



BRIEFING PAPER

Number CBP 488, 12 June 2017

Airport slots

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Summary

This paper explains the slot allocation rules in the UK, across the EU and more widely around the world. It examines the effectiveness of the current regime in place in the UK, set within EU rules, and looks at longer term options for reform post-Brexit.

The right to take off and land was traditionally allocated on a first-come first-served basis, with scarcely any coordination between airlines and airport management. Demand for air travel has risen significantly in recent decades and, because of the various political, planning and environmental issues, it has not been matched by the supply of additional airport capacity.

Because of the increasing congestion at major airports, particularly those in London and the South East, access to their runways became increasingly difficult to attain. To deal with this, the notion of a 'slot' was developed to allocate scarce capacity to competing airlines. The accompanying principles were established internationally and formal regulations introduced in Europe in the early 1990s.

The EU Consolidated Slot Regulation has played a role in facilitating growth in the sector. There is a view that in light of ongoing demand the Regulation is unlikely to be fit for purpose in the coming decades and is in need of reform. But this has been difficult to come by – repeated attempts at revision since the beginning of the twenty-first century have been largely unsuccessful and the most recent proposals stalled in 2012.

The main criticism of the Regulation is that it does not allocate slots to the airlines which value them the most and undermines competition by favouring incumbency. The London airports have, at least partially, overcome this problem by enabling secondary trading for slots, which has proven effective at facilitating slot transfer to those airlines that value them the most. It remains to be seen, in light of the deal the UK obtains post-Brexit whether there is the ability or the appetite for further reform to the slot allocation system in the UK.

Information on other aviation-related matters can be found on the [Aviation Briefings Page](#) of the Parliament website.

1. Current slot allocation rules

1.1 Overview

An **airport slot** is defined as the permission “to use the full range of airport infrastructure (runway, terminal, apron, gates, etc.) necessary to operate an air service at an airport on a specific date and time for the purpose of landing or take-off”.¹

The **allocation of slots** between competing airlines (‘slot allocation’) is described as “a planning tool whose purpose is to ensure, where airport capacity is scarce, that available landing and take-off slots are used efficiently and distributed in an equitable, non-discriminatory and transparent way to allow for optimal use of airport capacity”.²

Slot allocation in the UK is governed by the EU Airport Slot Regulation (‘the Slot Regulation’),³ which came into force in 1993 and retains the principles of the International Air Transport Association (IATA) slot allocation process.⁴

Slot allocation is only regulated at ‘coordinated airports’⁵ which have insufficient capacity to meet actual or planned airline operations,⁶ with rules applying to both the maintenance of existing slots and to the allocation of any new or ‘recycled’ slots. At these airports, an independent national coordinator is appointed to carry out slot allocation. That coordinator in the UK is [Airport Coordination Limited](#) (ACL). Heathrow, Gatwick, Stansted, Manchester, London Luton and London City are the coordinated airports in the UK.⁷ It is important to note that the Civil Aviation Authority (CAA) and Department for Transport (DfT) maintain an arms-length relationship with ACL and have no direct involvement in the slot allocation process.

At coordinated airports, there is also a coordination committee composed of the carriers, the airport, the air traffic controller (usually NATS)⁸ and the coordinator itself:

The Committee has a role of advising on a number of airport capacity issues, especially runway capacity, including the

¹ [Council Regulation \(EEC\) No 95/93](#) of 18 January 1993 on common rules for the allocation of slots at Community airports

² European Parliamentary Research Service, [Airports in the EU – Challenges Ahead](#), June 2016, p14

³ [Regulation EEC 95/93](#) as amended by Regulation 894/2002/EC and 793/2004/EC; this regulation is relevant for European Economic Area, and so extends to cover Iceland, Liechtenstein and Norway

⁴ IATA, [Worldwide Scheduling Guidelines](#), 8th Edition, effective 1 January 2017

⁵ At the present time, there are about 90 airports in the EEA (plus Switzerland) administered under European rules. About two thirds of the airports are administered all the year round with the others on a seasonal basis

⁶ Under the regulations, there are three possible designation of EU airports: coordinated; schedules facilitated (i.e. a voluntary scheduling scheme); and undesignated. This designation is based on the level of congestion and the system for allocating time slots at other airports is based on the IATA system for non-EU airports

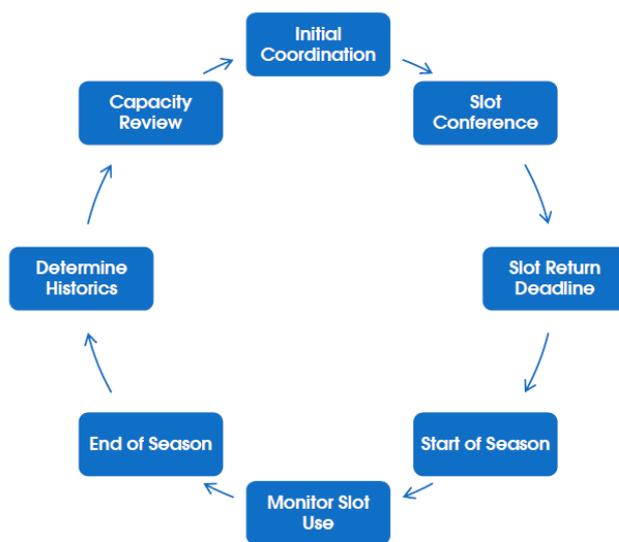
⁷ In the event that a new airport is shortlisted by the European Commission and subsequently designated by the Secretary of State as a coordinated airport, slots would have to be allocated in accordance with the EU Slot Regulation

⁸ For more info on NATS, see: HC Library briefing paper [SN1309](#)

coordination parameters to be used, ways to increase capacity, methods of monitoring the use of allocated slots, as well as on any serious problems encountered by new entrants at the airport in regard to their slots, and generally to mediate between the parties concerned on complaints concerning slot allocation.⁹

Slots are allocated by ACL, twice yearly, for the summer season and the winter season at coordinated airports. 'Grandfather rights' entitle an airline to continue using the same slot in the next scheduling period, provided that it has used that slot for at least 80% of the previous period. (This principle is also called the '80/20' or 'use it or lose it' rule).¹⁰

The graphic below shows the annual slot allocation cycle.¹¹



	Summer	Winter
Initial Coordination	October	May
Slot Conference	November	June
Slot Return Deadline	January	August
Monitor Slot Use	End March to End Oct	End Oct to End March
Determine Histories	September	April
Capacity Review	September	April

On occasion, it is deemed necessary for the 'use it or lose it' requirements of the Regulation to be suspended. For example, following the September 11 2001 terrorist attacks on the United States and the subsequent impact of those attacks on the airline industry;¹² the launch of the Iraq War and outbreak of SARS in 2003;¹³ and the global financial crisis in 2009.¹⁴

