Consumers and Markets Group

Economic regulation of capacity expansion at Heathrow: policy update and consultation

CAP 1610

Published by the Civil Aviation Authority, 2017

Civil Aviation Authority,
Aviation House,
Gatwick Airport South,
West Sussex,
RH6 0YR.

First published December 2017

Enquiries regarding the content of this publication should be addressed to: stephen.gifford@caa.co.uk

The latest version of this document is available in electronic format at www.caa.co.uk

Contents

About this document

This document follows on from the June 2017 Consultation on the core elements of the regulatory framework to support capacity expansion at Heathrow. It confirms our approach in respect of key elements of the regulatory framework for Heathrow Airport Limited ("HAL") and discusses in more detail alternative delivery mechanisms, the cost of capital, financeability, financial resilience, the regulatory treatment of early construction costs and the further extension of the existing "Q6" price control.

Views invited

We welcome views on all the issues raised in this document and, in particular, the issues set out in the Executive Summary and those highlighted in chapters 1 to 6.

Please e-mail responses to economicregulation@caa.co.uk by no later than 2nd March 2018. We cannot commit to take into account representations received after this date.

We expect to publish the responses we receive on our website as soon as practicable after the period for representations expires. Any material that is regarded as confidential should be clearly marked as such and included in a separate annex. Please note that we have powers and duties with respect to information under section 59 of the Civil Aviation Act 2012 and the Freedom of Information Act 2000.

If you would like to discuss any aspect of this document, please contact Stephen Gifford (stephen.gifford@caa.co.uk).

Executive summary

Introduction

1. In October 2016, the Government announced that its preferred option for the expansion of airport capacity in the south east of England was the Heathrow north west runway. The CAA has consistently stated that additional runway capacity in the south east of England will benefit air passengers and cargo owners. More aviation capacity is required to prevent future consumers[1] experiencing higher airfares, reduced choice and lower service quality.

2. In January 2017, we issued a consultation on our priorities and timetable for developing the framework for economic regulation for capacity expansion at Heathrow. This stressed the importance of HAL delivering capacity expansion in a way that is timely (i.e. as soon as practicable, but allowing time for proper consultation with airlines and other stakeholders), affordable and financeable – so as best to protect the interests of consumers.

3. Our June 2017 Consultation[2] covered our initial thinking on core elements of the regulatory framework for HAL. In developing this regulatory framework, we are seeking to facilitate capacity expansion at Heathrow in a way that will best protect the interests of consumers. This consultation deals with the views of respondents to the June 2017 Consultation and updates our thinking in respect of a number of important areas including:

   - our approach to alternative delivery arrangements;
   - the cost of capital (including a summary of work by PwC that we commissioned to provide an early and preliminary range for HAL's cost of capital);
   - financeability;

---

1 In this consultation, the terms "consumers" and "users" are used interchangeably. See Appendix A

2 See CAP 1541 Consultation on the core elements of the regulatory framework to support capacity expansion at Heathrow www.caa.co.uk/CAP1541.

- financial resilience;
- the regulatory treatment of early construction costs; and
- further extension to the Q6 price control (so the regulatory framework better aligns with the overall timetable for capacity expansion).

4. This consultation sits alongside our work in monitoring and encouraging effective engagement between HAL and airlines on the development of plans for capacity expansion at Heathrow. The intention is to ensure that airlines have the opportunity to influence HAL's overall scheme design so that it is fit for purpose (including properly protecting consumers), efficient and affordable. In accordance with the terms of reference established under section 16 of the Civil Aviation Act 1982, we report regularly to the Secretary of State for Transport on these matters. Since the June 2017 Consultation, we have published two more progress updates on engagement between HAL and the airlines.[3] These have shown that this process has been progressing well in a number of areas, but much work remains to be done in the future to secure that capacity expansion is completed in a way that is timely, affordable and financeable. This will include HAL making substantial further progress, as soon as is reasonably practicable, in producing forecasts of the efficient level of the overall costs of capacity expansion that are reliable and robust.

5. As well as establishing a strong basis for our next price control review for HAL, our current work on the overall regulatory framework supports our Section 16 reporting by ensuring that we can take an early view on overall scheme affordability and financeability, which will be key factors in determining whether capacity expansion at Heathrow will be successful. As the Government's procedure for designating the airports National Policy Statement ("NPS") is now (subject to consultation and Parliamentary procedure) planned to be completed in 2018, our final report to the Secretary of State will now be delivered in April 2018.

[3] Our work in this area is referred to in this consultation by reference to "Section 16". The terms of reference for this work and the CAA's reports to the Secretary of State are available on the CAA's website at: http://www.caa.co.uk/Commercial-industry/Airports/Economic-regulation/Licensing-and-price-control/Heathrow-price-control-review-H7/

6. As 2018 progresses, HAL's plans for capacity expansion will develop in more detail and we will start the second stage of our work, which will be the review of HAL's price control. This will build on our thinking on the regulatory framework and will lead to specific proposals for HAL's price control for the period that we expect to cover the most significant parts of the construction programme for the expanded airport. This second stage will commence with HAL developing and issuing its initial business plan ("IBP") for the operation of the existing assets and capacity expansion (which should be published at the end of 2018). The price control review will focus on supporting capacity expansion and ensuring that consumers' interests are properly protected. This will include:

- developing incentives for HAL[4] to invest in a timely and efficient way; and
- working with HAL and other stakeholders to ensure the evolution of the existing approach to quality of service regulation so that it appropriately reflects the outcomes that passengers most value.

7. We remain open to considering commercial or regulatory arrangements (or commitments) with a longer duration than a traditional five year price control if these would best protect the interests of consumers. This could include HAL and airlines bringing forward commercially negotiated arrangements that would deliver a longer term path of prices consistent with both affordability and financeability.

Stakeholders' views

8. We received responses to the June 2017 Consultation from 16 stakeholders and these have been published on the CAA's website.[5] Chapter 1 sets out the overall themes emerging from those responses in relation to the regulatory framework and, in particular, alternative delivery arrangements, and updates our assessment of these issues. Responses on the cost of capital, financeability,

4 Incentives for HAL to produce an efficient business plan were raised in our "Guidance for Heathrow Airport Limited in preparing its business plans for the H7 price control" and are dealt with in Appendix B to this document. That Guidance is available on the CAA's website at: www.caa.co.uk/CAP1540

5 See: http://www.caa.co.uk/Commercial-industry/Airports/Economic-regulation/Licensing-and-price-control/Heathrow-price-control-review-H7/

financial resilience, the regulatory treatment of early construction costs and the further extension of HAL's existing price control are addressed in turn in each of the following five chapters.

9. Respondents' views on issues such as incentives and surface access will be dealt with our next regulatory update due in April 2018, when we will update our thinking in respect of these matters. There were also a number of comments by respondents on other issues that were outside the scope of the June 2017 Consultation, either because they cannot be addressed by the CAA, or because they are issues which we will need to address later in the regulatory process. The comments on these other issues are addressed in Appendix B.

Developing the regulatory framework

10. In chapter 1, we explain that the existing regulatory framework (which includes a Regulatory Asset base ("RAB") and price control calculations based on a single till) can complement a wide range of alternative delivery arrangements. These could include commercially negotiated contracts and competitive processes for the provision of new elements of capacity expansion. Although the CAA does not have the power to require HAL to enter into specific commercial arrangements, we expect HAL to stand by the comments it made in its response to the June 2017 Consultation and that it will engage in good faith with airlines and third parties coming forward and wishing to discuss and develop such arrangements.

11. We will expect HAL to address how it has engaged with potential third party providers in its initial and final business plans and, if particular opportunities are not followed up by it, we will expect HAL to be able to demonstrate that its preferred approach better serves the interests of consumers. If evidence were to emerge showing that HAL had acted inconsistently with these expectations, this might indicate inefficiency and, where we have evidence indicating inefficient expenditures, we would seek to guard against the recovery of these costs from consumers.

12. We will also maintain our focus on affordability and continue to recognise and support the aspirations of stakeholders to ensure that there is no real increase in

airport charges. Nonetheless, we also need to ensure that plans for capacity expansion are in the interests of consumers and are financeable.

13. Chapter 2 discusses the process and work programmes we should use to estimate HAL's cost of capital (i.e. costs HAL will need to incur in financing future investment, including that relating to capacity expansion). In the June 2017 Consultation, we said that we would publish the report that we had commissioned from PwC to provide an early and preliminary range for HAL's cost of capital. This report has been published alongside this document (as a separate technical appendix) and the results of PwC's analysis are summarised in Appendix C. The publication of the PwC report represents the start of our substantive work on the cost of capital for capacity expansion.

14. The PwC report indicates that there has been a general market wide reduction in the cost of capital since the last price control was set, but that specific factors linked to capacity expansion may offset some of this reduction. Much work needs to be done before we can reach final views on these matters, and we will wish to consider a wide range of evidence before reaching final decisions on estimates to be used in HAL's next price control. This work will include taking a balanced view of the regulatory incentives that will be appropriate, including those in respect of construction, cost efficiency and traffic volumes, and ensuring that our views on (and determination of) HAL's weighted average cost of capital ("WACC") take into account the risks that HAL will face in respect of these matters.

15. In due course, the above process will allow us to formulate our preferred range for the cost of capital, which is likely to be different from the early and preliminary range identified by PwC. We will also be open to HAL considering whether there might be market mechanisms that could help reveal the cost of equity, such as a competition for the provision of some of the new equity that might be needed to support HAL's financing in the circumstances of capacity expansion.

16. Our work on the cost of capital should help inform the further update on the regulatory framework that we intend to publish in April 2018 and our final Section 16 report to the Secretary of State. We will then further modify and/or refine this

range and establish our view on the appropriate WACC for use in the decisions on HAL's main price control, with this process running through 2019 and 2020.

17. Chapter 3 deals with issues relating to how we should assess the financeability of HAL's proposals for capacity expansion. These include:

- whether we should test financeability on the basis of notionally efficient and notionally securitised financial structures;
- what credit metrics we should use to test for debt financeability; and
- as capacity expansion is likely to require a significant injection of new equity, whether and how we should consider, and test for, equity financeability.

18. In chapter 4, we explore whether there are additional measures we could take that would promote the financial resilience of HAL given the likely challenges associated with financing capacity expansion. As we indicated in the June 2017 Consultation, we are seeking to develop a proportionate approach that would be consistent with HAL's existing financing arrangements. This should ensure that new measures, or the strengthening of existing measures, should not create undue costs for HAL and/or consumers. Chapter 4 provides more details of this approach, and sets out our early thinking on some licence conditions to promote financial resilience.

19. Chapter 5 addresses the regulatory treatment of early construction costs. A number of the responses from airlines to the June 2017 Consultation suggested that, if HAL wanted to proceed with these expenditures, it should bear the risks from a failure of HAL to secure planning permission for capacity expansion. We have already provided an incentive for HAL in respect of these matters in our proposals for the regulation of planning costs. We clarify that, for early construction costs, a basic test for efficient early spending should be that there are clear benefits to consumers (rather than HAL) in these costs being incurred.

20. Bearing this in mind, we set out further conditions and tests that HAL would need to satisfy before we would agree to the recovery of these costs. These include HAL providing further evidence on efficiency and involving airlines in the governance of these costs. If HAL can provide evidence that gives comfort on all

of the above and that the costs that it incurs are efficient, these costs should be added to HAL's RAB and recovered from consumers in due course.

21. In chapter 6, we consider how best further to extend HAL's current price control, so that the next main price control review can better support capacity expansion and protect the interests of consumers. We focus on how best to calibrate a further one year extension to the price control as this would better align the timetable for developing the framework for economic regulation with the overall programme for capacity expansion. Nonetheless, as the timetable for the wider programme is not yet certain, we also consider a two year extension, with final decisions on duration and the approach to calibration to be made later in 2018, when the overall timetable should be more mature.

22. We are seeking to find a proportionate and targeted approach to the price control extension that will not create an undue distraction for stakeholders from the very important matters associated with capacity expansion. This will involve considering how best to roll forward or update the existing price control in a way that avoids the complexity of a full review, but still protects consumers appropriately. We are also seeking to manage any short term uncertainty by consulting on two simple options for the path of prices, and will be making final decisions on these matters in April 2018. The first of these options is Retail Price Index ("RPI")-0% (consistent with airlines' aspirations for no real increase in charges over the longer term) and the second is RPI-1.5% (consistent with the current price control).

23. Any further adjustments to regulated revenue deriving from our final decisions on the approach to calibrating the further extension of the price control will be made by adjusting regulatory depreciation. For instance, if the calibration of underlying revenue were to suggest a lower revenue allowance than implied by RPI-0%, we would increase regulatory depreciation. Doing so would have the effect of reducing the RAB when the full price control for capacity expansion is set and will, therefore, ensure airport charges are lower in future years than they otherwise would have been. Given the likely pressures on future price levels that may be created by capacity expansion, our preferred approach at this stage is RPI-0%. Taken in the round, with the approach to adjusting regulatory

depreciation this should ensure that the interests of present and future consumers are properly protected over time.

Next steps

24. During the first part of 2018, the main focus of our work will be finalising our advice under Section 16 to the Secretary of State. To this end, we will issue a further interim Section 16 report in February 2018, followed by our final Section 16 report in April 2018. Consistent with the Terms of Reference, these reports will focus on how well HAL has engaged with, and responded to, the airline community on the appropriate scope, design and costing of new runway capacity at Heathrow. They will also include an assessment of the response of airlines to the revised scheme design, and our initial assessment of affordability and financeability.

25. To support our Section 16 work, we will be continuing to develop the regulatory framework for capacity expansion. We intend to issue our next consultation in April 2018, alongside making our final Section 16 report to the Secretary of State. This next update on the regulatory framework will take into account responses we receive to this consultation, and will provide updates to our thinking on incentives for efficiency, surface access, the cost of capital, financeability, affordability and the approach to the further extension of the Q6 price control. We will also consider how best we can continue to support airport/airline engagement following the end of our Section 16 reporting.

26. Assuming that the current timetable for the wider programme of capacity expansion remains in place, we envisage taking the following steps in 2018, 2019 and 2020:

- April 2018: our final Section 16 report to the Secretary of State and the publication of next update on the regulatory framework;
- summer 2018: final update on the regulatory framework ahead of HAL's IBP;
- December 2018: HAL produces its IBP, and constructive engagement with airlines on the plan commences;
- August 2019: HAL produces its final business plan ("FBP");

- September/October 2019: CAA proposals to modify HAL's licence to put into effect our proposals further to extend HAL's Q6 price control;
- December 2019: CAA initial proposals for HAL's next main price control;
- May 2020: CAA update on its proposals;
- September 2020: CAA final proposals; and
- November 2020: CAA decision to modify HAL's licence to put the new price control into effect from 1 January 2021.

27. However, should circumstances change, for example, by reference to the Government's wider timetable, we may review our approach. For example, if the NPS or development consent order ("DCO") is substantially delayed and it becomes clear in 2018 or 2019 that a 2 year (or longer) extension of HAL's current price control would be required, we would need to review the above timetable.

Our duties

28. In developing this consultation, we have had full regard to our statutory duties under the Civil Aviation Act 2012 ("CAA12"), which are set out more fully in Appendix A.

Structure of this document

29. The structure of this consultation document is as follows:

- chapter 1 deals with the overall regulatory framework and, in particular, issues relating to alternative delivery arrangements;
- chapter 2 deals with the cost of capital;
- chapter 3 discusses financeability;
- chapter 4 explores financial resilience;
- chapter 5 discusses the regulatory treatment of early construction costs; and
- chapter 6 sets out our latest views on the further extension of the existing Q6 price control.

Chapter 1

Themes emerging from stakeholders' comments on the core elements of the regulatory framework and affordability

Introduction

1.1 This chapter identifies key themes from stakeholders' responses to the June 2017 Consultation in relation to the overall regulatory framework and affordability, and sets out the CAA's latest position on these matters. Other core elements of the regulatory framework (such as the cost of capital and financeability) are dealt with in the later chapters of this document.

The regulatory framework

The RAB, single till and alternative delivery models

1.2 There was broad support for continued use of a RAB-based approach and single till for HAL, but with some respondents saying that there should be important changes in the way these arrangements are implemented. In particular, these respondents were concerned that the approach to the RAB and single till explained in the June 2017 Consultation would not provide sufficient support for alternative commercial arrangements that could better deliver important elements of capacity expansion.

1.3 Airlines and others also expressed concerns over the scope and transparency of the RAB, and were concerned that the existing arrangements do not encourage cost reflective charging arrangements, might encourage inefficient spending by HAL and inappropriately pass risks to users.

1.4 On the single till, views from other parties included that:

- separate profit centres for retail, surface access and parking revenues should be created to increase transparency, even if those revenues continued to contribute to the single till; and
- the use of the single till may depress airport charges, but this may not be reflected in lower air fares, and it may be better to use some commercial revenue to invest directly in capacity expansion.

1.5 HAL did not respond in detail on alternative delivery models, but stated it was willing to engage with the airline community to explore the possibility of entering into collective and/or individual agreements and that the CAA should not be prescriptive, allowing time for agreements to develop.

1.6 Airline representatives explained that at each stage of capacity expansion the governance arrangements should allow for as much competition as possible. Further, their view was that the CAA should ensure a level playing field for third parties in the design, development, delivery, operation and ownership of expansion. They requested that the CAA explore more options for encouraging the development of competition and cited the Irish Government's recent consideration of having a third party developer at Dublin Airport.

