetz, A. R. and A. H. Shapiro (2012), 'Strategic Alliance as a Response to the Threat of Entry: Evidence from Airline Codesharing', *International Journal of Industrial Organization*, vol. 30, pp. 735–747.
- Goetz, A. R. and T. M. Vowles (2009), 'The Good, the Bad, and the Ugly: 30 Years of US Airline Deregulation', *Journal of Transport Geography*, vol. 17, pp. 251–263.
- Gorin, T. and P. Belobaba (2008), 'Assessing predation in airline markets with low-fare competition', *Transportation Research Part A*, vol. 42, pp. 784-798.
- Greenfield, D. (2014), 'Competition and Service Quality: New Evidence from the Airline Industry', *Economics of Transportation*.
- Guest, A. (2011), 'Flying gets metal-neutral', Bimco, https://www.bimco.org/News/2011/03/16_Feature_Week_11.aspx.
- Hanlon, P. (2007), *Global Airlines, Competition in a Transnational Industry*, third edition, Butterworth-Heinemann, 2007.
- Havel, B. F. (2009), *Beyond Open Skies: A New Regime for International Aviation*, Wolters Kluwer.
- Horan, H. (2010), 'Double Marginalization and the Counter- Revolution Against Liberal Airline Competition', *Transportation Law Journal*, vol. 37, pp. 251-291.
- IATA (2013), Annual Review, <http://www.iata.org/about/Documents/iata-annual-review-2013-en.pdf>.
- IATA (2013), Airline Operation Cost Task Force Presentation, Airline Cost Conference, http://www.iata.org/whatwedo/workgroups/Documents/acc-2013-gva/0930-1015_AOCTF_FY2012_Report_FERJAN.pdf.

IATA (2013), Multilateral Interlining Without Antitrust Immunity: Adapting to a New Regulatory Environment, Presentation by C. T. Flynn, Senior Legal Counsel IATA, <https://www.mlit.go.jp/common/000027085.pdf>.

IATA (2013), Worldwide Slot Guidelines, 5th edition, <http://www.iata.org/policy/slots/Documents/wsg-5.pdf>.

IATA (2012), Resolution 787, Enhanced Airline Distribution, <http://www.iata.org/whatwedo/airline-distribution/ndc/Documents/ndc-resolution-787.pdf>.

IATA (2011), Economics Briefing: The Economic Benefits Generated by Alliances and Joint Ventures, http://www.iata.org/whatwedo/Documents/economics/Economics%20of%20JVs_Jan2012L.pdf.

IATA (2010), Airport Slots – The Building Blocks of Air Travel, <http://www.iata.org/publications/airlines-international/august-2010/Pages/06.aspx>.

IATA (2007), Airline Liberalisation, Economics Briefing No. 7, https://www.iata.org/whatwedo/Documents/economics/IATA_AirlineLiberalisation.pdf.

IATA (2006), Airline Cost Performance, Economics Briefing No 5, https://www.iata.org/whatwedo/Documents/economics/airline_cost_performance.pdf.

IATA and Oxford Economics, Benefits of Aviation, Country Reports, <http://www.benefitsofaviation.aero/Pages/download.aspx>.

ICAO, Press Release, ‘Air Transport Results Confirm Robust Passenger Demand, Sluggish Cargo Market’, 16 December 2013.

ICAO (2013), Working Paper on Fair Competition in International Air Transport, Worldwide Air Transport Conference, Sixth Meeting, ATConf/6-WP/4.

ICAO (2013), Working Paper on Air Carrier Ownership and Control Clauses in Bilateral Air Services Agreements, Worldwide Air Transport Conference, Sixth Meeting, ATConf/6-WP/49.

ICAO (2006), Convention on International Civil Aviation (Chicago Convention), Ninth Edition.

ICAO (2004), Manual on the Regulation of International Air Transport, Second Edition.

ICAO (1944), Convention on International Civil Aviation (Chicago Convention), First Edition.

ICN (2012), ‘Unilateral Conduct Workbook, Chapter 4: Predatory Pricing Analysis, prepared by The Unilateral Conduct Working Group, <http://www.internationalcompetitionnetwork.org/uploads/library/doc828.pdf>.