Access to slots

Once grandfathered slots are accounted for, the remaining slots are pooled and 'new entrant' airlines have priority access to 50% of these slots free of charge.¹⁵ An airline is considered a new entrant at an airport on a particular day if, upon allocation, it would hold fewer than five slots in total on that day or, for an intra-EU route with less than three competitors, hold fewer than five slots for that route on that

⁹ Guiomard, C. (2016) *Airport Slots: Can Regulation be Coordinated with Competition?*, DCU Business School, p4

¹⁰ Articles 8(1) and 8(2) of [Regulation 95/93](#)

¹¹ ACL, [ACL Slot Coordination – Presentation](#), September 2016

¹² Legislated for in Regulation [894/2002/EC](#)

¹³ Legislated for in Regulation [1554/2003/EC](#)

¹⁴ Legislated for in Regulation [545/2009/EC](#)

¹⁵ Article 10(6) of [Regulation 95/93](#)

day.¹⁶ An airline holding more than 5% of the total slots available on the day in question at a particular airport, or more than 4% of the total slots available on the day in question in an airport system of which that airport forms part, is not considered as a new entrant at that airport.

Secondary market

Even though there is conjecture about who has legal ownership of airport slots,¹⁷ it is possible for slots to be traded in a 'secondary market' and the High Court approved this in a ruling over a slot deal between British Airways and KLM in 1999.¹⁸ In theory, these are not financial trades, but rather an exchange of one slot for another. In practice, the exchange of slots is normally accompanied by a payment by the party acquiring the more valuable slot.¹⁹ Slots may also be transferred between an airline's different operations and following a takeover (although the competition authority, if involved, will normally take a close interest in the share of slots amongst airlines following a takeover).²⁰

According to the CAA, "the secondary market is an important way for airlines to increase their presence at airports such as Heathrow, given that the airport is effectively operating at full capacity and only a very small number of pool slots are available for allocation."²¹ For example, in 2016, only 22 slots were made available by the pool at Heathrow, with 224 slots traded in the secondary market.

While there is no uniform and consistent legislative framework for secondary trading across the EU,²² ACL oversees these trades, must confirm the feasibility of any trade, that it conforms to the Slot Regulation (e.g. new entrant slots can only be traded after two

¹⁶ Article 2 of [Regulation 95/93](#)

¹⁷ Although airlines treat slots as their possessions, there is little certainty about who is the legal owner. Airports can claim to have title - they, after all, own the runways and the terminals. Governments also have a claim, with the use of a nation's airspace normally regarded as a matter of sovereign right. Airlines argue that since they have put the effort and investment into buying aircraft and building up routes, and as slot allocation rules give them the right to continue using them, they should be entitled to recoup any increase in the value of their slots

¹⁸ In this case, Air UK (owned by KLM) ceased to serve the Heathrow-Guernsey route as from the end of the Winter season 97/98. It exchanged its historic Summer 1998 slots with slots from British Airways, which it then returned to the slot pool. The Guernsey Government brought judicial review proceedings in the English High Court against the Heathrow slot coordinator; see: de Wit, J. and Burghouwt, G. (2008), "[Slot allocation and use at hub airports, perspectives for secondary trading](#)", *European Journal of Transport and Infrastructure Research*, p151

¹⁹ Airports Commission, [Interim Report](#), December 2013, p123

²⁰ There was some controversy over the proposed sale by Lufthansa of BMI to International Airlines Group (IAG) – which owns British Airways – in early 2012. The EC agreed the takeover on 30 March subject to IAG releasing 14 pairs of slots at Heathrow, see: EC press notice, "[Commission approves acquisition of British Midlands \(bmi\) by IAG subject to conditions](#)", 30 March 2012

²¹ CAA, [Discussion paper on the regulatory treatment of issues associated with airport capacity expansion](#), CAP 1195, 2014, p84

²² In April 2008, the [European Commission clarified the EU position on secondary slot trading](#), previously thought not to be acceptable, by saying that EU legislation did not prohibit it. Thus the EU recognised the reality that such trading was taking place anyway and acknowledged that it brought certain advantages. Slot trading must be transparent and take place between willing buyers and willing sellers. Price disclosure is not required

equivalent seasons), and that it does not negatively affect airport operations.²³

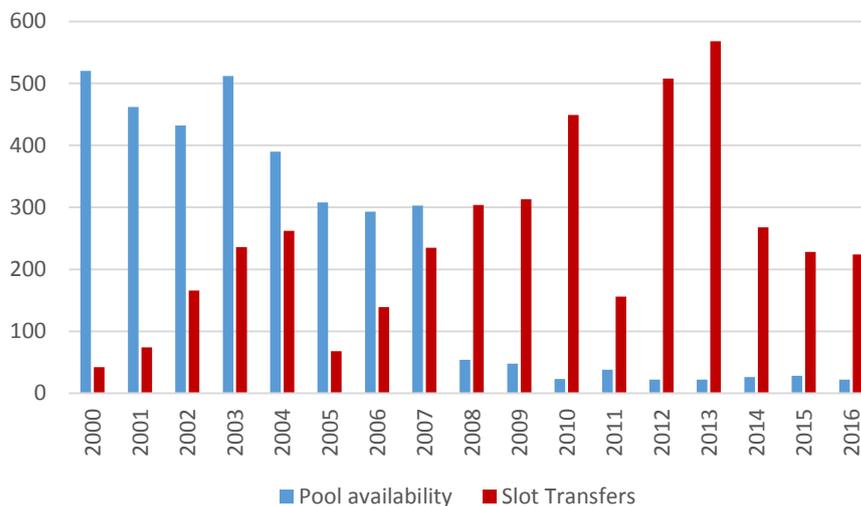
Information on slot movements

ACL has established a web portal, slottrade.aero, to help airlines wishing to buy, sell, lease and swap scarce airport slots.

It provides online access to information on completed slot trades, giving details of the number of weekly slots traded from Airline A to Airline B for each airport and season, updated as each trade occurs and facilitates the posting of slot trade offers and expressions of interest.