1.7 Another respondent said that the CAA should:

- have competition as an additional objective and not assume that HAL would be the sole delivery agent for expansion;
- keep an open mind over what a future regulatory framework might look like, subject to appropriate governance;
- ensure a level playing field for third parties in the design, development, delivery, operation and ownership of expansion; and
- facilitate airlines working with other suppliers, especially if this supports affordability.

1.8 One airline also wanted the CAA to explore the scope for competition further and made wide ranging proposals in relation to these matters. It said that the CAA should:

- audit and, as soon as practicable, publish, a detailed make up of HAL's RAB and its costing of capacity expansion;
- consider splitting the RAB into "utility" assets (such as runways and taxiways) and "commercial" assets (such as terminals). Third parties could then develop competitive commercial proposals for customers, jointly with HAL or potentially, in limited areas, as a competitor to HAL, possibly backed by joint venture vehicles;
- force HAL to allow third party participation in competitive processes for infrastructure development at Heathrow and grant a licence to a third party if its proposals for development were in the best interests of passengers;
- take competitive parts of the airport (most likely terminals) out of the scope of regulation, with the aim of promoting more efficient and customer focused investment, more diverse funding arrangements, and a move away from whole business securitisation (which the CAA should not have permitted in any case); and
- consider any failure on HAL's part to consider credible joint venture proposals from third parties as strong evidence that it is able to manage the risks associated with capacity expansion. If this were the case, it should be reflected in a lower cost of equity for HAL than would otherwise be the case;
- nonetheless, retain a strong focus on affordability and, if airport charges are capped so they do not increase in real terms, HAL should be rewarded if it delivers capacity expansion at price levels below this cap; and
- require that HAL should divest its Heathrow Express assets as these are (with competition from Crossrail) no longer a core asset needed to further the interests of passengers, and make a downward adjustment to HAL's RAB to take account of any such divestment.

1.9 Another airline explained that commercial arrangements between HAL and airlines may not be in the best interests of passengers, as HAL is likely to retain significant market power and continuing regulatory oversight would be required.

1.10 Other respondents raised potential difficulties with alternative delivery arrangements, considering that one body should be responsible for coordinating development and noting that competition might reduce contributions to the single till.

CAA Response

1.11 We consider that the regulatory regime under CAA12 is flexible enough to accommodate a wide range of commercial structures at Heathrow and, as we have previously stated, we are in favour of such arrangements where they can be shown to benefit consumers. Nonetheless, as we have also previously stated, the CAA does not have the power, directly or indirectly, to impose, or force HAL to enter into, particular commercial solutions to promote competition. Furthermore, we do not have the power either to issue a licence to a new market participant under CAA12 (unless we first made a Market Power Determination and such a determination were to indicate that a licence would be appropriate), or to force HAL to divest assets.

1.12 This means that a number of the suggestions made by those respondents that are strong supporters of competitive arrangements are not possible or practicable ways forward. Even where other legal means might be found to achieve some of these objectives, such as an Enterprise Act 2002 investigation, these would be lengthy procedures and the outcome would be highly uncertain, particularly as those respondents supporting more radical options for forcing the introduction of competition have provided only limited evidence in support of their arguments. Any delays to capacity expansion resulting from uncertainty over the regulatory framework would also have significant costs to consumers in terms of less choice, poorer service levels and higher fares. For the avoidance of doubt, we do not consider that the use of the markets provisions of the Enterprise Act 2002 would be either relevant, or justifiable, at this stage.

1.13 Bearing the above in mind, we are seeking to identify what we can best do in practice reasonably to support and encourage the introduction of more competitive arrangements, consistent with the interests of consumers. In selecting the way forward, we also need to consider how to ensure that any initiatives are properly targeted and focused best to support the affordable and financeable development of new capacity.

1.14 For instance, there are suggestions that we should audit HAL's RAB and then hypothecate the RAB to specific parts of the Heathrow campus. What is hard for us to understand is how this would directly help the development of competitive arrangements for capacity expansion. The RAB relates to the unamortised portion of the *existing* regulated assets (which is not necessarily the same as their commercial value) and not the costs of the *new* assets required for capacity expansion. In the absence of understanding a specific commercial proposition and/or proposal, we are not clear how useful an exercise it would be further to analyse HAL's RAB.

1.15 There is information to suggest that potential third party developers might be interested in supporting the development of new capacity at Heathrow. To this end, we expect that HAL will stand by the comments it made in its response to the June 2017 Consultation and that it will engage in good faith with airlines and third parties coming forward wishing to develop commercial agreements. Another approach might be for HAL and airlines to bring forward commercially negotiated arrangements that would deliver a longer term path of prices consistent with both affordability and financeability.

1.16 If a party has a specific proposal under development and wants to discuss the operation of the framework for economic regulation, or the provision of information that might better facilitate finalising its proposal, we continue to be open to discussions on these matters. Nonetheless, we would expect that any proposal would be sufficiently developed to:

- allow for meaningful discussions of key issues (including consumer benefits);
- include a description of the means by which their plans can come to fruition through commercial negotiation and discussion, and the planning and other consenting processes; and
- allow us to come to a clear understanding of any additional information that might reasonably be required to progress the proposal further.

1.17 We share the aspirations of stakeholders for bringing transparency to the costs of capacity expansion, and will seek to ensure that there are properly transparent forecasts of all the capital and operating expenditures necessary to support the efficient expansion and operation of Heathrow in the future. This should allow consideration of whether HAL's forecasts of costs are:

- reasonable and efficient; and
- provide sufficient information to allow stakeholders to consider whether alternative commercial arrangements might provide benefits for consumers.

1.18 We will expect HAL to address how it has engaged with potential third party providers in its IBP and FBP. If particular opportunities are not followed up by it, we will expect HAL to be able, in justifying its proposed costs, to demonstrate that its preferred approach better serves the interests of consumers and provides better value for money than the alternative.

1.19 As we said in the June 2017 Consultation, we will guard against the recovery of inefficient expenditure. As such, we are also in agreement with stakeholders that, if there is evidence that HAL has not reasonably followed up opportunities for appropriate commercial and/or competitive arrangements, this may provide evidence of inefficiency.

1.20 There may also be merit in introducing a relatively simple condition into HAL's licence that would require it to operate, maintain and develop Heathrow in an economical and efficient and timely manner so as to satisfy the reasonable requirements of users regarding the quality and capacity of the airport. The precise drafting of any such condition would require further consultation but could specifically refer to the importance of exploring appropriate commercial and competitive opportunities to further the interests of consumers. Any proposal for a licence modification would require discussion and consultation and so would take time to put in place. Bearing this in mind, we will also consider whether there are other more timely and effective steps we might take to facilitate appropriate commercial/competitive arrangements.

1.21 In the light of all of the above, we would welcome further suggestions from stakeholders on whether there are additional practical steps that we can take to support the development of competitive solutions and commercial arrangements that would best protect the interests of consumers.

Affordability and the profiling of regulatory depreciation

Stakeholders' views

1.22 Stakeholders have said that HAL's proposals for capacity expansion should be both affordable and financeable. Airline representations focused particularly on the following issues:

- that there should be no real increase in today's prices;
- that expansion will only be in users' interests if it is affordable;
- linking affordability and financeability on the grounds that if charges were not affordable, airlines will not use the expanded airport sufficiently to enable it to be financed;
- the importance of cost efficiency and an appropriate estimate of the cost of capital to support affordability;
- the scope for increasing competition in the delivery of new infrastructure at Heathrow and the potential for this to drive more efficient and affordable solutions; and
- the lack of progress in agreeing an affordability protocol with HAL.

1.23 On the meaning of affordability, HAL said that it should be framed around consumers, not airlines, through taking into account cost and value for consumers and the value created for consumers both now and in future. It took the view that this does not contradict there being value for money and opportunities for airlines. It said the CAA should set its price control determination through assessment of these factors and not "back solve" for a specific price level.

1.24 By contrast, an airline was particularly firm in disagreeing with the CAA's proposal to assess passengers' willingness to pay, considering that, as they cannot pass costs on to passengers, higher charges would reduce passenger choice as airlines concentrate on higher yielding routes. Another respondent provided a significant volume of material on how it considered that expansion would not be financeable without increased airport charges at Heathrow.

1.25 On the suggestions in the June 2017 Consultation that the profiling of regulatory depreciation should be used to help find the appropriate balance between affordability and financeability, respondents were generally open to the possibility of a more flexible approach than that used in the past. HAL, however, expressed a concern that the undue flexing of regulatory depreciation could stretch its financeability ratios and have an impact on creditor confidence and investment funding. An airline suggested adopting unitised regulatory depreciation, so that every passenger would contribute equally to capacity over its lifetime. Concerns were also expressed that only efficient investment should qualify for inclusion in the RAB and depreciation allowances.

CAA Response

1.26 We understand the importance of the support given by HAL, the airlines and the Secretary of State for making sure that airport charges are maintained as closely as practicable to current levels during and after the capacity expansion programme.

1.27 The current engagement process between HAL and airlines is designed to help HAL to develop an appropriate scope, design and costing of new capacity at Heathrow, and we will continue to monitor the progress of this process in 2018. We see this as being an important part of developing proposals for both the existing and expanded airport so that its overall business plan is affordable and financeable. It is important that consumers are protected by this process. The assessment of consumers' willingness to pay should be part of this process and may inform decisions on how best to proceed with specific aspects of capacity expansion, but within overall envelopes that also deliver wider objectives relating to affordability and financeability.

1.28 We accept that the profiling of regulatory depreciation is only useful to the extent it promotes an overall solution that is both affordable and financeable. We do not intend to pursue concepts such as unitised depreciation, as such a relatively mechanistic approach could be inconsistent with affordability and/or financeability. We also accept that issues such as cost efficiency are important to both affordability and financeability.

Views invited

1.29 Views are invited on any aspect of the issues raised in this chapter and, in particular, on any further suggestions stakeholders may have on whether there are additional practical and practicable steps that we could take to support the development of competitive solutions and commercial arrangements, which would best protect the interests of consumers.

Chapter 2

Cost of capital and debt indexation

Introduction

2.1 Capacity expansion will require the financing of significant amounts of capital expenditure. The cost of financing this investment will be very important to determining the overall level of airport charges. The cost of financing is a key component in the calculation of HAL's price control revenue and is important to determining its overall financeability.

2.2 In setting HAL's price control, we take account of the costs of financing by estimating its cost of capital. In this context the cost of capital is the minimum expected return required by the financial markets to provide financial capital to HAL given the level of expected overall risk. The June 2017 Consultation explained that we calculate the WACC based on the cost of equity, the cost of debt, and the relative proportion of equity and debt.

2.3 Under HAL's Q6 price control, the revenue associated with the WACC represents approximately £0.8 billion per year of HAL's total revenues (or around 50% of airport charges).[6] The impact of changes to the WACC can be illustrated by the fact that a one percentage point change to the WACC would translate into a change of around 10% (or £2 per passenger) in airport charges.

2.4 We said in the June 2017 Consultation that we would publish the report that we had commissioned PwC to produce to provide an early and preliminary range for HAL's WACC. This report has been published alongside this document (as a separate technical appendix) and the results of the PwC analysis are summarised in Appendix C. The publication of the PwC report represents the start of our substantive work on the cost of capital for capacity expansion. In

[6] Based on a closing RAB of £15.2 billon as at 31 December 2016 and CAA forecast revenues of £1,601 million for year ended 31st December: see Section 1, Heathrow (SP) Limited Regulatory Accounts (2016): https://www.heathrow.com/file_source/Company/Static/PDF/Investorcentre/Heathrow-Limited-2016-regulatory-accounts.pdf.

developing our work on the WACC, it will be important to consider carefully the PwC report, the views of respondents and the evidence that they provide in relation to these matters, as well as continuing with our own analysis on the cost of capital.

2.5 This chapter summarises the views of respondents to the June 2017 Consultation on matters relating to the cost of capital, describes the process that we intend to use in refining the early and preliminary range for HAL's WACC, and identifies issues for further consideration.

2.6 An important part of the WACC is the cost of debt. The June 2017 Consultation explained there could be advantages in moving away from a fixed allowance for the cost of debt in setting the price control. The problem with using fixed allowances is that they do not take into account market movements during the price control period that are outside of the control of HAL's management. As a result, fixed allowances could increase the risks of windfall gains/losses for investors and this uncertainty might lead to higher costs for consumers. We also explained that there might be advantages in moving to an approach based on debt indexation, and this chapter explores these matters further.

Responses to the June 2017 Consultation on the cost of capital

2.7 Although the June 2017 Consultation highlighted the importance of the cost of capital as an issue, it did not set out a detailed assessment of the WACC. This is reflected in the views of respondents, with comments on the cost of capital being limited to high level observations on the WACC.

2.8 HAL said that the CAA should explore options to ensure that the enhanced risks associated with capacity expansion would be properly rewarded over the life of the project (or at least over the next 15 to 20 years).

2.9 Airlines said that the CAA should take into account the availability of significant amounts of relatively cheap debt finance in determining the WACC. They also said that the competitive provision of infrastructure at Heathrow through alternative commercial arrangements and delivery mechanisms could help reduce risks and financing costs.

Process for estimating the cost of capital

The process for estimating HAL's WACC

2.10 As we have explained above, we commissioned PwC to provide an early and preliminary estimate of the range for the WACC. They have done this on the basis of both HAL's existing business (operating a two runway airport or "as is" scenario) and taking into account the impacts of capacity expansion and a third runway (the "with R3" scenario).

2.11 We will need to consider carefully the views of respondents on the PwC report, any additional evidence that respondents wish to provide in relation to the WACC and their suggestions for further work that we should undertake in relation to these matters.

2.12 In addition to this, we are consulting a group of senior expert advisors on our approach to the WACC and the areas of additional focus for future consideration. We also intend to have regard to determinations on the WACC made by other economic regulators, while recognising that airport financing and risk, especially given the context of capacity expansion, may warrant additional considerations.

2.13 This work will help to inform the initial range for the WACC for the further update on the regulatory framework for HAL that we intend to publish in April 2018. It should also facilitate our final report to the Secretary of State on Section 16, which will report on the success of airport/airline engagement on capacity expansion, particularly in terms of progress in identifying a scheme that is both affordable and financeable.

2.14 We will then further refine this range and consider how best to identify the point estimate of the WACC for use in the decisions on HAL's main price control, with this process running through 2019 and 2020.[7] To be clear, this means that the early analysis produced by PwC is one input into our wider decision making process, and our final range and final determination of the WACC could be

7 This assumes that there is a further one year extension to the Q6 price control. For more detail on the regulatory timetable, see chapter 6.

different from PwC's early and preliminary range. In undertaking the process to reach our final decisions, we will take into account a range of factors, including:

- views of respondents to our consultations and, in particular, the evidence that they provide in relation to HAL's WACC;
- the further analysis we will undertake and/or commission from external consultants;
- the latest evidence on market conditions and parameters, taking account of structural changes in parameters (e.g. to RPI);
- relevant regulatory determinations;
- our proposals for HAL's price control, including incentive arrangements and the risks associated with these. This will include an assessment of the material changes in risks as a result of capacity expansion and our regulatory framework. We would expect this work to focus on: (i) cost and construction risks (we would also take into account the opportunities available to HAL to use its supply chain better to share risks, and the scope for HAL to use novel commercial arrangements better to manage cost risks); and (ii) volume risks (which would cover expected levels of volatility, the treatment of demand risk in the regulatory framework and any commercial opportunities for HAL to partner with airlines to reduce volume risks);
- further detail that should, by then, be available on the expenditure programmes necessary to support capacity expansion;
- the results of our financial modelling of HAL and the risk profile associated with the results of this modelling; and
- any proposals that HAL might develop to establish market mechanisms that would help reveal the cost of equity, such as a competition for the provision of some of the new equity that might be needed to support HAL's financing in the circumstances of capacity expansion.

2.15 This process will allow us to form views on a credible range for HAL's WACC and we will then need to exercise judgement on how to best determine the point estimate to be used in setting HAL's final price control. In doing so, we will be guided by our statutory duties, the general duty being to further the interests of present and future consumers.

Main policy issues relating to the cost of capital

Market wide estimates of the cost of equity and debt

2.16 PwC's report provides evidence that the market wide real cost of equity and real cost of debt has fallen significantly since the Q6 price control review. This puts significant downward pressure on its estimates of HAL's WACC.

2.17 The assumptions we make on these matters have the potential to have a significant impact on our estimates of HAL's WACC and, as indicated above, it will be important to consider a wide range of evidence before we reach final views on these matters.

2.18 The WACC range, parameter estimates and evidence from PwC's analysis are summarised in Appendix C and the full report has been published alongside this consultation.[8]

Additional risks associated with capacity expansion

2.19 As well as considering evidence on market wide parameters and evidence on the other factors determining the WACC for HAL's present business activities, PwC has also started to analyse, using a case study approach, the impact of capacity expansion on HAL's WACC. Although it is very early in the process for developing the detail of the regulatory framework for capacity expansion, PwC has produced a very initial range for any additional premium that might be required to take account of the additional risks associated with capacity expansion.

2.20 In general, these very initial estimates are not sufficient to offset the reductions that they have identified resulting from the market wide conditions discussed above. As a result, PwC consider that, currently, the overall WACC would be somewhat lower than the range identified for HAL's WACC at the Q6 price

8 Estimating the cost of Estimating the cost of capital for H7: A report prepared for the Civil Aviation Authority (CAA) PwC Economics. See: www.caa.co.uk/CAP1611

control. Further details of PwC's assessment are summarised in Appendix C and set out in the separate technical appendix. These are very much initial estimates and final calibration of any such premium requires further work and assessment.