ICN (2009), ‘Report on the Analysis of Loyalty Discounts and Rebates Under Unilateral Conduct Laws, prepared by The Unilateral Conduct Working Group, <http://www.internationalcompetitionnetwork.org/uploads/library/doc357.pdf>.

InterVISTAS-EU (2009), The Impact of International Air Service Liberalization on Panama, Liberalization Report, Agenda for Freedom, <https://www.iata.org/policy/liberalization/agenda-freedom/Documents/panama-report.pdf>.

- Jeanninot, P. (2011), 'State of the Industry – The Game Changers', Keynote Address to APG World Connect, http://www.pierrejeanninot.com/game_changers.html.
- Jones, I., Holder, S., *et al.* (2004), 'Study to Assess the Effects of Different Slot Allocation Schemes', A Report for the European Commission DG TREN, NERA Consulting, http://www.nera.com/extImage/PUB_SlotAllocationSchemes_NPL.pdf.
- Klophaus, R. (2013), Chapter 10: 'A la Carte Pricing to Generate Ancillary Revenue: the Case of Ryanair', in Peter Forsyth, P., Gillen, *et al.* (eds.) *Liberalization in Aviation: Competition, Cooperation and Public Policy* (Ashgate).
- Klophaus, R., R. Conrady and F. Fichert (2012), 'Low cost carriers going hybrid: Evidence from Europe', *Journal of Air Transport Management*, vol. 23, pp. 54-58.
- Kornai, J., 'The Soft Budget Constraint', <http://faculty.vassar.edu/kennett/Kornai.htm>.
- Kornai, J., Maskin, E., G. Roland, 'Understanding the Soft Budget Constraint', Berkeley, <http://eml.berkeley.edu/~groland/pubs/understanding.pdf>.
- Lawton, T.C. and S. Solomko (2005), 'When being the lowest cost is not enough: Building a successful low-fare airlines business model in Asia', *Journal of Air Transport Management*, vol. 11, pp. 355-362.
- LeClair, S. (2012), 'Exigency and Innovation in Collusion', *Journal of Competition Law and Economics*, vol. 8, no. 2, pp. 399-415.
- Li, J. and S. Netessine (2011), 'Partnering with competitors – An Empirical Analysis of Airline Alliances in Multimarket competition', Faculty and Research Working Paper, Alliance Center for Global Research and Education, INSEAD/Wharton.
- Li, J. and S. Netessine (2011), 'Partnering with Competitors – Effects of Alliances on Airline Entry and Capacity Decisions', Faculty and Research Working Paper, Alliance Center for Global Research and Education, INSEAD/Wharton.
- Liou, J.J.H., Chao-Che, H., Wen-Chien, Y. and L. Rong-Ho (2011), 'Using a Modified Grey Relation Method for Improving Airline Service Quality', *Tourism Management*, vol. 32, pp. 1381-1388.
- Lohmann, G. and T. T. R. Koo (2013), 'The Airline Business Model Spectrum', *Journal of Air Transport Management*, vol. 31, pp. 7-9.
- Madas, M. A. and K. G. Zografos (2010), 'Airport Slot Allocation: A Time for Change?', *Transport Policy*, vol. 17, pp. 274-285.
- Martín, J.C., Román, C and R. Espino (2014), 'Evaluating FFPs from the passenger perspective', *Journal of Transport Management*, vol. 17, pp. 364-468.
- Mason, K.J. (2000), 'The Propensity of Business Travellers to use Low Cost Airlines', *Journal of Transport Geography*, vol. 8, no. 2, pp. 107-119.
- Matsa, D.A. (2011), 'Competition and Product Quality in the Supermarket Industry', *Quarterly Journal of Economics*, vol. 126, no. 3, pp. 1539-1591.