1.2 Heathrow Airport

Annual slot transfers at Heathrow Airport and shown in the table below:²⁴



The most valuable slots in the UK are at Heathrow Airport and capacity constraints have driven up the price that airlines are prepared to pay for slots on the secondary market.²⁵ The value varies considerably by time of day, with an early morning slot pair reported to be worth around £15 million, falling to £10 million at midday and £5 million in the evening.²⁶ Oman Air set a record by paying US\$75 million for a pair of take-off and landing slots at Heathrow in early 2016.²⁷ Scandinavian Airlines sold two slot pairs at Heathrow to American Airlines for US\$75 million in March 2017.²⁸ The transaction values that are reported in the mainstream and trade media are, according to CAPA, the Centre for Aviation, “only a small proportion of the total, with publicly reported

²³ The coordinator must also verify that the slots exchanged or transferred are not ones which have been reserved for a Public Service Obligation (PSO), and that slots from the pool allocated to new entrants are not exchanged or transferred for a period of two equivalent scheduling seasons

²⁴ Op cit., [ACL Slot Coordination – Presentation](#)

²⁵ Op cit., [Discussion paper on the regulatory treatment of issues associated with airport capacity expansion](#), p85

²⁶ CAPA, [Heathrow Airport's slot machine: hitting the jackpot again?](#), 8 May 2013

²⁷ “Oman breaks Heathrow record with deal for slots”, *The Times*, 14 February 2016

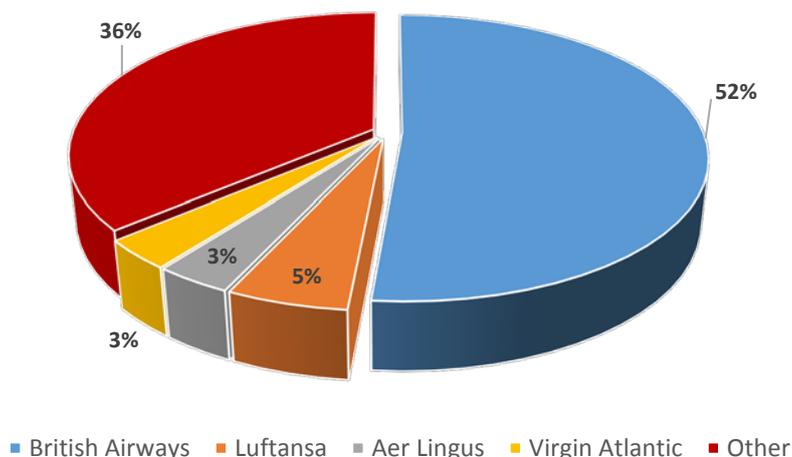
²⁸ “SAS sells more Heathrow slots for \$75 million”, *Business Traveller*, 30 March 2017

slot deals most likely to represent the more exciting, high value end of the market”.²⁹ CAPA adds that:

...the lack of any consistent reporting of prices paid in Heathrow slot trades makes it difficult, if not impossible, to establish reliable market prices. It is also compounded by the variety of commercial terms that may apply. For example, slots may be exchanged for other slots (whether the same number or not) at the same airport or even at another airport, for cash, as part of a sale and lease-back, between partners within an alliance or joint venture agreement, or to airlines in another alliance. The value of slots also varies according to the economic cycle.³⁰

British Airways (BA) is the biggest holder of slots at Heathrow, with 51.5% of the total for the summer 2017 schedule.³¹ BA has grown its slot portfolio over a number of years: in summer 2001, BA held 36% of slots and by summer 2012 it held 44.1%. BA’s weekly slot holding in the summer season grew by 16% over this period, while capacity-constrained Heathrow saw almost no growth in slots (less than 3%).³² BA managed to grow its holding mainly due to secondary slot trading.

The chart below shows peak week slot allocation at Heathrow for summer 2017:³³



1.3 Slot monitoring and enforcement

The EU Slot Regulation requires that each Member State introduce “effective, proportionate and dissuasive sanctions” for “repeated and intentional” air operations that are “significantly different” from the slot allocated for that movement and that cause “prejudice to airport or air traffic operations.”³⁴

²⁹ Ibid.

³⁰ Op cit., [Heathrow Airport's slot machine: hitting the jackpot again?](#)

³¹ ACL, *Summer 2017 – Start of Season Report*, 17 March 2017

³² Op cit., [Heathrow Airport's slot machine: hitting the jackpot again?](#)

³³ Op cit., *Summer 2017 – Start of Season Report*

³⁴ Article 14 of [Regulation 95/93](#)

Typical cases of slot misuse are late returns³⁵ and 'no shows', as well as new problematic patterns such as flights operated significantly and repeatedly off slot times ('off slot') and flights operated without having cleared slots ('go shows').³⁶ The effects of misuse can be significant:

Considering the asymptotic behaviour of delay when the demand-to-capacity ratio increases, it is reasonable to expect severe disruption on airport operations, especially due to 'off slot' and 'go shows' flights at congested airports. In effect, the experienced inefficiencies during initial allocation are further magnified by a severe slot misuse...³⁷

In July 2005 the DfT consulted with industry stakeholders on the best means of controlling the misuse of slots at the coordinated airports in the UK.³⁸ Following the consultation, the DfT concluded that a sanctions scheme, including financial sanctions, was necessary and that ACL, as the coordinator at the UK's coordinated airports, should administer the scheme. On 1 January 2007 the *Airport Slot Allocation Regulations 2006* ([SI 2006/2665](#)) came into effect. They gave ACL powers to deal with misuse of slots at the six UK coordinated airports, including by imposing fines, of up to £20,000. ACL was also given powers to impose fines against both schedules facilitated and the coordinated airports where requested schedule information is not properly provided.

The 2006 Regulations are supplemented by the [Misuse of Slots Enforcement Code](#), which sets out the processes which the coordinator must follow when exercising these powers.³⁹

Slot enforcement in the UK is considered to be relatively effective because sanctions are imposed directly by the coordinator, whereas in other EU Member States they are imposed by a separate authority.⁴⁰ Consequently, the UK has seen "off slot operations decrease by 73% and the number of operations without a slot decrease by 94% [between 2006 and 2016]".⁴¹

1.4 Non-EU Airports

Outside of the EU individual airlines must negotiate slots, using guidelines drawn up by IATA,⁴² at the airports to and from which they

³⁵ If air carriers decide that they do not need an allocated slot anymore they can return it at one of the so-called 'slot return dates' (31 January and 31 August). These dates act as the baseline for the calculation of the 80/20 rule

³⁶ For more information, see: ACL, [Guidance on Slot Allocation and Monitoring](#), May 2013

³⁷ Madas, M and Zografos, K. (2010) [Airport slot allocation: a time for change?](#) *Transport Policy* 17, p282

³⁸ DfT, [Consultation on the introduction of sanctions for misuse of airport slots](#), 14 July 2005

³⁹ ACL, [Slot Sanctions](#) [accessed 15 May 2017]; made under Regulation 18 of the 2006 Regulations

⁴⁰ Steer Davies Gleave for the EC, [Impact assessment of revisions to Regulation 95/93](#), March 2011, p4

⁴¹ Op cit., [ACL Slot Coordination – Presentation](#)

⁴² Op cit., [Worldwide Scheduling Guidelines](#)

have an agreement to fly. This is the traditional and widespread approach used outside the United States⁴³ and involves two stages:

- overall and worldwide schedule co-ordination at twice-yearly IATA meetings; and
- local coordination at individual airports usually through their own scheduling committees (all airlines operating at an airport are usually members of its scheduling committee).