2.21 We note HAL's view that it might be appropriate to spread additional "rewards" for capacity expansion over a period of at least 15 to 20 years. While we do not rule this out, we would expect important elements of the additional risks, especially those relating to construction and passenger volumes, will be concentrated in the 10 years following the start of construction, because construction (and associated cost) and passenger traffic risks are likely to be most acute during this period. We will also need to consider to what extent these additional risks are related to wider market risks and whether they are best dealt with by adjustments to the cost of capital.

Assumptions on the level of gearing (or the proportion of debt finance)

2.22 A number of respondents have said that it is important that the CAA takes into account the availability of relatively cheap debt finance in assessing the appropriate WACC for capacity expansion. They note that HAL's present levels of gearing are significantly above the assumption of 60% gearing made in setting the Q6 price control. As part of its work, PwC has assessed a sensitivity using an assumption of 80% rather than 60% gearing. Using the standard approaches to estimating a WACC means that this has relatively little impact on the overall cost of capital, as a greater proportion of debt finance means that the remaining equity is considered more risky and so requires a higher return. We will need to consider these matters further, including the views of the corporate finance community on the appropriate cost of equity and any market based evidence on these matters. It is also important that we consider the impact of higher levels of debt finance on allowances for corporation tax. These matters are discussed further below.

Tax

2.23 The June 2017 Consultation also raised the issue of the treatment of corporation tax and noted the possible advantages of moving away from the approach used at Q6 (that was based on a simple assumption of standard tax rates applying to equity funding) to an approach reflecting forecasts of actual corporation tax payments.

2.24 HAL said that, given the uncertainties associated with capacity expansion:

- a simple approach may be more flexible;
- it would not be straightforward to forecast gearing levels; and
- in any case, it would experience significant disadvantages given recent changes in corporation tax arrangements and the removal of industrial building allowances.

2.25 We remain of the view that we should consider the treatment of corporation tax further. Consistent with the approach adopted in other sectors subject to economic regulation, there remains a relatively strong case for ensuring consumers benefit from funding no more than the level of corporation tax that would be associated with a tax efficient structure.

Responses to the June 2017 Consultation on debt indexation

2.26 HAL indicated that it would be open to discussions on developing debt indexation options, but took the view that debt indexation will not meaningfully reduce the risk of variance between forecast and actual debt, citing issues around financial market disruption, and political and regulatory risk. It also said that if debt indexation were to be adopted, it should only be applied to new debt, as the periodic resetting of the cost of embedded debt helps support financeability.

2.27 It also stressed the importance of careful consultation on the implementation of any such arrangements, including in relation to:

- the specific debt index to be utilised;
- the treatment of inflation;
- true-up mechanisms;[9] and

9 True-up mechanisms in this context could be used to reconcile the differences between assumptions used to set the price control and outturn performance/costs.

- how best to take into account the particular characteristics of HAL's debt portfolio.

2.28 One of the airlines commented in detail on debt indexation and noted its support for this approach as it had the potential to reflect better the actual cost of debt and provide a more equitable solution between HAL and consumers. Nonetheless, it also noted that debt indexation would not create any additional incentives for HAL to reduce its debt costs.

Way forward on debt indexation

2.29 We remain of the view that there are advantages in debt indexation and it has the potential to reduce variances between forecast and actual debt costs. That said, we also share HAL's view that the implementation issues would require consultation and careful consideration.

2.30 We have assessed two high level options for debt indexation:

- Option 1: indexation of new debt only, with the retention of a fixed allowance for embedded debt (i.e. "part indexation"); and
- Option 2: indexation of both embedded and new debt costs, either on an ongoing basis, or at the end of the price control period (i.e. "full indexation").

2.31 We consider that Option 1 provides a better balance of risks than either Option 2 (full indexation) or our previous approach of making fixed allowances.

2.32 Our approach at the Q6 price control review involved making a projection of the cost of debt for the period of the new price control. This approach can result in significant forecasting errors and both Options 1 and 2 would reduce these forecasting risks. While indexation means customers face more of the risk of movements in the cost of new debt, this also means that consumers will gain from falls in the market cost of debt. At the same time, HAL will face lower overall risks, which should help put downward pressure on its cost of capital. Moreover, both options maintain strong incentives on HAL to reduce debt costs below the market benchmark, to the longer term benefit of users.

2.33 The costs of embedded debt are less subject to the impact of market movements and we agree with HAL that seeking to index this proportion of debt may generate additional complexities and difficulties. There are also advantages in policy evolving at a sensible pace over time and so initially focusing the introduction of debt indexation only on new debt. Bearing these factors in mind we see no compelling reasons to introduce indexation for the costs of embedded debt at the next main price control review.

2.34 In respect of the implementation of debt indexation, Appendix D sets out a more detailed discussion of these issues, with the most important issues summarised below:

- Markit iBoxx appears the most appropriate provider of indices that may best reflect market evidence on the cost of new debt that is likely to be particularly relevant to HAL;
- a shortlist of potential indices includes GBP Infrastructure 10-15 years, Non-Financials ‘A’ 10-15 years index, or Non-Financials ‘BBB’ 10-15 years index; and
- the true-up mechanism that would be necessary to adjust for movements in the cost of debt index could be best implemented as an adjustment at the end of the price control period. This would be the simplest approach as it would avoid the possible volatility and complexity associated with annual updates.

Views invited

2.35 We would welcome views from stakeholders on any matters relating to the cost of capital and, in particular, on:

- PwC’s early and preliminary estimates of the WACC for HAL (summarised in Appendix C and set out in full in a separate technical appendix published alongside this document) and the evidence it has presented that the market cost of equity and cost of debt has fallen since the Q6 price control review in 2013;

- PwC's first step in analysing (through the use of case studies) the premium on the WACC that may be appropriate to support capacity expansion and views on how any such premium should be best estimated;
- how we should best make allowances for corporation tax; and
- the issues highlighted in Appendix C on the cost of capital and, in particular, on the best approach to estimating asset beta and equity beta values; and
- whether HAL might be able to develop market mechanisms that could help reveal the cost of equity, such as a competition for the provision of some of the new equity that might be needed to support HAL's financing in the circumstances of capacity expansion.

2.36 We would also welcome views from stakeholders on any matters relating to the cost of debt indexation and, in particular, on how best to implement arrangements to allow for the indexation of the cost of new debt, including:

- views on the most appropriate debt index; and
- how any true-up mechanism should work and, in particular, whether arrangements should be based on a true-up at the end of the price control period.

Chapter 3

Financeability and indexing for inflation

Introduction

3.1 It is important that capacity expansion at Heathrow is affordable for airlines and consumers and that it is commercially financeable by HAL.

3.2 The June 2017 Consultation set out how we assessed financeability at the Q6 price control review in 2013 by focusing on debt financeability and six key financial ratios. We asked for views on the advantages and disadvantages of this approach and how it could be best adapted to test financeability in the circumstances of capacity expansion.

3.3 We also outlined our proposed approach to indexing for inflation and that this should involve continuing to use the RPI for both indexing the RAB and estimating the real WACC. Where airport charges are concerned, we said we were open to calibrating changes in the level of allowed charges over time by using either a Consumer Prices Index (either “CPI” or “CPIH”) or RPI (i.e. the path of prices would be set in the licence as either “CPI +/- X” or “RPI +/- X”).

3.4 This chapter deals with stakeholders’ responses to the June 2017 Consultation on the above matters. It also consults further on our approach to assessing financeability and how we should treat inflation in testing financeability and setting price controls.

Responses to the June 2017 Consultation

3.5 HAL’s response focused on the robustness of its existing financing arrangements, explained that the broader regulatory framework is important to financeability, and noted the role of credit rating agencies in providing a qualitative and quantitative assessment of HAL’s financeability on an ongoing basis. It stated that the following six financial ratios are those it regards as most relevant to credit rating agency assessments: (i) regulatory asset ratio (or gearing); (ii) interest cover ratio; (iii) post maintenance interest cover ratio or adjusted cash interest cover ratio; (iv) debt to earnings before interest, tax, depreciation and amortisation (“EBITDA”); (v) funds from operations (“FFO”) to debt; and (vi) FFO interest cover.[10,11]

3.6 It also said that, in the circumstances of capacity expansion, the CAA should undertake more sensitivity testing and should consider targeting stronger ratios and credit ratings to provide headroom for unforeseen circumstances.

3.7 HAL agreed with the CAA’s initial policy that RPI should be used for indexing the RAB between price control reviews and for calculating a real WACC, and said the same approach should be used for the path of airport charges. HAL suggested that the CAA should provide longer term guidance on how indexation of the RAB might evolve from RPI to CPI.

3.8 Airline representatives continued to emphasize that affordable charges were necessary for capacity expansion to be finanaceable.

3.9 An airline saw a case for moving to a CPI-based regime, although it noted that this would bring both advantages (lower volatility in airport charges) and disadvantages (a short term rise in charges). It suggested both CPI and hybrid (RPI/CPI) options should be explored, along with a transition mechanism to smooth the path of price changes over time.

3.10 Other respondents expressed a range of views. One said that its analysis showed a significant potential price rise from the expansion, which it said would depress demand and jeopardise financeability. Another respondent took the view that HAL should significantly increase its equity capital to finance investment and, if this were not to be the case, expansion should be funded as a private sector investment outside the RAB.

[10] Further explanation of these terms is provided at Table 3.1 at paragraph 3.21 below.

[11] For debt to EBITDA and FFO to debt, HAL has clarified it considers both the gross debt and net debt forms of these ratios to be important. More detail of these financial ratios are set out in Appendix E.

Our approach to assessing financeability

3.11 We understand the comments that HAL has made about the importance of taking account of the wider regulatory framework in assessing financeability. We also understand the importance of both affordability and financeability, and our financial modelling will seek to address both these issues.

3.12 In terms of how we assess financeability, we intend to build on the approach we have adopted previously to help assess the particular challenges associated with capacity expansion.

3.13 At the Q6 price review, we assessed whether a notionally financed (i.e. a company with a financial structure based on our view of an efficient balance between debt and equity finance) and efficient airport operator would be able to maintain a solid investment grade credit rating. The CAA used HAL's price control financial model to test six key credit metrics with the benchmark levels used by credit rating agencies to assess investment grade debt.[12]

3.14 We propose to continue to use this broad approach as it is consistent with well established practice in UK economic regulation and focuses on HAL having continued access to investment grade debt finance. This is relatively low cost finance that will be important in ensuring capacity expansion can be financed in a cost effective way. This has a clear benefit for consumers.

3.15 Nonetheless, it will be important to consider a greater range of analyses given the particular challenges of capacity expansion. Our approach to this wider analysis is summarised below, and set out in more detail in the following four sections of this chapter. We intend to:

- assess financeability under both (i) a notional financing structure similar to our approach at the Q6 price control review; and (ii) an alternative notional financing structure closer to a more highly leveraged structure;

[12] These were: interest cover, post maintenance interest cover, adjusted interest cover, FFO interest cover, FFO to net debt and regulatory asset ratio/gearing. The CAA also considered net debt to EBITDA in the notice granting the licence (CAP 1151, February 2014). See: www.caa.co.uk/CAP1151

- update our assessment of credit metrics and carry out appropriate sensitivity and scenario analyses to reflect the particular challenges of capacity expansion;
- supplement our assessment of credit metrics with a qualitative assessment of the regulatory framework for HAL and the wider business environment within which it operates; and
- as capacity expansion is likely to require significant equity funding, consider equity financeability explicitly.

3.16 We will also continue to engage with credit rating agencies and the investment community to explain, and take account of, relevant views and information.

3.17 While this chapter mainly deals with the detail of assessing financeability, in considering the development of the regulatory framework, we will also consider the best treatment of risks and the impact on financeability, with the objectives of securing financeability and protecting consumers.[13]

Assumptions on financial structure

3.18 It will be important to continue to test financeability on the basis of a notional financial structure, reflecting the established approach that is used by economic regulators in setting price controls. Nonetheless, we intend to supplement this with an assessment of a notional securitised structure with a relatively high level of gearing, which will be significantly closer to the gearing levels we expect HAL to adopt for capacity expansion.[14] In establishing this notional securitised structure, we will consider evidence from securitised companies in other UK regulated sectors as well as HAL's actual financing structure.[15]

[13] This could include issues such as the use of triggers to reopen the price control in certain circumstances and we will return to considering whether there may be a need for any additional reopeners to deal with financeability issues later in the process.

[14] In addition to gearing, we may want to consider whether other debt parameters (e.g. proportion of index-linked debt, and split between senior, junior and subordinated debt) are set closer to HAL's actual financing structure.

[15] Since 2013, HAL's senior debt gearing has been around 67-68% and, together with its junior debt gearing, total gearing has been around 77-80%.

3.19 This approach is designed to ensure that we understand the implications of our approach to regulation for a range of financial structures that may be used to support capacity expansion, including those with higher levels of gearing. Consumers will benefit from this approach as it will allow us to explore whether there would be benefits to consumers from assuming higher levels of gearing.

3.20 In considering a notional securitised structure, we will not seek to replicate HAL's precise financing arrangements. We want to avoid any undue complexity and are not seeking to distract from the clear responsibilities on HAL's board of directors and shareholders for taking their own decisions around financing. For the avoidance of any doubt, HAL's board is accountable for establishing and retaining an approach to financing and gearing that is efficient, financially resilient and robust.

Assessing debt financeability and credit metrics

3.21 We will continue to assess debt financeability by financial modelling and the testing of specific credit metrics against benchmark levels. Following initial discussions with credit rating agencies, Table 3.1 below sets out our initial view on the credit metrics that we currently consider to be the most relevant but we will seek to refine and simplify this list as we conduct more analysis.[16] We have split these metrics between:

- core metrics that HAL and the credit rating agencies have said are the most important and should be given the most weight by the CAA; and
- secondary metrics that are also important to credit rating agencies, but reflect alternative ways of measuring the core metrics, and to which we intend to give less weight.

[16] See Appendix E for definitions.

Table 3.1: proposed credit metrics

Credit metrics	In Q6	Comments
Core metrics		
Interest cover ratio (“ICR”)	Yes	Used at Q6, part of HAL’s financing covenants
FFO interest cover	Yes	Used at Q6, core ratio for Moody’s and Standard & Poor’s (“S&P”)
Adjusted cash interest cover ratio (“ACICR”)	Yes	Used at Q6, core ratio for Moody’s
FFO to Gross debt	No	Core ratio for Moody’s
Regulatory gearing	Yes	Used at Q6, core ratio for Moody’s, monitored by S&P
Net debt to EBITDA	Yes	Core ratio for S&P and Fitch
Secondary metrics		
Post maintenance interest cover ratio (“PMICR”)	Yes	Used at Q6, core ratio for Fitch, similar to ACICR
FFO to Net debt	Yes	Used at Q6, core ratio for S&P, similar to FFO to Gross Debt
Debt service coverage ratio	No	Core ratio for Moody’s, alternative form of interest cover
Retained cash flow to Gross Debt	No	Core ratio for Moody’s, similar to S&P supplementary ratio

Source: CAA

3.22 We propose to use information from the credit rating agencies as evidence to inform our own benchmarks, but there may be differences between our emerging approach and that used by credit rating agencies. For example, the credit rating agencies will focus more on HAL’s actual financing structure while we will consider a range of notional structures.

3.23 Appendix E provides further information on credit metrics that could be used to inform the development of our benchmarks for financial ratios. We will consider further the development of our own benchmarks in the light of responses to this consultation, further discussions with credit rating agencies and other stakeholders, and our evolving financeability and affordability modelling.

3.24 We will carry out financial modelling to assess the credit metrics. This will rely on business plan information from HAL and the CAA's assumptions around financing, including on debt characteristics and financing costs.

3.25 We also expect to apply our judgement to assessing the overall results of analysis of credit metrics. Depending on the circumstances (including the qualitative assessment discussed below), we would not necessarily expect all metrics to meet benchmark levels in all years.[17] We may also decide that it is appropriate to include headroom in the selection of benchmarks and make use of sensitivity and scenario analyses.

Qualitative assessment of debt financeability

3.26 As noted above, we propose to supplement our assessment of credit metrics with a qualitative assessment of the wider regulatory framework and the business environment within which HAL operates. Qualitative factors that appear to be taken into account by credit rating agencies when assessing HAL and other airports include:

- market position and characteristics;
- passenger mix; and
- stability and future projections of traffic levels.

3.27 We also propose to assess material changes in risks as a result of capacity expansion and our regulatory framework. We would expect this work to focus on:

[17] The Competition Commission and others have recognised that a regulatory determination may be consistent with an investment grade credit rating even if certain key ratios appear to be weak or breach target levels set by the rating agencies in some years. For example, see the Competition Commission Report BAA plc 'A report on the economic regulation of the London airports companies (Heathrow Airport Ltd and Gatwick Airport Ltd)', paragraph 5.24 http://webarchive.nationalarchives.gov.uk/20111202214947/http://www.competition-commission.org.uk/rep_pub/reports/2007/fulltext/532.pdf

- cost and construction risks (we would also take into account the opportunities available to HAL to use its supply chain better to share risks, and the scope for HAL to use novel commercial arrangements better to manage cost risks); and
- volume risks (which would cover expected levels of volatility, the treatment of demand risk in the regulatory framework and any commercial opportunities for HAL to partner with airlines to reduce volume risks).

Assessment of equity financeability

3.28 HAL's shareholders may need to provide substantial amounts of additional new equity (and/or forego dividends) to support capacity expansion. This is in contrast to recent experience where HAL has largely funded its capital expenditure programme from operating cash flows and by raising additional debt.