- Mazzeo, M.J. (2003), 'Competition and Service Quality in the U.S. Airline Industry', *Review of Industrial Organisation*, vol. 22, pp. 275-296.
- McCarthy, N., 'Presentation on State Aid to Airlines and Airports, King's College London, 8 October 2013
- Miller, A. R. (2010), 'Did the Airline Tariff Publishing Case Reduce Collusion?', *Journal of Law and Economics*, vol.53, no. 3, pp. 569-586.
- Morrell, P. (2008), 'Can Long-Haul Low-Cost Airlines be Successful?', *Research in Transportation Economics*, vol. 24, pp. 61-67.
- Morrison, S.A., and C.M. Winston (1989), 'Enhancing the Performance of the de-Regulated Air Transportation System, *Brookings papers on economic activity*, Microeconomics, pp. 61-123.
- Moss, D. L. (2013), 'Delivering the Benefits? Efficiencies and Airline Mergers', American Antitrust Institute, http://www.antitrustinstitute.org/sites/default/files/AAI_USAir-AA_Efficiencies.pdf.
- N. B. (2011), 'Airline alliances: Stronger together?', *the Economist*.
- Oster, C. V. Jr. and J. S. Strong (2001), 'Predatory Practices in the U.S. Airline Industry', paper prepared for the United States Department of Transportation.
- Parker, A. (2013), 'Gulf Carriers Destabilise Alliances', *Financial Times*.
- Prince, J. T. and D. H. Simon (2009), 'Multimarket Contact and Service Quality: Evidence from on-Time Performance in the U.S. Airline Industry', *Academy of Management Journal*, vol. 52, no. 2, 336-354.
- Reitzes, J and D. Moss (2008), 'Airline Alliances and Systems Competition', *45 Hous. L. Rev.* 293.
- Rupp, N., Owens, D., and L. Plumly (2006), 'Does Competition Influence Airline on-Time Performance', *Advances in Airline Economics: Competition Policy and Antitrust*, vol. 1.
- Sharkey, J., (2011) 'Forget the Airline's Name; It's All About Alliances', *New York Times*.
- Shaw, S-L., Lu, F., Chen, J. and C. Zhou (2009), 'China's Airline Consolidation and its Effects on Domestic Airline Network and Competition', *Journal of Transport Geography*, vol. 17, pp. 293-305.
- Starkie, D. (2008), *Aviation Markets – Studies in Competition and Regulatory reform*, Ashgate, Farnham.
- Teichert, T., Shehu, E. and I. von Wartburg (2008), 'Customer Segmentation Revisited: The Case of the Airline Industry', *Transportation Research Part A*, vol. 42, pp. 227-242.
- Tiernan, S., Rhoades, D. and B. Waguespack (2008), 'Airline Alliance Service Quality Performance – An Analysis of US and EU Member Airlines', *Journal of Air Transport Management*, vol. 14, pp. 99-102.
- Tomová, A. and L. Ramajová (2014), 'Frequent Flyer Programs and Low-Cost Airlines: Ongoing Hybridisation?', *Procedia – Social and Behavioural Sciences*, vol. 110, pp. 787-795.
- Vaze, V. and C. Barnhart (2011), 'The Role of Airline Frequency Competition in Airport Congestion Pricing', *Transportation Research Record*, vol. 2266, pp 69-77

- Vives, X. (2009), *Competition Policy in the EU Fifty Years on from the Treaty of Rome*, Oxford University Press.
- Whalen, W. T. (2007), 'A Panel Data Analysis of Code-Sharing, Antitrust Immunity, and Open Skies Treaties in International Aviation Markets', *Rev Ind Organ*, vol. 30, pp. 39-61.
- Wit, J.G. and J. Zuidberg (2012), 'The Growth Limits of the Low Cost Carrier Model', *Journal of Air Transport Management*, vol. 21, pp. 17-23.
- WTO, Final Act Embodying the Result of the Uruguay Round of Multilateral Trade Negotiations, Annex 1B: General Agreement on Trade in Services (GATS), Annex on Air Transport Services, April 1994.
- Zhang, A., Hanaoka, S., Inamura, H. and T. Ishikura (2008), 'Low-Cost Carriers in Asia: De-Regulation, Regional Liberalisation and Secondary Airports', *Research in Transportation Economics*, vol. 24, pp. 36-50.