The objective of the IATA conferences is to agree the slot allocations for the coming season⁴⁴ between airlines and coordinators for airports around the world. They are attended by airlines who submit schedule requests to coordinators which then produces a picture of unconstrained demand for the airport and for the coordinator.

The guiding rules that apply at these conferences are similar to those at EU airports – grandfather rights and the ‘use it or lose it’ principle apply. As does a priority for regular services – such that if there is competing demand, it will be allocated to the service that plans to use it most frequently.

Once the airport scheduling committee has allocated slots on the basis of these priorities, airlines can exchange slots among themselves provided they have broadly similar operating characteristics. Trading can also take place on an *ad hoc* basis after the conferences.

⁴³ The extent to which the US uses the IATA system is explained by the Federal Aviation Administration on its website, see: FAA, [Slot administration](#) [accessed 30 May 2017]

⁴⁴ Normally in June for the winter season and in November for a summer season

2. Effectiveness of the EU Slot Regulation

Research commissioned by the European Commission and published in 2011 found that: “many stakeholders consider that the [Slot] Regulation is working well and needed little if any change”.⁴⁵ One of the main arguments in favour of the current system is that it is relatively simple and inexpensive. Grandfather rights and the ‘use it or lose it’ rule create the advantage of schedule continuity in successive schedule seasons which can enable long-term strategic planning and operational stability.⁴⁶ It is thus argued that sacrificing efficiency in the short run is justified to reduce the cost of managing uncertainty in the long run.⁴⁷

That said, there have been three major consultancy studies of the effects of the EU slot allocation scheme, and on the merits and drawbacks of alternatives, in the context of discussions about moving the EU’s slot rules towards more market-based systems. These studies, conducted in 2004, 2006 and 2011,⁴⁸ concluded that although there was no single severe problem, there were deficiencies in the slot allocation system that prevent optimal use of scarce capacity at busy airports.⁴⁹

In a 2016 briefing paper, the European Parliamentary Research Service commented that “the current rules are deemed to be inadequate in view of current and future traffic, and the fact that the EU’s busiest airports are unlikely to see any major capacity or infrastructure upgrades”.⁵⁰ These deficiencies are discussed in broad terms in this section of the paper.

The reports also concluded that other market mechanisms – including secondary slot trading, higher runway charges, slot auctions or a combination of these – could lead to slots being reallocated more efficiently. These are discussed in section 3 of the paper.

2.1 Grandfather rights and new entrants

One of the main criticisms of the current slot allocation system is that it does not allocate capacity in the most efficient manner.⁵¹ Grandfather rights in particular are blamed for preventing the optimal use of the scarce capacity available at busy airports by effectively leaving capacity

⁴⁵ Op cit., [Impact assessment of revisions to Regulation 95/93](#), p123

⁴⁶ Op cit., [Slot allocation and use at hub airports, perspectives for secondary trading](#), p152

⁴⁷ Ranieri, A et. Al (2013), [Airport slot allocation: performance of the current system and options for reform](#), Conference Paper, p4

⁴⁸ NERA, [Study to Assess the Effects of Different Slot Allocation Schemes](#), 2004; Mott MacDonald, [Study on the Impact of the Introduction of Secondary Trading at Community Airports](#), 2006; and Op cit., [Impact assessment of revisions to Regulation 95/93](#)

⁴⁹ Op cit., [Impact assessment of revisions to Regulation 95/93](#), p2

⁵⁰ Op cit., [Airports in the EU – Challenges Ahead](#), p15

⁵¹ Op cit., [Slot allocation and use at hub airports, perspectives for secondary trading](#), p152

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unused. This is because there is little incentive for incumbents to release slots even if they cannot use them efficiently ('slot hoarding' or 'babysitting')⁵² for fear of rivals' entry.⁵³ Even at some airports at which demand for slots significantly exceeds supply, over 10% of slots allocated are not utilised.⁵⁴ Underutilisation also occurs through the use of a high proportion of small aircraft, limiting the number of passengers that can be transported within the constrained capacity. As Steer Davies Gleave told the EC in 2011:

The numbers of passengers that could be transported within the constrained airport capacity could be increased, and fares reduced, if larger aircraft were used, but there is little incentive for the incumbent airlines to give up slots to carriers who could use them more effectively.⁵⁵

Efficiency failings also occur because airports are not permitted to charge market-clearing prices for scarce runway capacity. Airlines set fares to clear the market. An academic paper written in 2013 stated:

Because [the slot allocation process] makes no explicit consideration of the value that airlines attach to a slot, services may not be allocated to those with the greatest willingness to pay and therefore slots may be operated inefficiently by airlines who do not make the most efficient use of the available capacity.⁵⁶

In other words, airlines that value slots at peak times and would be prepared to pay for them, are not being given the opportunity to do so, at least through the primary allocation process.⁵⁷ Consequently an airline with a legacy position at a particular airport may be paying less than what the market would have otherwise priced the slot at, thus earning 'economic rents'.

Despite significant competition in the European air transport market, including from low cost airlines such as easyJet and Ryanair, another major criticism is that grandfather rights entrench incumbency and do not facilitate entry into the market of new players.⁵⁸ The turnover of slots is low at many congested airports⁵⁹ and the result is that pool slots are often only available for less commercially attractive flight times which, in turn, has a negative impact on the overall competitiveness of the market.⁶⁰ Additionally, under the current rules, airlines quickly fall

⁵² That is, poorly using the slots by operating low load factors and/or small aircraft at a highly congested airport

⁵³ Op cit., [An incentive pricing mechanism for efficient airport slot allocation in Europe](#), p27; and Kociubinski, J. (2014), "[Regulatory Challenges of Airport Slot Allocation in the European Union](#)", *Wroclaw Review of Law, Administration and Economics*, p35

⁵⁴ Op cit., [Impact assessment of revisions to Regulation 95/93](#), p5

⁵⁵ Ibid., p2

⁵⁶ Op cit., [Airport slot allocation: performance of the current system and options for reform](#), p2

⁵⁷ Pertuiset, T, and Santos, G. (2014), "[Primary auction of slots at European airports](#)", *Research in Transportation Economics* 45, p67

⁵⁸ Castelli et. al (2010), [Airport slot allocation in Europe: economic efficiency and fairness](#), University of Venice, Working Paper n.197/2010, p2

⁵⁹ Op cit., [Impact assessment of revisions to Regulation 95/93](#), p123 ; only Gatwick has seen significant changes in slot holdings in the last few years, other than changes caused by the takeover of one airline by another