3.29 Bearing this in mind, it will be important to consider equity financeability, which could include:

- considering whether the credit rating assessment for debt would support equity investment. We recognise that equity investors will expect that HAL can continue to maintain an investment grade credit rating for new and existing debt;
- estimating the potential scale of any equity issuance, based on our notional and notional securitised structures;
- engaging with existing shareholders and potential providers of new equity to assess the market appetite for the provision of additional equity;
- assessing the economic case for further equity investment, potentially using metrics such as the long term internal rates of return ("IRR") and return on regulatory equity ("RORE"). These metrics are discussed in more detail in Appendix E; and
- considering whether it would be reasonable to assume support packages from shareholders to deal with downside sensitivities/scenarios or, more

generally, whether there would be scope to rely on the injection of additional equity to deal with adverse events.

Indexing for inflation

3.30 We confirm our initial policy of retaining RPI to index the RAB and calculate the real WACC for H7. As outlined in the June 2017 Consultation, we consider that a cautious approach on changes to inflation benchmarks is appropriate. Indexing the RAB and calculating the real WACC by using CPI would introduce an additional financing risk for HAL to manage[18] and would do so at a time when it is also raising a significant amount of debt for new runway capacity.

3.31 In the context of indexing the RAB and calculating a real WACC, the absence of CPI-based financial instruments compounds this financing risk. A change to CPI could also make affordability more challenging by increasing pressure on prices in the short term, although the net present value of charges would remain neutral over the long term.

3.32 On the choice of inflation indexing for the price cap and maximum allowed airport charges over time, we will need to undertake further analysis to inform our decisions.

3.33 The review of UK price indices by Paul Johnson in 2015 for the UK Statistics Authority recommended that *"the Government and regulators should work towards ending the use of the RPI as soon as practicable. Where they decide to keep using it the UK Statistics Authority should ask them to set out clearly and publicly their reasons for doing so."*[19] Given this recommendation, and the ONS' decision to de-designate RPI as an official statistic, it will eventually become necessary for the CAA to move to CPI or CPIH for setting all aspects of the price control. Any change in indexation will need to be considered carefully, and it is too early at this stage of the price review to determine the longer term transition

[18] HAL's financing arrangements currently have around 60% of their debt linked to RPI as a hedge against inflation.

[19] Paul Johnson, "UK Consumer Price Statistics: A review", January 2015. See: https://www.statisticsauthority.gov.uk/archive/reports---correspondence/current-reviews/uk-consumer-price-statistics---a-review.pdf

plan to CPI for RAB indexation and calculating a real WACC. So, at this stage, we can only confirm our plan to retain RPI indexation for the RAB and calculating a real WACC for the period of HAL's next main price control, which we expect to run for five years between the start of 2021 and end of 2025.

Views invited

3.34 We would welcome the views of stakeholders on any aspects of the issues raised in this chapter and, in particular, on our suggestions for developing our approach to financeability by:

- considering both a notionally efficient and alternative securitised financing structure in testing financeability;
- the choice of credit metrics for assessing financeability and the benchmark levels that these should be tested against;
- the relevant qualitative factors for assessing debt financeability; and
- the approach to equity financeability and how this should best be assessed.

Chapter 4

Financial resilience and ring fencing

Introduction

4.1 The June 2017 Consultation explained that HAL is responsible for providing services that are very important to consumers and the UK economy. We noted that there are licence conditions in place designed to promote financial stability, but that these are less extensive than those in place for other regulated sectors. The particular challenges of capacity expansion mean that it is appropriate to consider whether these arrangements remain fit for purpose. In the light of these factors, the June 2017 Consultation invited views on how HAL should best provide appropriate assurance on financial stability and resilience over the period of capacity expansion.

Responses to the June 2017 Consultation

4.2 HAL said that, over the last 10 years, it has performed strongly in terms of financial stability and resilience and that this should provide significant comfort to stakeholders. It also noted the protections associated with its existing financial structure, including limits on gearing and target credit ratings. HAL acknowledged that minimum liquidity requirements could provide some further assurance with respect to financial resilience, but these could lead to significant additional costs.

4.3 It also explained that credit rating agencies provide third party assurance with qualitative and quantitative assessment of HAL's performance on an ongoing basis. Further, that financeability should be addressed broadly by considering the operation of the wider regulatory framework and ensuring it is fit for purpose in terms of meeting the longer term challenges of capacity expansion. Any changes to the framework (such as any increased use of *ex ante* cost incentives) should be consistent with HAL retaining financial resilience and stability.

Assessment

4.4 We recognise the points HAL has made about taking into account the benefits of its existing financial arrangements and considering the impact of the wider regulatory framework on financial resilience and stability. We accept that there are benefits to consumers from HAL's existing financing arrangements, that they allow HAL to raise large amounts of debt finance, and that it might be costly and difficult to make significant changes to these arrangements.

4.5 Nonetheless, the protections offered by HAL's existing financial arrangements are aimed at protecting HAL's bondholders, who are primarily interested in repayment of their loans, rather than consumers. Capacity expansion also raises significant new challenges given the size of the likely investment programme. In these circumstances, it is appropriate for us to review the existing licence protections to see if they remain fit for purpose.

4.6 In doing so, we will be mindful of the need for any changes to have clear benefits and not to impose undue costs on HAL and consumers. In this context, we will have regard to HAL's existing financial arrangements and, at present, we have seen no evidence that would justify the CAA in taking an approach that would cut across HAL's existing financing arrangements in a way that would precipitate a possible refinancing. We will also consider financial resilience and stability in developing the wider regulatory framework.

4.7 The existing financial ring fencing provisions in HAL's licence:

- restrict the activities of the airport operator;
- require annual sufficiency of resources statements covering the forthcoming 24 months;
- require it to notify the CAA of any changes to the credit rating requirements in its financing arrangements;
- require an undertaking from its ultimate holding company that it will not put HAL in breach of its licence; and

- require it to have a continuity of service plan, setting out the information about the business that an administrator would need immediately to keep the business going with minimal interruption.

4.8 This approach was taken to help protect consumers but also to avoid cutting across HAL's existing financing arrangements which could have involved significant extra cost (and so the ring fencing conditions are less extensive than typically seen in other regulated sectors).

4.9 As well as this particular approach to financial ring fencing conditions, it is important to note that there is no statutory special administration regime for HAL that could act as a safety net in the event of severe financial distress and that HAL's bond holders have been granted security over both its regulated business and its operational assets.

4.10 We commissioned a report from KPMG (to be published early in 2018) to give some initial consideration to additional measures that might promote the financial resilience of HAL. KPMG recommended the following options for further consideration:

- cost of debt indexation;
- gearing caps;
- requirements to maintain an investment grade credit rating; and
- requirements to maintain minimum cash balances.

4.11 Debt indexation is being pursued as part of our work on the cost of capital as explained in chapter 2. Gearing caps and requirements to maintain an investment grade credit rating could be part of a strengthened set of financial ring fencing conditions and these matters are considered further below and in Appendix F.

4.12 In relation to requirements to maintain minimum cash balances, in order to make a significant difference to financial resilience, it might be necessary to impose requirements on HAL to hold substantial cash balances and these could have significant additional financing costs. There may also be difficulties in determining the appropriate quantum for such a minimum cash balance. Bearing the above in mind, it is sensible to explore whether there are more appropriate ways of promoting financial resilience and stability.

Way forward

4.13 Licence conditions relating to financial resilience and stability fall into a number of interlinked categories:

- “specific” rules that could ensure that the licensee has sufficient resources to carry out its activities;
- “conduct of business” rules, aimed at ensuring that the licensee carries out its activities in a manner that the licensee’s assets are not diverted/exposed to undue risk; and
- “general oversight” rules aimed at ensuring that the regulator (and potentially third parties) has clear sight of the financial position of the licensee and mitigating the effects of financial or operational stress should it occur.

4.14 Our aim is to explore whether there is scope to strengthen the existing financial ring fencing conditions consistent with the framework described above without creating significant additional costs for HAL and consumers. Wherever practicable, any new regulatory arrangements should be designed to work in a cost effective way and in conjunction with HAL’s existing financial platform to:

- ensure HAL has sufficient resources and conducts its business (including expansion) in such a way that promotes financial resilience and mitigates against financial distress;
- promote reasonable confidence among consumers, investors, the CAA and other stakeholders that HAL will remain in a position to finance its activities in the long term;
- ensure primary accountability for HAL’s financial stability remains with HAL’s board and its directors;
- provide for real mitigations to be implemented in a timely way if HAL does not meet a standard specified by the licence; and

- ensure consistency with and, where practicable, indirectly supports other policy objectives.

4.15 We have conducted a review of other economic regulators' practices in relation to financial ring fencing and an assessment of possible licence conditions is set out in Appendix F, together with an initial review of whether particular rules are likely to be appropriate and/or proportionate. This initial assessment suggests that the following additional conditions may be worthy of further consideration:

- limited additional restrictions on the disposal of assets;
- an obligation to hold a corporate credit rating;
- stronger sufficiency of resources obligations;
- enhanced compliance certification;
- enhanced ultimate controller undertakings;
- enhanced information provision in relation to changes to financing arrangements and in the situation of financial distress; and
- cash/dividend lock up provisions.

4.16 This is a list of possible options. We will seek to assess in more detail the advantages and disadvantages of each condition and the extent that they are likely to provide substantial benefits before establishing a final list of what changes, if any, are appropriate. Nonetheless, even if we were to adopt all of the above additional measures, the financial ring fencing licence conditions applying to HAL would not have all the protections generally associated with financial ring fencing conditions for regulated companies. For instance, there would be no restrictions on HAL's ability to provide creditors with security over its operational assets or restrictions on cross default obligations.

4.17 Retaining this particular approach assumes that we will make substantial progress with HAL on developing the regulatory framework so that it reasonably supports HAL's financial resilience and stability, and that HAL is able to provide assurance to stakeholders that its financial arrangements will support capacity expansion. If this were not to be the case, we would need to consider whether we should take additional steps to those identified in paragraph 4.15 above in relation financial resilience and stability.

Views invited

4.18 Views are invited on any aspect of financial resilience and ring fencing and, in particular, whether HAL's licence conditions that provide for financial ring fencing should be strengthened.

Chapter 5

The regulatory treatment of early construction costs

Introduction

5.1 In February 2017, we issued a Policy Statement on the recovery by HAL of efficient costs directly and solely associated with obtaining planning permission for capacity expansion at Heathrow.[20] The June 2017 Consultation said that we would also consider the appropriate regulatory treatment of early stage construction costs (i.e. those to be incurred ahead of HAL receiving planning consent). These costs are likely to consist mainly of commercial compensation costs, certain residential compensation costs and the costs of other enabling work.

5.2 This chapter summarises what we said in the June 2017 Consultation on these matters, sets out the views of respondents and describes our initial views on the regulatory treatment of early construction costs (which we term early “Category C” costs).

The June 2017 Consultation and stakeholders’ responses

5.3 The June 2017 Consultation set out background information on compensation and early Category C costs and started to explore the evidence that we would require in order to develop policy on the regulatory treatment of these costs. In particular, we stressed that:

- HAL should provide information on the efficiency and reasonableness of these costs and that we would want to guard against allowing the recovery of any inefficient costs;
- HAL should also explain its proposals for the regulatory treatment of these costs, including any modifications that it considers should be made to the

[20] See CAP 1513: The recovery of costs associated with obtaining planning permission for a new northwest runway at Heathrow Airport: Policy Statement. www.caa.co.uk/CAP1513

current capital expenditure governance processes with respect to early Category C costs;

- until the regulatory treatment of these costs is agreed, HAL will need to accept that it is investing with a degree of risk; and
- satisfactory progress should be made on understanding the overall affordability of capacity expansion to inform decisions on the timing of the recovery of any cost allowances.

5.4 In its response to the June 2017 Consultation, HAL said that early Category C costs should be dealt with through the current capital expenditure governance processes. It suggested that the Heathrow Airport Capital Investment Protocol would provide for full airline scrutiny and that, if there were to be no agreement with airlines, the CAA should act as arbiter. It also noted that this may require more active engagement with the CAA given the nature of these costs and that timely interventions would be necessary given the potential impact of these expenditures on local communities and the critical path for capacity expansion. It suggested four principles for assessing the appropriateness of early Category C costs:

- treating local residents fairly;
- the impact of particular investments on the critical path for delivery;
- the costs savings that timely investment can generate; and
- the impact that particular investments have on overall deliverability.

5.5 Responses from airline representatives and other stakeholders set out a number of concerns about the regulatory treatment of early Category C costs, including:

- if HAL wishes to proceed with early Category C spending, it should be at HAL's risk given that significant uncertainties remain in respect of capacity expansion;
- pre-funding could be expensive and is not appropriate as it may create an inter-generational cross subsidy and is not a feature of arrangements in competitive markets;

- it is appropriate for statutory compensation payments to be recovered from airport charges, but not anything in excess of these requirements; and
- airline stakeholders said that, despite their reservations about early Category C costs, their main priority remains overall affordability and, if substantial progress could be made on these matters, they would be open to considering how best to remunerate early Category C costs.

Developing our overall approach to the regulatory treatment of early Category C costs

5.6 In response to HAL's comments on the June 2017 Consultation, we have the following observations:

- we agree that there should be airline involvement in the governance of early Category C costs and would welcome airline views on the suggestion that this is through the Heathrow Airport Capital Investment Protocol;
- we understand the advantages of dealing with these matters in a timely way. We are of the view that, if we develop a clear set of criteria against which the efficiency of early Category C costs can be judged, this would facilitate timely and effective consideration of these matters by airlines and the CAA. As discussed further below, this will involve modifying and developing the principles put forward by HAL in its response to the June 2017 Consultation.

5.7 The comments from airline representatives raise a number of fundamental concerns about the regulatory treatment of early Category C costs. These are addressed below:

- if HAL incurs efficient early Category C costs, the primary beneficiaries of this expenditure should be consumers and not HAL. An essential test of early Category C spending should be that the expected benefits in terms of the overall programme timetable or future cost savings exceed the present value of the costs. These estimates need to take account of the uncertainties associated with capacity expansion, rather than uncertainty simply becoming a reason for inaction (as this might cause detriment to consumers);

- as respondents have raised questions of inter-generational equity, but we consider that these are difficult concepts that can be reasonably subject to a range of interpretations. Nonetheless, such concerns can reasonably be addressed through a relatively stable path of airport charges over time and we consider that this is also compatible with airlines' aspirations about the future path of prices;
- respondents have also raised analogies with competitive markets, which can also be subject to a range of reasonable interpretations. For instance,[21] it might be that, in a competitive market with short term capacity constraints, prices would increase in a way that signals the need for future investment. If this were to be the case, those increased prices may also provide additional cash flows that could be used by market participants to accelerate their investment plans. For Heathrow, economic regulation prevents the functioning of the market forces by restricting the ability of HAL to increase its prices so that, in the circumstances of capacity expansion, there is a case for considering allowing appropriate funding of early Category C costs, where such spending can be shown to be in consumers' interests;
- we understand the importance of statutory requirements in driving costs. Nonetheless, these are not the only consideration. For instance, we note that, in broad terms, the Airports Commission endorsed HAL's approach to residential compensation in making its recommendations to support the development of a northwest runway at Heathrow; and
- we agree with airline and other stakeholders that overall affordability is a critical objective, that further progress needs to be made on these matters and that the treatment of early Category C costs needs to be consistent with the overall approach to affordability.

[21] As we noted in CAP 1279, there may be a range of competitive outcomes and theoretical tests may be difficult to apply, especially in cases where there are different views about what a hypothetical competitive market may look like. See CAP 1279 at paragraph 3.33 and Appendix, paragraph C22. www.caa.co.uk/CAP1279

Information to support the assessment of costs

5.8 The June 2017 Consultation explained that we had asked HAL to provide further detailed information on its estimates of early Category C costs. HAL responded to these requests and we have subsequently analysed the information that it has provided. This process has revealed that we need to be clearer on the information requirements that will best support a focused assessment of early Category C costs. This should help airlines understand these costs and facilitate the CAA's analysis and assessment.

5.9 Appendix G sets out for consultation our current view on how these costs can be best categorised and the key requirements on HAL with respect to the provision of information. The intention is to establish a set of information (and processes for the provision of this information) that will provide sufficient comfort to airlines, other stakeholders and the CAA that early Category C costs are being incurred efficiently in the interests of consumers.

5.10 The three basic categories of these costs are described in more detail below:

- Commercial/other compensation costs: there are 7 large commercial/other projects that HAL has identified that may need to be moved or extinguished to enable capacity expansion and on which early action may be necessary for the timely delivery of expansion. These are: (i) the Grundon waste to energy power plant; (ii) British Airways' Waterside HQ ("Waterside"); (iii) Home Office detention centres; (iv) the Sofitel hotel at Terminal 5; (v) BT data processing centres; (vi) a major electricity substation and associated power lines; and (vii) Total's fuel facility. HAL's initial estimates suggest that it could spend approximately £130 million on this category of costs in the period 2017 to 2020;[22]
- Compensation for residential, small commercial and agricultural interests: the residential costs will include purchasing property under a property Hardship Scheme and as a result of the statutory blight regime. The

[22] The figures set out in this chapter are HAL's current estimates of expenditure, subject to a range of up to 25%. The figures are highly preliminary and subject to significant review. Phasing of early spending will vary significantly as the programme evolves.

Hardship Scheme is a voluntary undertaking by HAL to provide assistance ahead of the designation of the NPS to those who are suffering from particular hardship as a result of the proposed expansion of the airport. We understand that a similar scheme has been put in place for the HS2 railway project. Statutory blight is a scheme which comes into effect following designation of the NPS which allows private individuals to apply for compensation for property blighted by the proposed development. HAL's initial estimates suggest spending up to £15 million or £20 million on the residential costs over the period 2017 to 2020; and

- Other enabling costs: HAL forecasts that it could spend around £300 million on other enabling costs ahead of the grant of the DCO. However, while we are aware that these costs include ground surveys and some initial elements of design, HAL has not provided us with sufficient information to fully describe this category of costs or to give adequate comfort that these costs are properly separate from either planning costs or costs associated with HAL's "business as usual activities" and the Q6 price control. In the light of these factors, this category of costs is not considered further at this stage.

The regulatory treatment of early Category C costs

Approach to early compensation costs for large commercial/other projects

5.11 As indicated above, HAL has identified 7 major commercial/other projects that collectively could drive significant early Category C costs. Our discussions with HAL and understanding of the circumstances faced by other large infrastructure projects under development in the UK suggest that there could be a *prima facie* case for considering whether spending on these projects should start to be incurred ahead of planning consent. Bearing in mind these considerations, and the potential benefits to consumers of HAL incurring efficient early Category C costs, it is appropriate to set out in more detail the information that HAL must provide to support its expenditure on these projects. This should allow both airlines and the CAA to establish: (a) whether there is a case for early expenditure; (b) that HAL's forecasts of these costs are reasonable and reflect only efficient costs; and (c) that any costs incurred that HAL subsequently seeks to recover through airport charges are efficient.

5.12 In the context of the broader regulatory framework and overall capacity expansion, the June 2017 Consultation explained the importance of providing incentives for efficient and timely delivery of capacity expansion. Further, it noted that we should consider moving towards a greater role for *ex ante* incentives (i.e. incentives that provide a target for HAL to outperform, and proportionate rewards and penalties depending on whether costs turn out to be lower or higher than the target level). Nonetheless, we also said it would be important to consider how best to build on the success of present governance arrangements and the system of *ex post* reviews of efficiency. These *ex post* incentives allow HAL to bring projects forward in discussion with airlines and incur costs which are then added to the RAB, subject to (where there are concerns about inefficiency) a later review by the CAA.

5.13 The bespoke nature of each of the 7 large commercial/other projects (and the fact that compensation levels for each project will be subject to separate negotiation/arbitration processes) suggests that it would not be straightforward or proportionate to develop *ex ante* incentives to encourage efficiency. It is nonetheless important that HAL establishes the case for early expenditure on each project.

5.14 This category of costs may also provide particular challenges for the existing capital governance processes:

- the non-aviation nature of these costs is not within the usual expertise of the airlines so as to enable them effectively to challenge costings or scope;
- the information assessed will be third party information rather than that of the airport operator, raising confidentiality issues that may be difficult to fully overcome; and
- possible conflicts of interest may arise in relation to the costs associated with Waterside.

5.15 Despite this, airline engagement remains an important objective and, taking into account all of the above, we consider the appropriate approach at this stage is for:

- the CAA to consult on, and finalise, the broad requirements for the provision of information in relation to these costs: these are set out in Appendix G;
- consistent with its suggested approach, HAL should put forward information on: (a) whether there is a case for early expenditure; and (b) how its forecasts of these costs are reasonable and reflect only efficient costs, to airlines through the existing capital expenditure governance arrangements (with the possible exception of costs relating to Waterside);
- disagreements between HAL and airlines on these matters to come to us for consideration (we would consider the information available on Waterside in any event); and
- HAL subsequently to provide additional information if it needs to revise its forecasts and evidence showing that the costs incurred were efficient, including appropriate third party assurance on these matters.

5.16 If HAL is able to satisfy the above process, costs would be allowed by being added to the RAB (and remunerated at the prevailing WACC). The timing of any cost recovery would be consistent with the approach to overall affordability as discussed below in the section on remuneration.

Approach to early compensation for residential, small commercial and others

5.17 HAL's initial estimate of expenditure on early residential compensation (hardship and statutory blight) is relatively modest (approximately £15 million to £20 million) and is underpinned by its statutory obligations. In the light of these factors, a holistic approach to this element of early Category C costs may be appropriate, with these costs considered in the round and as a single item in the process described above for larger commercial/other projects. If these processes provide sufficient comfort that allowing the recovery of these costs would be in the interests of consumers, we would expect to allow the costs to be included in the RAB.

5.18 HAL has also provided an initial estimate of other spending on small commercial compensation costs that will require further analysis and assessment before decisions can be made on the appropriate treatment of these costs.

Remuneration of early Category C costs

5.19 In chapter 6, we explain that the further extension of the Q6 price control will be at RPI-0% or RPI-1.5%. We have also committed to taking affordability into account in setting the next main price control. This should ensure that any allowances for efficiently incurred early Category C costs are recovered in a way that is consistent with overall affordability.

5.20 We intend to publish a further update on the regulatory framework for HAL and final Section 16 report on airport and airline engagement in April 2018. This will include our initial views on the overall affordability and financeability of capacity expansion. Assuming that adequate progress is being made on overall affordability, this will allow us to confirm our approach to the remuneration of early Category C costs in our April 2018 update on the regulatory framework.

Views invited

5.21 Views are invited on any matters relating to the regulatory treatment of early Category C costs and, in particular, on:

- our suggestions for the regulatory treatment of the costs associated with the 7 big commercial/other projects identified by HAL; and
- the draft requirements for the provision of information by HAL set out in Appendix G.

Chapter 6

Interim arrangements to extend the Q6 price control

Introduction

6.1 In 2016, we implemented proposals to extend the existing price control (Q6) by one year to take account of the uncertainty surrounding the Government's announcement on the location of capacity expansion in the south east of England. This meant that the Q6 price control would remain in place until the end of 2019. Following the Government's decision that a new northwest runway at Heathrow is its preferred location for new capacity, HAL has developed plans to apply for development consent at around the end of 2019, with the aim of a DCO being granted at the end of 2020 or in early 2021.

6.2 The June 2017 Consultation explained that there are clear benefits to consumers in better aligning the main price control timetable with that of the wider programme for capacity expansion. As a result, a further extension to the existing price control of at least a year would be needed.

6.3 We also emphasised the need to retain some flexibility to respond to the evolving timetable for the expansion programme and explained that we intended to adopt a proportionate approach to a further price control extension and so avoid all the complexity of a full price control review. We outlined a number of options for achieving these objectives, as well as the possibility of setting a path of prices for the period of the price control extension at RPI-0%, with any further adjustments to underlying revenues being made by adjusting regulatory depreciation.

6.4 This chapter summarises respondents' views on the matters discussed in the June 2017 Consultation on the further extension of HAL's Q6 price control and sets out for consultation a number of options on how we should calibrate the underlying revenues and the appropriate path of prices for the period of the price control extension, and our preferred approach in respect of these matters.

Stakeholders' views

6.5 There was a consensus across respondents that the CAA's decisions on the price control extension are needed soon and that the approach to resetting the control should avoid the cost and workload associated with a full price control review.

6.6 HAL noted there will never be absolute certainty over the timetable for capacity expansion and said it would accept a further one year extension based on a simple rollover of the current RPI-1.5% price cap. It acknowledged that if a further extension beyond one year were to become necessary, a different approach might be appropriate.

6.7 Airlines and other respondents supported the need for a further extension, but not as a simple rollover of RPI-1.5% as they felt HAL should pass more benefits to airlines and consumers. There were a number of suggestions for adjusting the basic building block assumptions that were used in setting the Q6 price control for the period of the price control extension, but doing so in a way that would avoid the complexity of a full price control review. In particular, there were suggestions that passenger traffic forecasts could be revised upwards toward current levels and a suggestion that it might be appropriate to reopen the WACC.

6.8 Generally, respondents considered the justification for a RPI-0% price path were relatively weak and that prices should be reduced to reflect HAL's outperformance of the current settlement. Nonetheless, one stakeholder suggested using RPI-0% to smooth prices, with any extra benefits to consumers being taken by increasing regulatory depreciation (which would reduce the RAB and so mean lower prices in the future).

Broad approach

6.9 We continue to see the benefits of aligning (to the extent practicable) the regulatory process for setting HAL's price control with the wider processes for capacity expansion. Otherwise the information available at the main price control review might not reflect the best information available on capacity expansion.

6.10 Identifying an appropriate approach to setting the price control extension is not straightforward as there remain uncertainties in the overall timetable. We need to avoid any undue distraction for stakeholders from the main processes associated with developing plans for capacity expansion. We also need to protect consumers in the circumstances where a series of piecemeal extensions to the existing Q6 price control may not be in their best interests.

6.11 Bearing in mind the above circumstances and challenges, and the responses to the June 2017 Consultation, we have developed the following four criteria to help guide our decisions on the further extension of the Q6 price control:

- pragmatism: changes must be consistent with, and appropriate in the circumstances of, the capacity expansion at Heathrow, recognising that consumers are likely to benefit most from a new runway and expanded capacity;
- alignment: the price control extension should facilitate and support the capacity expansion process and, to the extent practicable, align the main price control review with the wider programme for capacity expansion;
- stability: we aim not to cause sudden or unnecessary changes in airport charges or regulatory incentives, and changes made in relation to the price control extension should support overall affordability (and to the extent practicable no real increase in airport charges per passenger); and
- proportionality and staging: the price control extension should bring in changes only to the extent that they are necessary to protect consumers and/or will facilitate the development of wider policy.

6.12 These criteria reflect our statutory duties and the principles of Better Regulation. Protecting consumers means not unnecessarily distracting stakeholders from capacity expansion but also making sure that the price control extension shares the advantages of efficiency and other gains with consumers. For a longer price control extension, there would be a greater case for reopening more of the assumptions underlying the price control to ensure that consumers' interests are properly protected, but doing so in a way that avoids all the complexity of a full price control review.

Options for setting an interim price control

6.13 Given the current timetable for capacity expansion, the existing price control will need to be extended by at least a further year. It will also be appropriate to retain some flexibility because the timetable is uncertain and could be delayed. Nonetheless, as noted above, we also need to avoid a series of piecemeal price control extensions that, when taken together, may not properly protect the interests of consumers.

6.14 Bearing the above in mind, we are seeking to adopt an approach that is flexible to cover either a one or two year extension (i.e. to cover the interim years of 2020 and 2021) and will also properly protect consumers in these circumstances.

6.15 This should avoid all the complexity of a full review, but will involve a greater degree of supporting checks and assessment of the appropriate level of price control revenue than another simple rollover of the current RPI-1.5% formula.

6.16 In carrying out a full price control review, we would normally carry out a detailed "bottom up" assessment of each of the key components or building blocks of price control revenue. This would not be proportionate in the circumstances of the price control extension, but we can carry out a number of important "top down" tests on the path of prices and the key components of price control revenue.

6.17 As well as protecting consumers, we have to have regard to HAL's ability to finance its activities. This means we would need to adopt a cautious approach to adjusting components of price control revenue such as the WACC, as this is a key driver of HAL's ability to finance its activities.

Calibrating HAL's revenue allowances

6.18 There are a number of options for carrying out the top down assessment of the key building blocks that are used to calculate HAL's price control revenue. These include:

- "rolling forward" the underlying efficiency assumptions that supported each of the revenue building blocks used to set the Q6 price in 2013 so that they support the calculation of price control revenue in 2020 and (if needed) 2021; and/or
- resetting some of the assumptions underpinning the individual revenue building blocks using current outturns and forecasts, such as passenger traffic volumes, operational costs and commercial revenue.

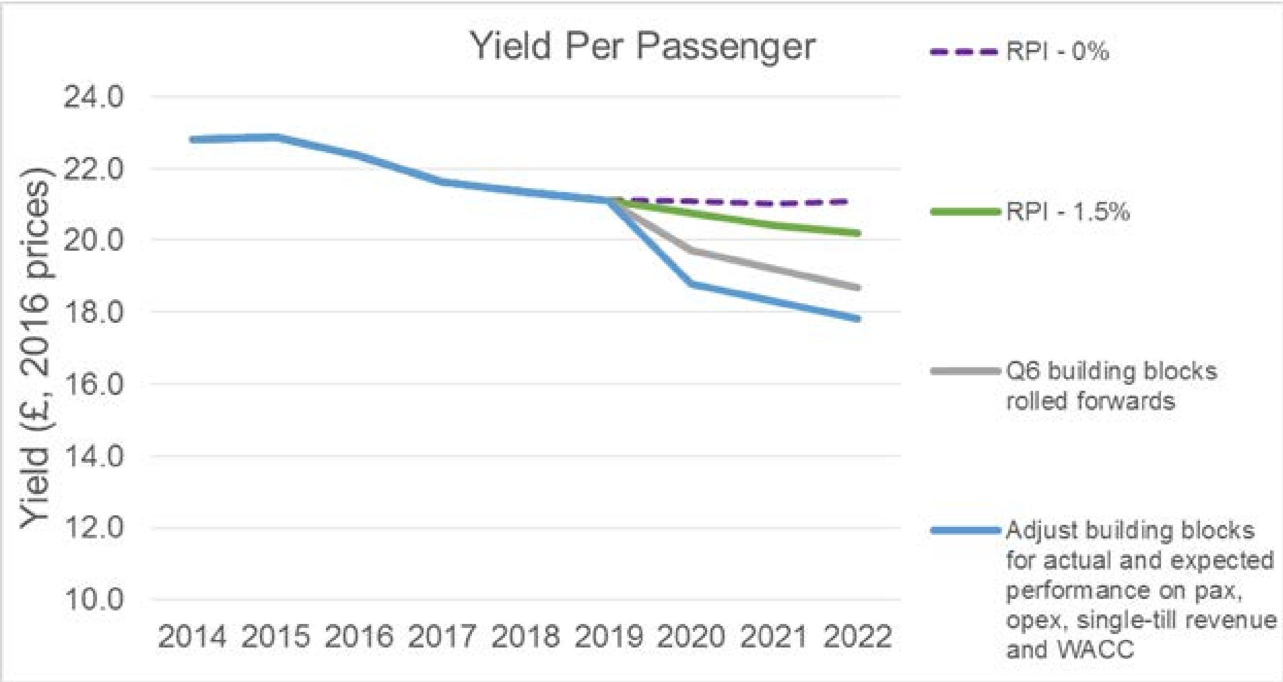
6.19 The latter approach takes account of HAL's recent performance, whereas the former does not as it relies on extending the Q6 assumptions for the period of the price control extension. Resetting assumptions on the basis of the latest available information generally requires additional analysis and assessment, but makes use of more up to date information and is reasonably practicable for the more straightforward revenue building blocks (i.e. passenger numbers/traffic, commercial revenue and operating expenditure) but is more difficult for a full resetting of the WACC.

6.20 We have made some initial estimates of the impacts of these approaches and formulated the following scenarios to illustrate their possible impact on HAL's underlying revenues:

- simple extrapolation of revenues based on flat real charges (RPI-0%) or the the existing price control (RPI-1.5%);
- roll forward trends in the revenue building blocks that were established at the Q6 price control review in 2013 (without taking account of HAL's actual performance in the period);
- roll forward as above, but resetting the more straight forward revenue building blocks such as passenger traffic volumes, operating expenditures, the commercial revenues used in the single till calculations, and also resetting some of the less controversial elements of the WACC, in particular, adjusting the Q6 estimate for actual new debt costs and changes in the corporate tax rate.

6.21 Our initial and very indicative estimate of the impact of these scenarios is set out in the figure below. The assumptions that we have used are based on current information and the CAA's forecasts for trends in revenue building blocks. These are described in more detail in Appendix H. We would expect these to change in response to further analysis, and a different pattern of changes could emerge from this analysis.

Figure 6.1: Impact of options for calibrating HAL's revenue



Source: CAA analysis

6.22 Given the advantages in a top down assessment that looks beyond a simple RPI-1.5% adjustment of revenue, two options appear relevant. A relatively simple approach based on the roll forward of the revenue building blocks or the resetting of the more straight forward building blocks taking account of the latest available information.

6.23 As we are seeking to identify a method that will be fit for purpose for a further price control extension of duration of one or two years, the approach based on resetting the revenue building blocks seems most appropriate, as it has the flexibility to deal with the greater range of circumstances that may be associated with a 2 year extension. Nonetheless, both these options provide for a more detailed assessment of HAL's revenue allowances than a simple roll forward of RPI-1.5%, but avoid all the complexity of a full review.

Setting the price path

6.24 In setting a path of prices, we have greater flexibility than simply setting price control revenue on the basis of the mechanistic addition of the revenue building blocks. This flexibility can help protect the interests of consumers by allowing a choice over the path of prices, so avoiding any short term instability in charges and promoting price levels that both support the financing of capacity expansion and are consistent with overall affordability.

6.25 To the extent that our analysis of the underlying revenue building blocks produces a different revenue requirement from the longer term sustainable price path, we can make a counterbalancing adjustment to the amount of regulatory depreciation during the period of the price control extension. In the circumstances where underlying revenue requirements are less than the longer term sustainable level, adjusting regulatory depreciation in this way can be thought of as being similar to making early repayments on a mortgage: it reduces charging pressures in later years as the RAB (the outstanding capital) will be lower than it otherwise would have been.