⁶⁰ Op cit., [Airports in the EU – Challenges Ahead](#), p15

outside the definition of ‘new entrant’, which makes it is very difficult for prospective competitors to challenge the dominant position of the traditional incumbent at the most congested airports and obstructs the growth of efficient competition.⁶¹ Much of the literature identify ‘mid-sized incumbents’ to be a stronger competitive threat to the dominant carrier than smaller ‘new entrants’. Steer Davies Gleave concluded that:

...by encouraging allocation of small numbers of slots to a large number of carriers, the new entrant rule has resulted in fragmentation of the schedule and has not been successful at promoting competition. Many slots allocated to new entrants are returned to the pool after just one season.⁶²

Of the slots that become newly available, 50% are allocated to new entrants. When an airline acquires another, it also takes over slots previously held by the acquired airline; at ‘capacity constrained’ airports these slots are valuable. Placing constraints on incumbent airlines’ access to the slot pool may create a perverse effect of encouraging, possibly inefficient, merger and acquisition activity. Although competition authorities might require divestiture of some of the acquired slots, the others are available for use by the acquiring airline to develop its own route portfolio. Further, this sort of mergers and acquisitions activity:

... might not have taken place absent the slot rule. And it has the effect of encouraging excessive consolidation in the industry and diminishing possible long term competitive outcomes should large-scale expansion of capacity subsequently occur. This is quite the opposite from what those administering the slot rule intend.⁶³

2.2 Incentives for investment

It may well be that building new runways and airport infrastructure is the obvious answer to capacity shortfalls – though there are reasons why this may not be a workable option in many cases.⁶⁴ However, there is an argument that the slot allocation rules themselves do not create the right incentives for investment and that they “throw... further grit in the wheels of hub airport expansion”.⁶⁵ This is because:

...the slot rule (which allocates 50% of access to new entrants) reduces the stake incumbent airlines would otherwise have in expanding their hubs. Not only will incumbents lose (depending on the size of the expansion) some or all of the scarcity rents that they currently expropriate, but they are restricted by the slot Regulation in the initial quantity of the expanded capacity that they are able to lay claim to [which would potentially impact] on market share.⁶⁶

There are various options going forward. For example:

The EU could alter the slot regulation so that the current requirements were automatically suspended for a period following

⁶¹ Op cit., [Impact assessment of revisions to Regulation 95/93](#), p3

⁶² Ibid., p123

⁶³ Gillen, D, and Starkie, D. (2015), [Congested hubs. the EU Slot Regulation and Incentives to Invest](#), p.8

⁶⁴ [COM\(2011\) 827 final](#), 1 December 2011, p3, para 8

⁶⁵ Op cit., [Congested hubs, the EU Slot Regulation and Incentives to Invest](#), p17

⁶⁶ Ibid., p9

major expansion of capacity. This at least, would put incumbent airlines on an equal footing with others when claiming additional slots. Alternatively, national finance ministers could ramp-up taxes on the scarcity rents (in the UK case, on APD in a selective manner) with the object of extracting the surplus returns. Because, in these circumstances, incumbents would no-longer have rents to protect it could change their incentives, and thus outlook, to one that was more pro-expansionist. But it would be a demanding policy because it would need the size of the rents to be defined and it would be a politically challenging policy for a Finance Minister to pursue in view of the lobbying power of the airline industry.⁶⁷

It is widely accepted that the administrative allocation of new slots from additional capacity is not particularly efficient and should be allocated using market prices which “will give an incentive to use expensive infrastructure efficiently as well as indicating when capacity needs to be expanded”.⁶⁸ This point was made by Steer Davies Gleave in their 2011 assessment of the slot regime. Consequently, they recommended that when a large pool of slots becomes available, slots be allocated via auctions:

Where capacity is expanded at a congested airport, or in the relatively rare circumstances where a large volume of pool slots becomes available at a very congested airport (for example if an incumbent carrier becomes insolvent), an administrative allocation is unlikely to lead to an economically efficient allocation of the capacity. The results of the administrative allocation could be improved if the new entrant rule was revised, but nonetheless an auction of the new capacity should lead to a more efficient allocation.⁶⁹

A new slot regime may offer a number of potential opportunities within the UK context. For example, the Chief Executive of the CAA, Andrew Haines, has suggested that the EU slot rules, which require 50% of new slots to be allocated to new competitors at a particular airport, did not foresee major new capacity being built (e.g. new runways) at a highly-congested airport like Heathrow and the financing challenge of restricting such a large proportion of capacity to new entrants. If the UK were able to establish its own slot regime that would permit auctioning of new slots by either the airport operator or the Government, this could offer a solution to the challenge of financing new airport development.⁷⁰

In the context of an expanded Heathrow Airport, there is an expectation that the new runway will create 356 new daily slot pairs from expansion. Steer Davies Gleave found that auctioning these slots at Heathrow would be a more favourable method of slot allocation than the current administrative process:

The analysis undertaken for this study indicates that, if mixed mode operation was introduced at Heathrow (allowing an increase in slot capacity of 10%), the number of passengers

⁶⁷ Op cit., [Congested hubs, the EU Slot Regulation and Incentives to Invest](#), p18

⁶⁸ Op cit., [Airport Slots: Can Regulation be Coordinated with Competition?](#), p19

⁶⁹ Op cit., [Impact assessment of revisions to Regulation 95/93](#), p370

⁷⁰ [The future of open skies post-Brexit](#), GAD Speech by Andrew Haines, Chief Executive of the CAA, 1 December 2016

transported would increase by 10.6% if the new slots were auctioned, compared to 8.4% if the slots were allocated through the current administrative process and 8.7% if the slots were allocated by an administrative process but with revisions to the new entrant rule. Therefore the economic and social benefits of the expansion would be significantly greater if slots could be auctioned.⁷¹

It subsequently recommended that that:

... the Regulation be amended to allow newly created slots to be allocated by auctions. As an auction for new capacity would only be beneficial under certain circumstances (for example if it was decided to expand a congested airport such as Heathrow), the decision to undertake an auction should be a matter for the Member State concerned. The appropriate design for the auction would also depend on the circumstances and therefore should be decided by the State concerned. The Regulation could also allow an auction in the rare cases when large volumes of pool slots become available.⁷²

⁷¹ Op cit., [Impact assessment of revisions to Regulation 95/93](#), p347

⁷² Ibid., p347

3. Options for slot allocation reform

Different slot allocation mechanisms have been proposed, for a number of years, with the aim of better aligning economic incentives so as to deliver more efficient use of available airport capacity. These include the primary allocation of slots through auctioning, secondary trading and congestion pricing.⁷³ It is widely accepted that “market mechanisms would improve allocative efficiency” by bringing appropriate incentives to bear to ensure that slots are allocated to whomever values them the most.⁷⁴