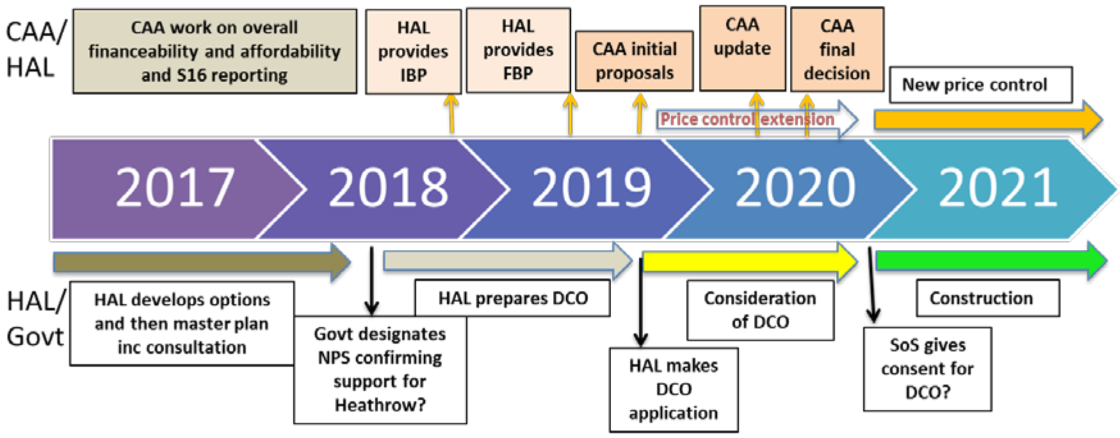
6.26 We have noted the aspirations of stakeholders that, over the period of capacity expansion, charges should remain at or below 2016 levels in real terms. A simple interpretation of this would be setting prices at RPI-0%, although we note that airlines have expressed reservations about this approach in response to the June 2017 Consultation, on the basis that it would not pass on to consumers a sufficiently large share of the efficiency and other gains made by HAL.

6.27 We consider that consumers' interests can be protected by ensuring that efficiency and other gains are captured through an adjustment to regulatory depreciation. Increasing regulatory depreciation would reduce the RAB and ensure airport charges are lower in future years. Nonetheless, we also acknowledge that RPI-0% is not the only credible path of prices and that retaining the existing RPI-1.5% would be consistent with the current price control. This would lead to a small reduction in charges now but would also increase the chance that charges will need to rise in real terms in the future to help fund capacity expansion. Given the potential challenges associated with financing capacity expansion we consider that a RPI-0% path of prices for the extension, with less pressure to raise prices later, is likely to be in the best interests of consumers. We understand that this was not the option preferred by airlines in response to the June 2017 Consultation.

Timeline for setting the interim price control

6.28 The figure below summarises the overall timetable for capacity expansion, which is relatively tight. It shows that to move the existing price control more into line with the wider programme for capacity expansion will require a one year extension of the Q6 price control.

Figure 6.2: the overall timetable for capacity expansion



Source: CAA

6.29 We intend to make a decision on our approach to calibrating revenue allowances and the price path in April 2018, as part of the update to the regulatory framework that we plan to publish alongside our final Section 16 report to the Secretary of State on the results of airport/airline engagement.

6.30 Assuming that the NPS is designated consistent with the current plans by the early in the summer of 2018, we would then be able to proceed with the final work on calibrating the extension in 2018 and bring forward the enabling licence modifications in 2019. However, should circumstances change and the wider timetable is substantially revised, we may need to review the above timescales and whether a one or two year (or possibly longer) duration extension would be appropriate.

6.31 For an extension of one or two years, we would not expect HAL to provide a formal business plan, but will require HAL to provide robust and proportionate information to support the process. If circumstances were to transpire such that an extension of longer than two years were to be needed, we would need to reconsider these matters and the basic approach to calibrating the extension.

Views invited

6.32 Views are invited on any matters relating to the further extension of HAL's Q6 price control and in particular on:

- the options described above for calibrating the underlying revenue requirements for a one or two year extension and our preferred approach of resetting the more straightforward revenue building blocks for the price control extension; and
- whether the path of prices should be RPI-0% or RPI-1.5%, and our preferred option of RPI-0%.

Appendix A

Our duties

1. The CAA is an independent economic regulator. Our duties in relation to the economic regulation of airport operation services ("AOS"), including capacity expansion, are set out in the CAA12.

2. CAA12 gives the CAA a general ("primary") duty, to carry out its functions under CAA12 in a manner which it considers will further the interests of users of air transport services regarding the range, availability, continuity, cost and quality of AOS.

3. CAA12 defines users of air transport services as present and future passengers and those with a right in property carried by the service (i.e. cargo owners). We often refer to these users by using the shorthand of "consumers".

4. The CAA must also carry out its functions, where appropriate, in a manner that will promote competition in the provision of AOS.

5. In discharging this primary duty, the CAA must also have regard to a range of other matters specified in the CAA12. These include:

   - the need to secure that each licensee is able to finance its licensed activities;
   - the need to secure that all reasonable demands for AOS are met;
   - the need to promote economy and efficiency on the part of licensees in the provision of AOS;
   - the need to secure that the licensee is able to take reasonable measures to reduce, control and/or mitigate adverse environmental effects;
   - any guidance issued by the Secretary of State or international obligation on the UK notified by the Secretary of State; and
   - the Better Regulation principles.

6. In relation to the capacity expansion at Heathrow, these duties relate to the CAA's functions concerning the activities of HAL as the operator at Heathrow.

7. CAA12 also sets out the circumstances in which we can regulate airport operators through an economic licence. In particular, airport operators must be subject to economic regulation where they fulfil the Market Power Test as set out in CAA12. Airport operators that do not fulfil the Test are not subject to economic regulation. As a result of the market power determinations we completed in 2014 both HAL and GAL are subject to economic regulation.

8. We are only required to update these determinations if we are requested to do so and there has been a material change in circumstances since the most recent determination. We may also undertake a market power determination whenever we consider it appropriate to do so.

Appendix B

Stakeholders' responses on other issues

Introduction

1. Respondents to the June 2017 Consultation commented on a number of broader issues, addressing general concerns over the approach of the CAA, as well as issues that fall outside the CAA's statutory remit. This Appendix summarises the views of respondents and sets out our position on these matters.

Business plan financial incentives

2. In our Business Plan Guidance for HAL,[23] we discussed whether there would be effective and proportionate ways to bring material benefits to consumers by placing a financial incentive on HAL to develop a high quality and ambitious business plan.

3. In their responses to that consultation, airlines and their representatives did not favour this approach. HAL observed that it is already in its own interests to prepare a high quality plan, and identified a number of difficulties with possible additional regulatory incentives.

4. Given the many complex issues being considered as part of capacity expansion, we do not propose to pursue the development of financial incentives for business planning further for the next HAL price control review, but may reconsider these issues in subsequent reviews.

Environmental impacts

5. The responses from a number of respondents were of the view that the CAA should:

[23] www.caa.co.uk/CAP1540

- consider whether to factor in the public health costs of failing to comply with air quality legislation; and
- incentivise a comprehensive package of mitigation measures.

6. One of the roles of the planning system is to identify, and set the means by which, the environmental impact of expansion should be addressed. To the extent that HAL is required through the planning process or other statutory obligations to incur environmental mitigation costs, we will take efficient expenditure into account in setting price controls. It is not the role of the CAA to set environmental targets, but to rely on those other parts of Government with suitable powers and expertise on environmental matters to address these issues. The CAA then takes these requirements into account in setting price controls.

Government choice of location and comments on the NPS

7. More than one respondent took the view that Heathrow is not the appropriate location for new capacity. Others shared with us their responses to the NPS.

8. The CAA does not decide where new runways should be built as the decision on where to develop new capacity in the south east of England lies with Government. However, the CAA has consistently stated that additional runway capacity in the south east of England would benefit passengers and cargo owners. More runway capacity is required to prevent future consumers experiencing higher airfares, reduced choice and lower service quality.

9. Where respondents have shared comments they have made as part of the Government's consultation on the NPS with the CAA, while we find them useful in understanding the broader context and perspectives of stakeholders, most of the issues raised are a matter for Government as part of the process for designating the NPS.

Government funding, surface access and competition

10. Some respondents were concerned about the impact of expansion at Heathrow on competition with other airports, noting the CAA's duty to promote competition, as well as voicing concerns over state aid and HAL's environmental and surface access promises. In particular, a number of respondents were keen to ensure that Government money was not used to fund expansion and noted the impact that Government funding might have on transferring risks and inter-airport competition. One of the particular areas of concern in this regard was in relation to market distortions from Government contributions to surface access schemes.

11. The Government has expressly stated that expansion should proceed without Government funding and we are assuming that this position will be maintained as we develop the approach to the economic regulation of new capacity. Our surface access policy is designed to ensure HAL funds only surface access schemes that provide direct benefits to passengers and/or are required as part of obtaining planning permission.

12. One respondent, concerned at the impact of expansion at Heathrow on competition with other airports, suggested it should compensate other airport operators. As noted above, the decision on capacity expansion at Heathrow is a matter for Government. All undertakings in the UK (including HAL) must also comply with competition law and we have no evidence that HAL is in breach of competition law in respect of these matters.

HAL's existing financing arrangements and profitability

13. One respondent has raised issues concerning the financial structure of HAL, including the use of offshore financing companies, the reduction in shareholders' equity compared to long term debt, and the impact of these on tax revenues. Another indicated that the shareholders should not receive a running return during the period of construction.

14. We interpret our statutory duties as requiring us to protect consumers and ensure capacity expansion is affordable and financeable. In setting price controls, we assume that a reasonably efficient company would be able to finance its services and that appropriate protections are put in place to promote the financial resilience of the company in the interests of consumers, as discussed in chapter 4. We do not have powers to mandate the precise financing arrangements of licence holders, and would it help consumers if we were to try and do so.

15. Another respondent argued that HAL is making a high rate of return as a result of its leveraged structure and that it makes excess profits as a result of the operation of the Q6 price control. It thought this could be addressed by including environmental costs or by a reference to the competition authorities. It considered that there is no scarcity rent at Heathrow, so that any additional costs will be passed on to users.

16. We do not seek to regulate the profitability or rate of return of HAL during the period of each price control. Attempting to regulate rates of return in this way reduces the incentive on the part of the licensee to act efficiently and could damage the interests of consumers in the longer term.

17. As a result, the CAA intends to continue with the approach of seeking to ensure that HAL's operations are efficient and that its cost of capital is set appropriately. Further details on this are set out in chapter 2.

18. Some respondents commented on tax issues, including Air Passenger Duty. Taxation is a matter for Government and not the CAA.

Independence and conflicts of interest

19. One respondent questioned whether the agreement of the Statement of Principles between HAL and the Secretary of State affected the CAA's regulatory independence.

20. Independence is fundamental to the work of the CAA and we ensure that this is maintained throughout our work with DfT and stakeholders on new

capacity. This independence is expressly acknowledged by the Statement of Principles (to which the CAA was not a signatory).[24]

21. One respondent questioned the representative legitimacy and activities of the Consumer Challenge Board as well as restating concerns previously raised over conflicts of interest.

22. The Consumer Challenge Board has been appointed specifically to scrutinise and challenge HAL's business plans to ensure it has taken account of current and future passengers' priorities. To this end, its members have considerable experience of economics, business and serving on consumer watchdogs, particularly in the transport sector. We are confident that their expertise and integrity will ensure that they are both independent and robust in the discharge of their role.

23. We choose consultants and advisers to provide advice on a number of issues and uses tendering processes and Government frameworks wherever appropriate. These consultants provide evidence and advice which are important in ensuring that the CAA is able to make robust and appropriately informed decisions. Ultimately, however, the CAA is responsible for making its decisions, acting independently.

[24] See, for example, paragraphs 2.1.1 and 3.4 of the Statement of Principles: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/562175/heathrow-airport-limited-statement-of-principles.pdf

Appendix C

PwC's initial estimates for HAL's WACC

1. This Appendix summarises PwC's work in estimating an early and preliminary range for HAL's cost of capital.[25] It also identifies our initial views on the main issues for consultation.

2. PwC has estimated HAL's WACC on the basis of both HAL's existing business (operating a two runway airport or "as is" scenario) and taking into account the impacts of capacity expansion and a third runway (the "with R3" scenario). PwC focused on the "vanilla" WACC (the pre-tax cost of debt and the post-tax cost of equity weighted by gearing). These estimates do not include an allowance for corporation tax.

3. PwC's initial and preliminary estimate is for a vanilla WACC of 2.8% to 4.6% for HAL in the case of the "with R3" scenario. Table C.1 compares PwC's low and high estimates of HAL's WACC for both the "as is" and "with R3" scenarios, with the WACC set by the CAA for the Q6 price control in 2013.

Table C.1: PwC's estimates of the vanilla WACC (real)

Price control period	CAA determination (2013)	PwC estimates (2013 for Q6, 2017 for H7)	
		Low	**High**
Q6 (pre-tax)	5.35%	4.5%	5.9%
Q6 (vanilla)	4.66%	3.9%	5.1%
H7 "as is" (vanilla)	-	3.0%	3.9%
H7 "with R3" (vanilla)	-	2.8%	4.6%

Sources: CAP 1140[26]; Estimating the cost of capital for H7, PwC (2017).

25 Estimating the cost of capital for H7, PwC (2017).

4. Under the "as is" scenario, PwC estimates a range for HAL's vanilla WACC of 3.0% to 3.9%. This is a materially lower range than PwC estimated for the Q6 price control review and was used by the CAA in 2013 to support its price control determination. PwC cited evidence around a decline in the Risk Free Rate ("RFR") and the Total Market Return ("TMR") as the main reasons for this lower estimate.

5. Under the "with R3" scenario, PwC's estimated range for HAL's vanilla WACC is 2.8% to 4.6%. Relevant to this estimate are:

   - a factor reducing the WACC compared to the "as is" scenario is the projected increase in the proportion of new debt from 12.5% under the "as is" scenario to 60% under the "with R3" scenario. PwC estimates this new debt can now be raised at a significantly lower rate (between 0.15% and 0.65% real) than the cost of existing embedded debt (1.8%); and
   - a factor increasing the WACC to reflect additional "with R3" risks, particularly construction risks during the next price control period.

   This is very initial and high level work and indicative at this stage, based on an assessment of the relationship between construction risk and the WACC across six case studies.

6. A more detailed breakdown of PwC's estimates for the individual components of the WACC is shown below.

[26] CAP 1140 (Figure 7.1). Estimating the cost of capital: a technical appendix for the economic regulation of Heathrow and Gatwick from April 2014: Notices of the proposed licences.

Table C.2: Comparison of PwC's estimates of the components of the cost of capital across Q6 and H7

WACC Component	CAA - Q6		CAA - H7 (as is)		CAA - H7 (with R3)	
	Low	High	Low	High	Low	High
Gearing	60%	60%	60%	60%	60%	60%
Risk Free Rate	0.50%	1.00%	-1.4%	-1.0%	-1.4%	-1.0%
Total Market Return	6.25%	6.75%	5.1%	5.6%	5.1%	5.6%
Asset Beta	0.42	0.52	0.42	0.52	0.42	0.52
Debt beta	0.10	0.10	0.05	0.05	0.05	0.05
Equity beta	0.90	1.15	0.98	1.23	0.98	1.23
Cost of equity (post-tax)	**5.7%**	**7.6%**	**4.9%**	**7.1%**	**4.9%**	**7.1%**
Cost of embedded debt	3.15%	3.65%	1.8%	1.8%	1.8%	1.8%
Cost of new debt	2.20%	2.65%	0.15%	0.65%	0.15%	0.65%
Proportion of new debt	50.0%	30.0%	12.5%	12.5%	60.0%	60.0%
Issuance costs	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Real cost of debt (pre-tax)	**2.8%**	**3.5%**	**1.7%**	**1.8%**	**0.9%**	**1.2%**
WACC Uplift	-	-	-	-	0.25%	1.0%
Vanilla WACC	**3.9%**	**5.1%**	**3.0%**	**3.9%**	**2.8%**	**4.6%**

Source: Estimating the cost of capital for H7, PwC (2017).

Main issues

Risk free rate

7. The RFR is based on the return from the safest investment class (i.e. government gilts) using evidence from nominal and index-linked gilts as proxies for the nominal and real RFR respectively.

8. PwC concluded that gilt yields have declined since the Q6 price review, longer term gilt rates have turned negative in real terms and interest rates are now expected by financial markets to remain lower for longer.

9. PwC's initial estimate of the RFR ranges from -1.0% to -1.4% in real terms, which is lower than the range of 0.5% to 1% used for the Q6 price review, as market conditions have changed and it places more emphasis on recent market rates and forward looking evidence, and less on historical precedent or long run averages.

Total market returns

10. PwC's estimate of the TMR is primarily based on current market expectations, using techniques such as dividend discount modelling (based on forward looking evidence), analysis of market-to-asset ratios for UK regulated utilities and investor surveys.

11. PwC concluded that the TMR is lower than for the Q6 price control review due to:

- one-off historical impacts elevating historical returns above the expected levels of returns;
- a formula effect from a change in the calculation of RPI;
- a re-orientation of the evidence PwC used towards *ex ante* sources (which are typically lower than *ex post* historical sources); and

- the "search for yield" created by a prolonged period of negative real returns on the safest assets which has led to a decline in required equity market returns.

12. PwC concluded that more weight should be put on forward looking evidence, as the last financial crisis (in 2008 and 2009) has caused a step change in financial market conditions, which are now expected to have longer term impacts.

Asset and equity beta

13. PwC has reviewed the evidence on comparator airport asset and equity betas and, for the "as is" scenario, assumed the same range for asset betas as was used in the Q6 price control review in 2013.

14. There is an increase in equity betas that derives from the different assumption that PwC has made on debt betas that is discussed further in the section below.

15. Asset and equity betas are important to the calculation of the overall cost of equity and it will be important to consider whether there is further evidence we should review in relation to these matters. In particular, the re-gearing of beta values in its scenario showing the WACC for a securitised structure has a relatively high cost of equity. We will want to discuss further with the corporate finance community and consider whether these estimates are robust and whether there is further market based evidence that could help inform our decisions on these matters.

16. PwC used the same asset and equity betas in both the "as is" and "with R3" scenarios as they allow for extra risks associated with capacity expansion through an overall WACC uplift.

Debt beta

17. The RFR, along with the debt risk premium, is used to calculate the cost of new debt. The debt premium reflects the higher risk to investors of holding HAL's debt compared to government debt. The sensitivity of the firm's debt premium to the overall debt market is captured by the debt beta.

18. Debt beta can also have an impact on the calculation of equity beta values from asset beta values. PwC has used the Harris-Pringle formula in its calculations:

$$\beta_a = \beta_e(1 - G) + \beta_d(G)$$

where β_a is the company asset beta, β_e is the equity beta, β_d is the debt beta, and G is a measure of gearing.

19. In Q6, the CAA used a debt beta of 0.10. This was consistent with the CMA's determination for NIE and Ofgem for RIIO-ED1. However, in the more recent CMA determination for Bristol Water in 2015, the CMA assumed that debt beta was zero.

20. PwC has used a debt beta of 0.05 in its latest report.

Cost of embedded debt

21. PwC has estimated the cost of embedded debt (that is the debt HAL would have taken on in the past to finance the RAB if its financing arrangements were consistent with the notionally efficient gearing structure) by reference to 10 year and 15 year trailing averages of investment grade corporate bond costs.

22. This is designed to take account of movements in debt costs over time and to ensure that HAL is able to recover the efficient costs of debt. Because the costs of investment grade corporate debt have generally been falling for the last 15 years (except for the financial crisis in 2008-2009), these trailing averages are reducing over time.

Cost of new debt

23. PwC has used recent evidence from corporate bond markets to estimate the cost of new debt. While this remains an important assumption (particularly in the "with R3" scenario as it has much greater amounts of new debt) the use of debt indexation as discussed in chapter 2 should reduce the impact of any variances between this assumption and outturn debt costs.

24. We will also want to consider whether there are specific issues created by capacity expansion that might make it more difficult to estimate new debt costs and whether debt indexation will be able properly to address these issues.

Debt issuance costs

25. PwC has assumed debt issuance costs of 0.1% (consistent with the range at the Q6 price control review). In its response to the June 2017 Consultation, HAL said its ancillary costs of maintaining its debt financing platform were much higher than these allowances.

26. HAL will need to provide evidence that its costs are at no more than efficient levels. It will also be important to ensure that there is no "double counting" of debt issuance costs between allowances for operating expenditures and the cost of capital.

WACC uplift or premium

27. One of PwC's key assumptions in estimating the range for the WACC in the "with R3" scenario is the application of an uplift to the "as is" WACC to reflect additional risk associated with capacity expansion. This uplift is based on a review of six case studies and the WACC uplifts associated with large infrastructure projects. Based on this assessment, PwC derives an initial range for the capacity expansion uplift of between 0.25% to 1.0%.

28. We asked PwC to carry out this initial analysis as a starting point for our work on the appropriate level of the WACC to support capacity expansion at Heathrow. We would welcome suggestions for how to build on this very initial analysis to develop the best estimate for the WACC to take account of the challenges of capacity expansion.

29. At the very least, this will include an assessment of the material changes in risks as a result of capacity expansion and the development of our regulatory framework. We would expect this work to focus on: (i) cost and construction risks (we would also take into account the opportunities available to HAL to use its supply chain better to share risks, and the scope

for HAL to use novel commercial arrangements better to manage cost risks); and (ii) volume risks (which would cover expected levels of volatility, the treatment of demand risk in the regulatory framework and any commercial opportunities for HAL to partner with airlines to reduce volume risks). This should lead to a robust assessment of the impact of these risks on the WACC.

The approach to tax

30. The focus of PwC's work has been on vanilla estimates of the WACC that do not include allowances for corporation tax. The treatment of corporation tax is discussed further in chapter 2.

Appendix D

Cost of Debt Indexation

1. This Appendix discusses implementation issues associated with debt indexation.

Selecting an appropriate index

2. Implementation of debt indexation will require the identification of an index that represents a reasonable benchmark of HAL's efficient new debt costs, and which HAL can also seek to outperform (to protect incentives for efficiency).

3. We have reviewed a range of potentially relevant indices using the following criteria to identify the most suitable indices:

   - representative of HAL's risk profile;
   - representative of the tenor of new debt that HAL issues;
   - reasonable proxy for the efficient cost of HAL's new debt;
   - independent of actions by HAL; and
   - precedent of regulators using the index to set the allowed cost of debt.

4. On this basis, we identified iBoxx as the most appropriate provider. The main alternative source to the Markit iBoxx for market debt information is Bloomberg. While Bloomberg is a more established and widely used source of financial markets data, iBoxx indices are increasingly being used by UK regulators. iBoxx indices have two main strengths over the Bloomberg benchmarks: (i) the methodology for calculating the index is transparently set out in publicly available documents; and (ii) the indices are available at a greater level of granularity.

5. Of the range of iBoxx indices, we have identified the following as suitable potential options (to be used either individually or to be combined using weightings):[27]

- GBP Infrastructure 10-15 year;
- £ Non-Financials A 10-15 year index; and
- £ Non-Financials BBB 10-15 year index.

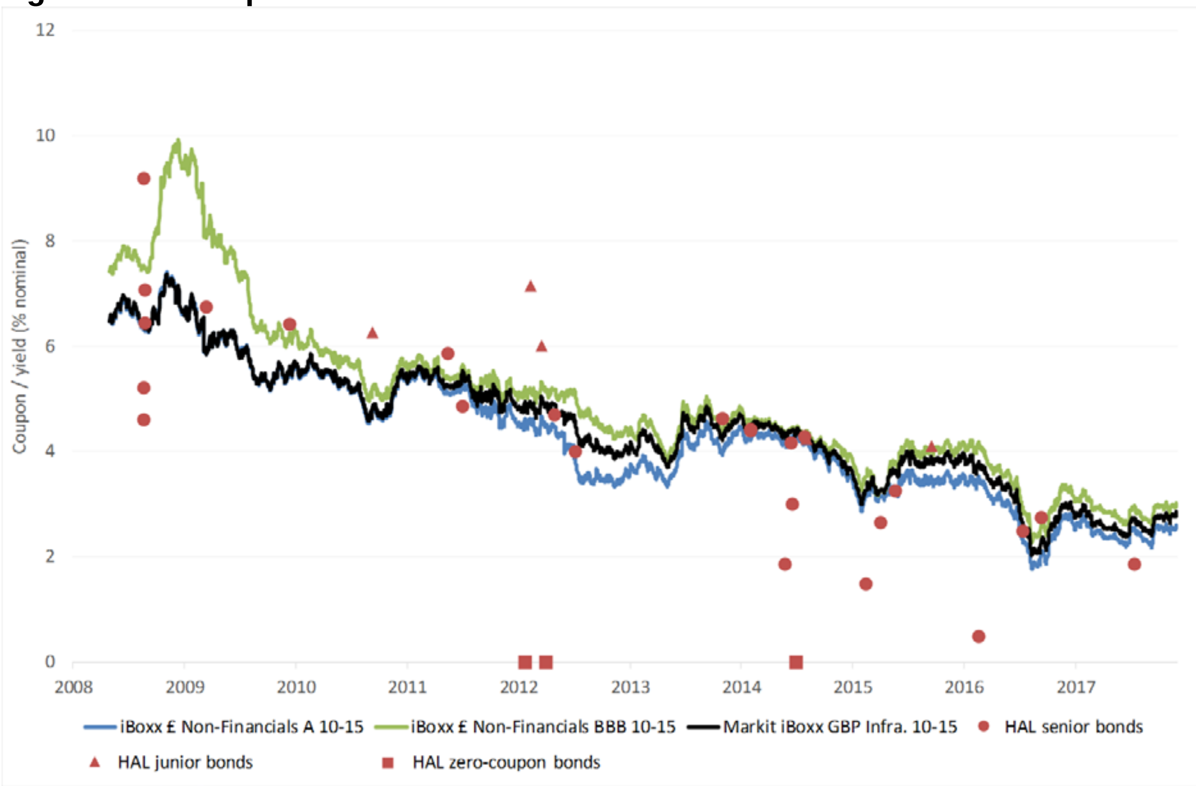
6. In selecting an index, we have only considered sterling denominated bonds, as selecting bonds in other currencies would increase complexity and reduce transparency.

7. We have selected indices with a 10-15 year tenor as being the most closely related to the average tenor at issuance of HAL's current bonds (around 18 years). An alternative would be to use the same indices but with longer tenors (10+ years). We will need to consider the appropriate choice of indices further, in the context of the characteristics of HAL's new debt over the period of the next price control.

8. In Figure D.1 we show that HAL has largely been able to issue debt at a cost below the market indices shown below. This might suggest that using the 10-15 year indices would require the CAA to make a downward adjustment to correct for outperformance compared to the index. This could be less transparent compared to simply using the 10-15 year index. Nonetheless, we will also need to consider the impacts of capacity expansion, and how best to deal with the uncertainties that this might cause.

[27] There are a number of other indexes we considered but are not our preferred choices. For example: 'GBP Regulated Utilities' was rejected as no airports are included in this index and the companies that are included do not face demand risk; and 'GBP Infrastructure Transportation index' was rejected as HAL's share of this index is around 60%, so the index cannot be considered to be independent.

Figure D.1: Comparison of iBoxx indices to HAL bonds



Source: Analysis of Markit iBoxx data; data from Heathrow's website[28], accessed 3 July 2017

Timing of when the CAA updates the allowed cost of new debt

9. The CAA could update HAL's allowances either: (i) annually to reflect ongoing changes in the cost of debt index; or (ii) at the end of the next price control review to reflect the aggregate changes in the cost of debt index.

10. An annual approach would make sure that HAL's allowance more closely reflects debt market conditions. In contrast, the end of period approach would have a lower regulatory burden and could be more easily incorporated into the CAA's current regulatory process. Charging volatility for airlines could also be reduced as rises and falls in the iBoxx indices would be netted off at the end of the period.

11. We propose to adopt an end of period adjustment given these benefits around simplicity and reduced volatility. Our preliminary analysis suggests

28 See: https://www.heathrow.com/company/investor-centre/debt-information/financial-terms/heathrow-bonds

that even significant unexpected changes to the market cost of debt should be manageable.

Assumptions on the split between new and embedded debt

12. The large investment required for capacity expansion means that the timing and amounts of debt that HAL would issue are particularly uncertain. As a result, a simple approach where the share of embedded and annual new debt are fixed by the CAA at the start of the price control period (with weights based on expected average capital expenditure) may not be appropriate.

13. Our preferred approach is a weighted average with the weights determined by changes in the RAB in each year, with the difference between outturn and forecast being "trued-up" at the following price control.

Other issues

14. We will also need to consider any risk sharing arrangements to overlay on the indexation approach, i.e. the proportion of outperformance or underperformance that is retained by HAL or passed back to customers, and whether the amount to be shared should be capped.

Appendix E

Further detail on definitions of financeability measures

Metrics to support the assessment of equity financeability

1. The value of equity shareholding in HAL and the attractiveness of investment in the capacity expansion could be understood through analysing the net present value of equity cash flows.

2. The IRR is the discount rate at which the present value of the initial cash investments is equal to the present value of future cash inflows (which could include shareholder distributions and incremental exit values). Equity investors would expect to earn the appropriate cost of equity capital or IRR from investing in capacity expansion.

3. The RORE is a measure of the return to equity investors. Typically, a range of returns is calculated for upside and downside stress tests under the notional capital structure. RORE has been used by Ofwat and Ofgem in setting price controls to help assess the appropriateness of regulatory incentives and whether incentive packages are consistent with the cost of capital.[29]

4. Similar assessments could be applied as we develop the regulatory framework for capacity expansion. The RORE could be used to illustrate the implications of any changes to the regulatory framework, such as cost, volume and performance incentives. This could support an assessment of whether the allocation of risks is appropriate and commensurate with the allowed cost of capital.

Definitions and benchmarks for credit metrics

5. In chapter 3, we proposed a list of credit metrics split between “core” and “secondary”. Table E.1 provides proposed definitions for these metrics and

[29] Ofwat, for example, calculates RORE as (EBIT – tax – (cost of debt * net debt) / ((1- gearing) * RCV).

Table E.2 provides information published by the credit rating agencies that could be used to inform the benchmark for each credit metric.

6. The credit rating agencies each follow their own different approaches and focus on HAL's actual financing structure and performance. Therefore, while we have taken account of the credit rating agencies' methodologies, we have not necessarily sought to replicate them precisely.

Table E.1 – Definitions for the proposed credit metrics

Credit metrics	Definition	Proposed calculation
	Core metrics	
Interest cover ratio (ICR)	Measures a company's ability to meet interest payments from earnings after subtracting an amount (2% RAB[30]) to maintain regulatory assets	ICR = (EBITDA – Tax charge – 2% Closing RAB) / Interest paid
FFO interest cover	Measures a company's ability to meet interest payments from operational cash flows. Uses cash interest, so excludes accrued index-linked interest to improve comparability with other regulated companies	FFO interest cover = (FFO + Cash interest expense) / Cash interest expense
Adjusted cash interest cover ratio (ACICR)	Measures a company's ability to meet interest payments from operational cash flows, after payment of capital charges and before revenue profiling adjustments. This is a more conservative measure than FFO interest cover because the company cannot reduce capital charges or profile revenue to improve the interest coverage	ACICR = (FFO + Cash interest expense – Regulatory depreciation + Profiling adjustment) / Cash interest expense
FFO to Gross debt	Measures a company's debt burden relative to its operational income. Moody's uses gross debt (rather than net debt) on the basis that operational airports do not typically carry large cash balances	FFO to Gross Debt = FFO / Total Debt
Regulatory gearing	Gearing measures a company's capital structure and level of indebtedness	Gearing = Closing Net Debt / Closing RAB
Net debt to EBITDA	An alternative measure of leverage used by S&P and Fitch to measure a company's level of indebtedness	Debt to EBITDA = Closing Net Debt / EBITDA
	Secondary metrics	
Post maintenance interest cover ratio (PMICR)	Measures a company's ability to meet interest payments from earnings, after payment of capital charges and tax. Used by Fitch and similar to core interest cover ratios above	PMICR = (EBITDA – Tax charge – Regulatory depreciation) / Interest paid
FFO to Net	Measures a company's debt burden relative to its operational	FFO to Net Debt =

[30] The CAA used the reduction of 2% of total RAB at Q6 as an estimate of the amount required to maintain the regulatory assets.

Credit metrics	Definition	Proposed calculation
debt	income. Moody's states that analysts may find it analytically useful to also consider FFO / Net Debt where material cash balances are held as part of pre-funding strategies	FFO / Average Net Debt
Debt service coverage ratio ("DSCR")	Measures a company's ability to meet interest payments from operational cash flows, where interest payments are annualised over the remaining life of the concession. An alternative measure of interest cover used by Moody's	DSCR = (FFO + Cash interest expense) / Debt service annuity Debt service annuity = (Gross debt * Discount rate) / (1 - (1 / (1 + Discount rate) ^ remaining concession life))
Retained cash flow ("RCF") to Gross debt	Measures a company's debt burden relative to its operational income after paying dividends	RCF to Debt = (FFO – Dividends paid) / Gross Debt

Source: CAA analysis

Table E.2 – Information to inform benchmarks for credit ratios

Credit metrics	CAA Q6 final proposals	Credit rating agencies (CAA interpretation)	Heathrow Finance Ltd covenants
Core metrics			
Interest cover ratio (ICR)	1.4-1.6x (Moody's Baa2)	-	1.4x (class A), 1.2x (class B), 1.0x (Holdco)
FFO interest cover	2.25-3.0x (Moody's Baa2)	2.5-4.5x (Moody's Baa) 1.5-2x (S&P BBB)	-
Adjusted cash interest cover ratio (ACICR)	-	~1.0-1.2x (Moody's, maintain HFL rating)	-
FFO to Gross debt	-	8-14% (Moody's Baa)	-
Regulatory gearing	68-75% (Moody's Baa2)	Keep covenant headroom (Moody's, maintain HFL rating)	72.5% (class A), 85% (class B), 90% (Holdco)
Net debt to EBITDA	7.0x (Fitch A-) 10.0x (Fitch BBB)	~7.5x (S&P BBB) ~8-9x (Fitch BBB)	-
Secondary metrics			
Post maintenance interest cover ratio (PMICR)	1.5-1.6x (Fitch A-) 1.2-1.3x (Fitch BBB)	~1.3-1.5x (Fitch, BBB)	-
FFO to Net debt	6-10% (Moody's Baa2)	6-9% (S&P BBB)	-
Debt service coverage ratio	-	3-4.5x (Moody's Baa)	-
Retained cash flow to Gross debt	-	6-10% (Moody's Baa)	-

Sources: CAA, "Economic regulation at Heathrow from April 2014: Notice granting the licence" (CAP 1151, February 2014); Moody's, "Rating Methodology: Privately Managed Airports and Related Issuers" (December 2014); Moody's, "Credit opinion: Heathrow Finance plc" (October 2016); Fitch, "Rating Criteria for Airports" (December 2016); Fitch, "Fitch assigns Heathrow Finance's Notes 'BB+'; Affirms existing notes" (June 2017); S&P, "Corporate Methodology", (November 2013); S&P, "Heathrow Funding Ltd. Class A and Class B debt affirmed at 'A-' and 'BBB' on criteria revision; outlook Stable; Off UCO", (June 2017.)