Despite the theoretical potential, the practicalities and politics of change have prevented any widespread use of such mechanisms to date. For example, the Airports Commission, which looked at the options for airports expansion in the South East of England between 2012 and 2015, considered whether changes to create a more market-based slots regime could enable better use of existing airport capacity. It concluded that “there may be a case for a review of slot allocation mechanisms in the longer term [but there is no] prospect of change in the short or medium term”.⁷⁵

3.1 Primary auctions

Auctioning (i.e. on the basis of the best price offer) has been regularly proposed as a primary slot allocation mechanism. This would potentially involve the one-off suspension of all grandfather rights and the new entrant rule, the returning of all slots into the pool and their subsequent allocation through an auction.⁷⁶

Auctioning could, in theory, improve allocation efficiency and ensure that slots were used more effectively. For example, auctions may ensure that slots are assigned to carriers with the highest willingness to pay, which are prospectively the ones that will be able to generate the highest value from managing the assets.⁷⁷

Auctioning has a number of advantages over grandfathering:

... it reduces barriers to entry, increases regulation stringency, prevents the possibility of wind-fall profits, and generates revenues that can be recycled for environmental purposes and/or airport expansion/ improvements, amongst other uses.⁷⁸

⁷³ Op cit., [Airport slot allocation: performance of the current system and options for reform](#), p2

⁷⁴ Op cit., [Airport slot allocation: a time for change?](#), p282 and op cit., [Airport slot allocation in Europe: economic efficiency and fairness](#), p2

⁷⁵ Airports Commission, [Interim Report, Appendix 1: Assessment of Short- and Medium-Term Options](#), December 2013, p23

⁷⁶ Op cit., [Slot allocation and use at hub airports, perspectives for secondary trading](#), p153

⁷⁷ Avenali et. al. (2015), “[An incentive pricing mechanism for efficient airport slot allocation in Europe](#)”, *Journal of Air Transport Management* 42, p27

⁷⁸ Op cit., [Primary auction of slots at European airports](#), p.67

Airlines would likely oppose the idea of auctioning because it would eat into their profits to the point where their business might become unsustainable.⁷⁹ A 203 academic paper further explains:

Incumbent airlines, for example, oppose slot auctions because they would reduce the slot rents they are currently obtaining thanks to grandfather rights. Airlines also oppose congestion pricing, as it would lower their profits. Generally speaking, mechanisms that could in principle have the potential of increasing social welfare may raise distributional issues if they don't include appropriate compensation mechanisms. An example is the question of who receives the revenues in the case of slot auctioning.⁸⁰

If slot auctions were established, it may also be more difficult for small carriers with lower purchasing power to get slots at the busiest airports leading to a risk that dominant carriers would collect the majority of prominent slots. Further, Steer Davies Gleave said in 2011 that: "if an incumbent was unwilling to sell slots to competitors it might also be willing to buy them in an auction, if this prevented competitors from acquiring them".⁸¹

One of the other arguments against the use of auctions is that even if economic theory indicates that auctions should be a more effective way of achieving allocative efficiency, there is considerable concern about the cost of designing and operating an auction system:

Withdrawal of grandfather rights would generate significant practical problems, primarily due to the complexity of auctioning a large number of heterogeneous assets (slots), the need to coordinate auctions at multiple airports which would be interdependent, and the instability and fragmentation caused to airline schedules.

Further, even if auctions were used to allocate slots, a secondary slot market might well still be necessary to ensure that slot allocation remained efficient by "dynamically reallocating slots to their highest valued uses". Mott McDonald concluded in a 2006 report for the EC that:

Secondary trading should be significantly easier and cheaper to operate than auctions, so many authors argue that the most effective measure for the efficient allocation of scarce capacity would be the extended use of secondary slot markets. These authors argue that, as long as slots could be traded in a secondary market and in the absence of market imperfections, the initial allocation of slots should make no difference in terms of efficiency.⁸²

One idea developed by NERA Economic Consulting in 2004 was to auction only 10% of slots per year, with all slots being allocated in a rolling programme of ten-yearly auctions. However, it concluded that:

⁷⁹ See, e.g. IATA, [The dangers of slot auctions](#), 8 March 2017

⁸⁰ Op cit., [Airport slot allocation: performance of the current system and options for reform](#), p4

⁸¹ Op cit., [Impact assessment of revisions to Regulation 95/93](#), p9

⁸² Op cit., [Study on the Impact of the Introduction of Secondary Trading at Community Airports](#)

...auctions of 10% of slots, combined with secondary trading could, in theory, achieve the most efficient allocation of slots possible. But in practice, many of the auctions are likely to be so complex, both for auction organisers and for airlines bidding for slots, that it is probably unlikely that an efficient allocation of slots will emerge from this process.⁸³

Further to this, while the general logic behind the auction mechanism is simple, the choice of particular method is not:

One must also take into account the specifics of airline operations in respect of schedule planning. In a nutshell, it is important for many carriers to secure specific slots which create synergy in the integration of the arrival and departures network. In the case of the simplest method of auctioning, which could be described as 'one slot-one auction', achieving this synergy would be next to impossible and would result in the system effectively dismantling all hub-and-spoke operations, while depriving the market of the predictability and continuity of the current grandfathering system.⁸⁴

Despite the extensive discussion around slot auctions, it seems far from being actually implemented, either inside or outside the EU because of the "tremendous practical issues" involved.⁸⁵ It should be stressed also that the auctioning approach would be incompatible with the current IATA guidelines in which the continuity of airline schedules is a key issue.⁸⁶

3.2 Secondary trading

Secondary, monetised slot trading is widely considered to be an "effective means to exert market pressure to alleviate inefficient slot utilisation" and increase economic efficiency in the sense that the slots would go to those airlines that value them the most.⁸⁷ A 2008 academic article concluded that:

The efficient use of airport capacity will increasingly improve, be it at a slower pace than in a one-off auction. This increased efficiency is expected to be reflected in a switch from short-haul to long-haul services, a switch from smaller to larger aircraft and correspondingly an increase in the average number of passengers per slot as well as a marginally improved utilisation of the number of available slots with less slots remaining in the slots pool.⁸⁸

⁸³ Op cit., [Study to Assess the Effects of Different Slot Allocation Schemes](#), p.204

⁸⁴ Kociubinski (2014), "[Regulatory Challenges of Airport Slot Allocation in the European Union](#)", *Wroclaw Review*, p37; the various auction methods are beyond the scope of this paper but for a brief discussion see pp37-41

⁸⁵ Op cit., [Airport Slots: Can Regulation be Coordinated with Competition?](#), p20 and op cit., [An incentive pricing mechanism for efficient airport slot allocation in Europe](#), p28

⁸⁶ Op cit., [The dangers of slot auctions](#)

⁸⁷ CAA, [The Implementation of Secondary Slot Trading](#), 2001, p12; and op cit., [Primary auction of slots at European airports](#), p67

⁸⁸ Op cit., [Slot allocation and use at hub airports. perspectives for secondary trading](#), p154

From a theoretical perspective this approach enables parties to acquire only the slots of greatest value to them, and the ultimate result would be efficient regardless of the initial allocation.⁸⁹

While the underlying economic rationale behind the secondary trading system is valid, certain sector-specific factors may reduce the practical feasibility of this system.⁹⁰ Specifically, several factors limit the contestability of the secondary slot market:

- airlines may keep slots to dampen competition, in order not to cede prominent slots to rivals;
- potential buyers and sellers do not meet each other due to lack of information and transparency;
- slots have the option value of giving airlines flexibility relative to future network developments; and
- airlines may not trade because of uncertainty about the stability of the slot management regime.⁹¹

While secondary trading aims at easing market entry, market concentration could rise if dominant carriers were to acquire the bulk of slots, which could give rise to competition concerns.⁹² A 2008 article explained:

The position of the dominant carrier as a net slot buyer at a congested airport will result in a further slot concentration. This may result in an efficient capacity use providing new travel opportunities, if the dominant carrier launches new destinations and increases frequencies on existing routes. However, increased airport dominance also gives greater scope for anticompetitive behaviour of the dominant carrier. The carrier may engage for example in predatory bidding for slots, pre-empting competition in downstream origin-destination markets and pursuing discriminatory practices among potential slot buyers.⁹³

Evidence from the UK shows that trading has had mixed effects. It has helped the dominant carrier at Heathrow (British Airways) to increase its share of slots, but also enabled some other strong carriers (e.g. Virgin Atlantic) to emerge.⁹⁴ In a 2009 analysis of slot trades, ACL found that slot trading had a significantly positive impact on the way in which slots were used:

Compared to its use before the trade, the average slot in a sample of Heathrow slot trades saw very large increases in the average number of seats per aircraft deployed, the average sector length and the average number of ASK per slot.⁹⁵

⁸⁹ Op cit., [Study on the Impact of the Introduction of Secondary Trading at Community Airports](#)

⁹⁰ Op cit., [Regulatory Challenges of Airport Slot Allocation in the European Union](#), p42

⁹¹ Op cit., [An incentive pricing mechanism for efficient airport slot allocation in Europe](#), p33

⁹² Ibid., p33

⁹³ Op cit., [Slot allocation and use at hub airports, perspectives for secondary trading](#), p155

⁹⁴ Op cit., [Impact assessment of revisions to Regulation 95/93](#), pp84-103

⁹⁵ Op cit., [Heathrow Airport's slot machine: hitting the jackpot again?](#)

Steer Davies Gleave later came to a similar conclusion:

The analysis also shows that secondary trading at the London airports has been successful in improving capacity utilisation, increasing the mobility of slots between airlines and allowing new entry on some (particularly long haul) routes. Secondary trading has not had clear negative impacts...⁹⁶

Similar mixed results have been observed for secondary trading of slots at congested airports in the US.⁹⁷

That said, the 2011 Steer Davies Gleave report stated that secondary slot trading could produce substantial net benefits – more than all the other possible measures taken together. The latest estimates indicate that the measures in the recast Slot Allocation Regulation (see section 4, below) could be worth €5 billion to the European economy, create 62,000 more jobs over the period between 2012-25, and would allow the airport system to handle 24 million more passengers a year by 2025.⁹⁸

To date, secondary slot trading in the EU has occurred almost exclusively in the UK (especially at Heathrow and Gatwick).⁹⁹ There is still little evidence of secondary trading occurring at other EU airports but it is not known whether this is due to a lack of transparency.¹⁰⁰

3.3 Congestion pricing

Congestion pricing is a system for charging users of goods that are subject to congestion. Airport runways are a textbook example and would involve increasing airport charges at peak times while reducing them in periods of low demand. Charges aimed at flattening demand during the busiest hours and increasing it during less popular hours would “allow for better control of the traffic flow within an airport system”.¹⁰¹

Essentially, passengers consider peak-hour flights as high-quality products and off-peak flights as low-quality products. So in theory, passengers should eventually respond to higher peak pricing.¹⁰²

According to this line of reasoning:

... such a system will ensure that the prices of air services will reflect the commercial value of the slots they are associated with, in turn guaranteeing efficient usage of slots.¹⁰³

The main shortcoming of this system lies in the fact that competitive equilibrium of prices only exists when slots are substitutes for all airlines.

⁹⁶ Op cit., [Impact assessment of revisions to Regulation 95/93](#), p124

⁹⁷ Fukui, H. (2010), “[An empirical analysis of slot trading in the Unites States](#)”, *Transportation Research Part B* 44, pp330-57

⁹⁸ European Commission, [Slots](#), [accessed 22 May 2017]

⁹⁹ Fukui, H. (2014), “[Effect of slot trading on route-level competition: Evidence from experience in the UK](#)”, *Transportation Research Part A* 69, p26

¹⁰⁰ Op cit., [Impact assessment of revisions to Regulation 95/93](#), p124

¹⁰¹ Op cit., [Regulatory Challenges of Airport Slot Allocation in the European Union](#), p44

¹⁰² Nibbering, P. (2009), [Managing Airport Congestion - the Effects of Runway Peak Pricing](#), 41 Airlines 1

¹⁰³ Op cit., [Regulatory Challenges of Airport Slot Allocation in the European Union](#), p45

In real-world conditions, certain combinations of slots are complementary for some airlines (especially hub-and-spoke operators) but substitutes for others. It is also unrealistic that airport management or regulators will have adequate information in each reference period to compute market clearing prices.¹⁰⁴ Because of this, the system is prone to two potential problems:

- if the price threshold is set at an inadequate level (too low), it will fail to deliver the expected result of levelling demand between peak and off-peak; or
- if congestion charges are set at excessive levels, in extreme cases carriers could withdraw from a given airport.