Notes: For Fitch, ratings based on High Midrange revenue risk profile (based on Stronger volume risk and Midrange price risk). For S&P, ratings based on "Excellent" business risk profile, Low volatility and Aggressive financial risk profile.

Appendix F

Potential options for financial ring fencing

1. This Appendix sets out our initial assessment of options for strengthening HAL's financial ring fencing licence conditions.

2. The first group is a set of specific rules that could ensure that the licensee has sufficient resources to carry out its activities. They include:

   - <u>Minimum cash balance</u>: this would provide resilience through maintaining a cash buffer as an assurance that HAL would be able to meet its ongoing obligations as they arise. However, this would have real financial costs that might outweigh its benefits. It could also be difficult to assess the appropriate size of the cash balance as this should relate to the level of expenditure that HAL undertakes and its revenue streams. We consider that any such obligation would need to be considered in the context of the overall regulatory framework and we do not intend to consider it further at this stage;

   - <u>Gearing cap</u>: this would limit the level of debt that could be taken on by HAL. It would require HAL to use equity to fund a minimum proportion of its activities, which would leave some headroom in HAL's borrowing capabilities which might be used to absorb the cost of financial difficulties if they were to arise. To be fully effective, this may need to be backed by cash/dividend lock up provisions that would be triggered if the gearing cap were to be breached. A gearing cap could have real financial costs (depending on its level) and would be similar to arrangements contained in HAL's existing financial structure. Any such obligation would need to be considered in the context of the overall regulatory framework;

   - <u>Restriction on disposal of assets</u>: this would restrict the ability of the licensee to dispose of the assets it uses to conduct its licensed business, for example, only permitting disposal with the CAA's consent. It would protect the ability of the licensee to deliver its services by ensuring it has the resources to do so and would protect consumers from the risk that HAL disposes assets that have been funded through airport charges and are needed to deliver a resilient service or deliver expansion. Conditions such as this are, however, often widely drawn in regulatory licences to prohibit the creation of security over assets (see below). Although we will consider this further, the potential narrowing of the scope of this prohibition to avoid affecting the grant of security, coupled with the impact of existing security on the airport operator's assets may make it difficult to design a prohibition that covers an appropriate class of assets and provides meaningful protection for consumers;

- Prohibitions on (i) creating security over assets and (ii) creating or maintaining cross default obligations: these would restrict the licensee's ability to create security over its assets or its ability to enter into any arrangement under which its obligation to pay or repay any debt or other sum arises, or is increased, or is accelerated, by reason of the default (of any kind) by a party other than the licensee. This obligation would appear to directly conflict with HAL's existing financial arrangements and so there could be significant costs of implementation and therefore we do not intend to consider it further; and
- Dividend policy regulation: this would mandate aims and tests that the licensee's dividend policy would need to satisfy (for example that the directors cannot issue a dividend if doing so would put the financial stability of the company at risk). It could protect consumers' interests by constraining the circumstances in which funds are paid by HAL to shareholders when there is the threat of financial distress. On the other hand, effective enforcement might not be straightforward and such a condition would not necessarily provide effective early warnings of financial difficulties. As a result, we do not intend to consider it further at this stage.

3. The second set are general "conduct of business" rules, aimed at ensuring that the licensee carries out its activities in a manner that the licensee's assets are not diverted or exposed to undue risk. These include:
   - Sufficiency of resources obligations: these require the licensee (acting through the board and directors) to ensure that it has sufficient operational and financial resources to run its business. The existing obligation in HAL's

licence could be enhanced, for example, to include a specified standard through possible references to compliance with the licence and CAA12 and expansion. This could protect consumers' interests further by driving additional focus on the issues to which the obligation refers. To be effective, compliance must clearly be owned by the directors through certification rules and may need to be backed by cash/dividend lock up provisions (for more details on each of these, see below). While HAL has a rule of this kind in place in its licence, our initial view is that enhancement of these rules is worthy of further consideration to determine whether this could provide additional benefits for consumers;

- Requirement to deal on arm's length basis and normal commercial terms ("ALBNCT"): this is a core obligation in other regulatory regimes and may partially address stakeholders' concerns over procurement and HAL's relationship with shareholders (where HAL faces a choice between self provision and contracting out). It would seek to prohibit the dilution or loss of the licensee's funds through inefficient or unfavourable deals with any party (related or otherwise). On the other hand, such an obligation would not itself provide incentives for efficient procurement. We may consider the use of such an obligation further, but in the context of future work to review HAL's regulatory accounting arrangements rather than in the context of financial resilience and stability;
- Prohibition on cross subsidies: this obligation is used in a number of other regulated sectors to prevent profits from monopolised activity being used to support other more competitive activities. It could protect the interests of consumers by preventing the leakage of the licensee's funds to support other businesses and is related to the ALBNCT condition. Therefore, it may best be considered alongside the condition on regulatory accounting arrangements;
- Changes to the current restriction on activities of HAL: this protects the interests of consumers by ensuring that the licensee must focus on the licensed business. As the existing activities restriction in HAL's licence is effectively geographically limited to Heathrow and covers the area

proposed for expansion, it appears to provide adequate protection for consumers;

- Requirement for sufficiently independent directors: this obligation protects the interests of consumers by ensuring independent board members are appointed to drive effective corporate governance. It is particularly suited to vertically integrated regulated companies with potentially conflicting interests between different parts of the business (e.g. the downstream/upstream separation between BT and Openreach), which does not appear to be the case with HAL. Our initial view is that we will not consider this option further; and

- Requirement to maintain a listed financial instrument: this would protect the interests of consumers by ensuring that the regulated company maintains a listed financial instrument, which would allow benchmark comparisons to be made and would require the licensee to comply with the listing rules. Given the transparency associated with HAL's current debt financing arrangements, we do not consider that there would be significant benefits in such a rule.

4. The third group are "general" oversight rules aimed at ensuring that the regulator (and potentially third parties) has clear sight of the financial position of the licensee and mitigating the effects of financial or operational stress should it occur. These include:

- Obligation to hold a corporate credit rating: this could protect the interests of consumers by driving effective third party oversight of the licensee's financial health. While this is similar to existing features of HAL's financing arrangements, it would provide a trigger for regulatory intervention in the circumstances of financial distress. To be effective, compliance may need to be backed by cash/dividend lock up provisions. Our initial view is that this is worthy of further consideration;

- Enhanced compliance certification (annual and/or pre dividend): this would be designed to protect the interests of consumers through the provision of additional assurance to the regulator over the licensee's financial and operational health on a forward looking basis (possibly for a longer period than at present). It could include an obligation to have separate certification of financial and operational resources and specific certification in relation to expansion which is backed by robust processes and board oversight with third party (auditor's) assurance. While some obligations of this nature are already in HAL's licence, our initial view is that enhancement of these rules is worthy of further consideration to drive greater granularity of information, reinforce consumers' expectations and to take account of expansion;

- Enhanced ultimate controller undertakings: these are designed to protect consumers' interests by ensuring "good behaviour" within a licensee's broader corporate group. While some ultimate controller obligations are already in HAL's licence, our initial view is that enhancement of these rules to cover provision of information by the entire corporate group (where there is a concern that the risk of financial distress can only be properly understood in the context of information about the entire corporate group) is worthy of further consideration;
- Enhancements to regulatory accounts/financial information rules: these protect consumers' interests by providing transparency over HAL's financial situation and ensuring that financial information is provided in a way that is consistent and comparable. It may be appropriate to review these later in the process to ensure that HAL's regulatory accounting arrangements are consistent with the wider regulatory framework for its next price control, but no further action appears to be warranted at this stage;
- Requiring CAA approval for amendments to HAL's finance documents: this would protect consumers' interests by limiting the ability of the licensee to amend its financing arrangements, for example, to introduce more risk into the business. Our view is that this would be an unduly intrusive approach which implies that the CAA should "second guess" the decisions of HAL's management in relation to its financial arrangements. Our initial view is that, while we will not consider a rule requiring approval to be sought for changes to individual documents, we may wish to reconsider the scope of HAL's obligation to inform the CAA about changes to its financing platform;
- Enhanced information provision by HAL when distress occurs: this could protect the interests of consumers by seeking to provide the CAA (and, possibly, other stakeholders) with more detailed information and could

include additional and escalating rights to engage with the management of HAL in financial distress situations. Our initial view is that this is worthy of further consideration; and

- Cash/dividend lock up: this would protect consumers by preventing the directors from distributing cash to shareholders in specified circumstances and would increase the stability of the operating company by limiting the scope for inappropriate equity withdrawals. It can be triggered as an automatic protection when the licensee drops below set thresholds in relation to resources certification, credit ratings, cash balances or gearing caps or by other triggers. Our initial view is that this is worthy of further consideration.

5. In summary, the conditions that might include further consideration at this stage include:
   - limited additional restrictions on the disposal of assets;
   - obligation to hold a corporate credit rating;
   - stronger sufficiency of resources obligations;
   - enhanced compliance certification;
   - enhanced ultimate controller undertakings;
   - enhanced information provision in relation to changes to financing arrangements and in the situation of financial distress; and
   - cash/dividend lock up provisions.

Appendix G

Information to be provided by HAL on early Category C costs

1. Cost categories

Major commercial/other displaced uses:

- big 7 commercial/other projects; and
- non-identified displaced uses (to include an explanation of why we have a "non-identified" category).

Community costs:

- residential acquisition, including hardship scheme and blight;
- commercial compensation (to the extent that there are additional costs to the displaced uses dealt with above); and
- property team and external support.

Early construction costs:

- design, early construction and logistics (to include an explanation as to how design costs can be properly distinguished from planning costs);
- ground investigations.

2. Information required

For each cost category, the following elements should be explained in detail:

1. Clear definition of the scope of early costs: for each large commercial/other project, a clear and detailed description of the precise nature of the project (including the provision of any replacement facilities) and the scope of the works or other expenditure required;
2. The case for early investment: rationale and associated benefits (this should demonstrate why early investment is needed and that carrying out this work early is in the interests of consumers and provide supporting evidence);
3. Process for investment: including an assessment of the extent that the processes provide assurance that costs will be incurred efficiently:

4. HAL's governance:
   - comfort, evidence and processes that show costs have been properly categorised and that there can be no double recovery of costs;
   - evidence that shows costs will be efficiently incurred, including, where appropriate, information on benchmarking;
   - risk mitigation (including in relation to managing the risk of costs being higher than forecast);
   - third party involvement, in providing evidence on cost efficiency; and
   - the intended approach to airline engagement.
5. Forecasts of costs:
   - current forecasts (to include a statement on robustness/stage of development/likely range);
   - process for updating cost forecasts;
   - evidence on key drivers of the costs; and
   - third party verification/assurance.

Appendix H

Modelling of interim arrangements to extend the Q6 price control

1. As set out in chapter 6, we have made some initial estimates of the impact of a number of different approaches to calibrating HAL's allowed revenues for any further extensions to the Q6 price control to illustrate the possible impact on HAL's underlying revenues. The two tables below summarise the initial estimates of the revenue per passenger from the different approaches in chapter 6.

Table H.1 – Estimated revenue per passenger for Q6 extension scenarios (£, 2016 prices)

Scenarios	2016	2020	2021
RPI-0%	22.3	21.1	21.1
RPI-1.5%	22.3	20.8	20.4
Q6 building blocks rolled forwards	22.3	19.7	19.2
Adjust building blocks for actual and expected **performance on pax,** opex, single till revenues & **WACC**	22.3	18.8	18.3

Source: CAA calculations

Table H.2 – Further sensitivity analysis of revenue per passenger for the Q6 extension scenarios (£, 2016 prices)

Scenarios	**2016**	**2020**	**2021**
RPI-0%	22.3	21.1	21.1
- *Reduce yield for RPI-1.5%*	-	*-0.3*	*-0.6*
- *Reduce yield for Q6 building blocks rolled forwards*	-	*-1.0*	*-1.2*
- *Adjust for actual and expected performance on pax*	-	*-0.7*	*-0.6*
- *Adjust for actual and expected performance on opex and single-till revenues*	-	*+0.7*	*+0.7*
- *Adjust for actual performance on WACC*	-	*-1.0*	*-1.0*
Adjust building blocks for actual and expected performance on pax, opex, single-till revenues & WACC	22.3	18.8	18.3

Source: CAA calculations

2. The rest of this appendix provides further details on our approach to each scenario and sensitivity used in the above tables.

Simple extrapolation based on flat real charges (RPI-0%)

3. HAL's starting revenue per passenger in 2014 is £22.261. Under this scenario, this was rolled forwards using the price control formula from Q6: Yt = Yt-1 * (1+ RPIt-1 + X). In this scenario, RPI is actual RPI and forecasts based on HM Treasury consensus forecasts from June 2017 and X is set at -1.5% for Q6 (2014-2018) and Q6+1 (2019), and then set to 0% in each subsequent year. In other words, prices remain broadly flat in real terms from the level in 2019.

Simple extrapolation of prices based on the existing price control (RPI-1.5%)

4. This is similar to the scenario above, but the X factor is set at -1.5% for each year starting from 2020. In other words, prices follow the price control formula set for the Q6 period.

Q6 building blocks rolled forwards

5. Under this scenario, we used the same approach as for the scenarios above to estimate yields up to 2019. From 2020, rather than prices being rolled forward on a top down basis, we rolled prices forward using the underlying regulatory building blocks used to estimate allowed revenue (i.e. opex, capex, depreciation, allowed return, single till revenues and passengers). We then calculate prices as the unsmoothed yield (i.e. total revenue/number of passengers).

6. The assumptions we used were as follows:
   - capex: the average forecast capex from Q6 for 2019 onwards (£593 million p.a. in 2011-12 prices);
   - depreciation: 5% of the opening RAB in line with the end of Q6 (around £660-670m p.a. in 2011-12 prices), with the RAB being calculated as being net of RAB additions and depreciation;
   - opex: in line with the forecasts for the end of Q6, opex per passenger reducing by 1.6% p.a. in real terms from 2019;
   - single till (commercial) revenues per passenger staying constant in real terms;
   - passenger growth of 1% p.a.; and
   - WACC: identical (pre-tax) to Q6 (5.35% real).

Adjustment for actual and expected performance on passengers

7. This sensitivity resets passenger forecasts are from 2020 based on information on actual performance and initial assumptions for forecast performance.

8. To reset these, we used HAL’s actual performance up to 2016 (75.7m passengers) and recent forecasts from HAL for performance up to 2018 (77.5m passengers). For the period beyond 2018, we applied an annual growth of 1%

p.a. in line with the forecast growth rate assumed for Q6. This approach appeared to us to be conservative when compared with the long run historical trend of passenger growth observed at Heathrow.[31] We then applied an overlay for potential future shocks in line with the approach from Q6 which reduces annual passenger forecasts by 0.9m p.a.

Adjustment for actual and expected performance on opex and single till revenues

9. This sensitivity resets opex and single till revenue forecasts from 2020 based on information on actual performance and initial assumptions for forecast performance. The assumptions we adopted were as follows:

- opex, we used the per passenger forecasts to 2018 from the Q6 decision notice (as the forecasts and actuals were close up to 2016), and then assumed that opex per passenger reduces by 1.6% p.a. in real terms from 2019. This is consistent with expecting HAL to continue to make efficiency improvements and gives the same opex per passenger as the scenario above where building blocks are rolled forwards;
- single till (commercial) revenues: we used actual commercial revenue per passenger to 2016, assumed 5% growth in 2017, and then assumed no change from 2018. The 5% growth in 2017 is roughly consistent with HAL's results for retail growth for the first half of 2017 and actual growth over Q6 so far;
- other regulated charges: we used actual charges per passenger to 2016, and then assumed charges per passenger change with the inverse of passenger growth. This forecast is consistent with an assumption that the number of air traffic movements and the cost per air traffic movement remain constant from 2017; and
- other revenue: we used actual revenue per passenger to 2016, assumed no change to 2018, assumed 25% falls in revenue per passenger in 2019 and 2020, and then no change from 2021. This reduction reflects a view from HAL on the scale of potential reduction in Heathrow Express revenues

[31] From 2003 to 2016, passenger growth has averaged around 1.4% p.a. on an arithmetic and geometric basis.

due to the operation of Crossrail. This equates to a fall in annual revenues of around £70-80m (in 2011-12 prices) from 2020.

Adjustment for actual performance on WACC

10. This sensitivity adjusts the allowed cost of capital (or WACC) based on actual new debt costs and changes in the corporate tax rate as follows:
    - cost of new debt: we have adjusted this from the assumption of 2.5% (real) used to calculate the Q6 price control, to 0.25% based on estimates from HAL on the actual cost of new debt seen over Q6; and
    - tax: we have adjusted the applicable tax rate from 20.2% assumed to calculate the Q6 price control, to reflect the UK Government's policy to reduce the corporation tax rate from 19% currently to 17% by 2020-21. This gives a blended tax rate of 17.3% if assumed a 2-year extension for 2020-2021.

11. Overall, these adjustments reduce the pre-tax WACC from the Q6 assumption of 5.35% (real) to 4.83%.