¹⁰⁴ Ibid., p45

4. Reform of the EU Slot Regulation

The **EU Slot Regulation has been subject to a number of reviews and revisions over the years. The most recent proposals for reform are stalled.**

In June 2001 the European Commission (EC) published a proposal for a limited revision of the Slot Regulation.¹⁰⁵ The resulting 2004 Regulation made extensive technical changes, but no significant amendment to the slot allocation process: the most notable consequence was the introduction of sanctions for the misuse of airport slots (see section 1.3, above).¹⁰⁶ The Commission promised a more radical review of the Slot Regulation, but after rounds of consultation between 2007 and 2009, all that was published was a consolidated text.¹⁰⁷

Following a consultation, changes to the regulation were proposed in December 2011 as part of the European Commission's 'Better Airports Package'.¹⁰⁸ This followed research carried out for the Commission by Steer Davies Gleave, which concluded that the allocation system prevents optimal use of the scarce capacity at busy airports (see section 2, above). As a result, the EC proposed four main changes:

- **Introduction of secondary trading for slots and increased competition:** the proposal expressly allowed, through regulation, airlines to buy and sell slots – though not through an official market. It also proposed broadening the definition of 'new entrant', to help facilitate the growth of sustainable competitors and reduce the schedule fragmentation that occurs when slots are allocated to a larger number of airlines unable to translate these slots into a viable alternative to dominant carriers;
- **Strengthened transparency of the slot allocation process and the independence of slot coordinators:**¹⁰⁹ this proposal could have eventually lead to the creation of a European coordinator responsible for slot allocation at all EU airports;
- **Amendments to the '80-20' rule on grandfather rights:** in order for airlines to be granted priority for the allocation of a given slot in the next corresponding scheduling season, they would need to have used at least 85% of the allocated series of

¹⁰⁵ [COM\(2001\) 335 final](#), 20 June 2001

¹⁰⁶ Regulation (EC) No [793/2004](#)

¹⁰⁷ Regulation (EC) No [545/2009](#)

¹⁰⁸ See: Steer Davies Gleave for the EC, [Impact assessment of revisions to Regulation 95/93: Results of stakeholder consultation](#), March 2011; [COM\(2011\) 827 final](#), 1 December 2011; and EC press notice, "["Better Airports" Package Launched](#)", 1 December 2011

¹⁰⁹ As an example, in Spain the coordination is undertaken and fully funded by AENA, the national airport operator and air navigation services provider

slots (instead of 80%). In addition, the minimum series length¹¹⁰ (i.e. the minimum number of weekly slots required for priority allocation for the following corresponding season) would rise from 5 to 15 for the summer season and to 10 for the winter season. It would also authorise airports to use an airport charge system to dissuade air carriers from belatedly returning slots to the pool;¹¹¹ and

- **Integrating slot allocation with the reform of the European air traffic management system:**¹¹² the proposal would associate the European Network Manager with the slot allocation process and allow, for example, for the network manager to request capacity analyses at a particular airport on which the Commission could make recommendations to the relevant Member State.

The Commons European Scrutiny Committee looked at these proposals in January 2012, recounting the UK Government's general support for "the underlying purpose of the proposed Regulation — to allow airlines fair and equal access to airports across the EU through independent and transparent slot allocation procedures". The Government also supported the proposals on effectiveness, transparency and market-based approaches to slot allocation. However, it had concerns about any erosion of grandfather rights "that could impact negatively on airline investment decisions" and about "increased intervention by the Commission in both the determination of an airport's designation status and the administration of slot allocation once an airport has been designated". Consequently the Committee recommended a debate on the issues raised.¹¹³ The debate took place on 19 March 2012.¹¹⁴

The European Council reported on the proposed Recast in October 2012, and the European Parliament adopted a legislative resolution after significant amendment in December 2012 (the [Provisional Recast](#)).¹¹⁵ However, there was no subsequent agreement at the EU Transport Council. One commentator has said that agreement has been difficult because:

The drive for these repeated reviews has come from EU commission staff, conscious of the inefficiencies of the current slot regime. Airports, ATC providers and incumbent airlines, on the other hand, seem unwilling to change the status quo. Thus, there is little progress on a reform of the EU Slot Regulations, strongly indicating the difficulty of amending rules that create concentrated constituencies of winners even where there are very large numbers of unorganised losers¹¹⁶

¹¹⁰ Slots are allocated in series i.e. sequences of at least five slots at the same time on the same day of the week, distributed regularly in the same scheduling season, e.g. a series of 09:15 departure slots over at least five consecutive Mondays.

¹¹¹ [COM\(2011\) 827 final](#), 1 December 2011, p7-8

¹¹² i.e. Single European Sky; for more information on this see HC Library briefing paper [CBP 7889](#)

¹¹³ ESC, [Fifty-third report of session 2010-12](#), HC 428-xlvii, 6 February 2012, section 1

¹¹⁴ [EC A Deb 19 March 2012, cc3-14](#)

¹¹⁵ [COM\(2011\) 827 final/2](#), 21 June 2012

¹¹⁶ Op cit., [Airport Slots: Can Regulation be Coordinated with Competition?](#), p8

According to the CAA it is not clear whether or when there will be any progress on this matter. It has speculated that:

If they do progress, the discussions that have taken place so far suggest that the Slot Regulation will not change radically, and that the key principles of allocation as they operate in the UK are likely to remain.¹¹⁷

¹¹⁷ Op cit., [*Discussion paper on the regulatory treatment of issues associated with airport capacity expansion*](#), p85

5. UK slot allocation post-Brexit

There are ongoing questions as to whether the domestic slots regime “should be changed, either to ensure that capacity within the current system is managed in the national interest, or to ensure that any new capacity added increases the UK’s connections to the most economically important markets”.¹¹⁸ Unilateral changes to the slot allocation regime would currently constitute a breach of the UK’s EU Treaty obligations. However, IAG Chief Executive Willie Walsh has said that he expects “more flexibility” in the UK’s slot allocation rules following Brexit.¹¹⁹

It is as yet unclear what the overall agreement with the EU will look like as regards aviation post-Brexit, and there are a number of obligations which the UK might adopt which would mean that options to reform (perhaps further marketise via auctions) slot allocation could be limited.¹²⁰ If the UK were to obtain some sort of European Common Aviation Area (ECAA) membership, it may well mean abiding by EU slot allocation rules and acceptance of much if not all EU aviation law under the jurisdiction of the European courts.¹²¹

If there is no substantive agreement with the EU which involves, for example, some sort of membership of the ECAA, the UK would revert to the IATA worldwide scheduling guidelines (see section 1).

In the light of current uncertainty, KPMG has said that: “airlines that plan to fly to congested airports may wish to examine alternative options for the acquisition of slots, such as purchase of airline operations.”¹²²

¹¹⁸ Op cit., [Interim Report](#), p123

¹¹⁹ “[BA owner ‘doubts’ Heathrow can build runway within budget](#)”, *The Guardian*, 28 October 2016

¹²⁰ For more information on the possible options for UK aviation post-Brexit see section 3 of HC Library briefing paper [CBP 7633](#)

¹²¹ “[Will Brexit Complicate landing rights for UK flights?](#)”, *Financial Times*, 12 February 2017

¹²² KPMG, [Brexit: implications for airlines](#), November 2016, p12

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