Consumers and Markets Group

Economic regulation of Heathrow Airport Limited: further consultation on regulatory framework and financial issues

CAP 1876

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About this document

This document follows on from our March 2019 Consultation[1] on the regulatory framework for Heathrow Airport Limited ("HAL") and sets out our evolving thinking on regulatory framework and financial issues for capacity expansion at Heathrow airport.

Views invited

We welcome views on all the issues raised in this document.

Please e-mail responses to economicregulation@caa.co.uk by no later than 5 March 2020. 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 Dan Rock (dan.rock@caa.co.uk).

[1] See Economic regulation of capacity expansion at Heathrow: policy update and consultation (CAP1782) ("the March 2019 Consultation") at: http://publicapps.caa.co.uk/docs/33/CAP1782%20March%202019%20.1.pdf

Executive summary

Introduction

1. This consultation updates our thinking on the regulatory framework for HAL as we move in to a key phase of our work on setting its next main H7 price control.

2. HAL published its statutory planning consultation on capacity expansion in June 2019 and its plans for expansion are phased over a 30 year period and require very substantial levels of investment. The first phase of expansion, which will involve the construction of the third runway and associated infrastructure, will be the focus of our work on the price control review (although we will also have regard to the longer term).

3. We are publishing this document just after HAL has provided its Initial Business Plan (IBP). We have not had the opportunity to review the IBP properly or integrate our thinking on the IBP into this document. Nonetheless, we plan to publish our thinking on the IBP in April 2020.

4. In December 2019, we published a consultation paper on the regulatory treatment of the early costs that HAL expects to incur to deliver capacity expansion. This paper noted that while the benefits to consumers of new capacity are not straightforward to quantify, they are likely to be substantial. This is consistent with what we have previously said about how additional runway capacity in the south east of England should benefit air passengers and cargo owners and that the timely delivery of more capacity should enable future consumers to have greater choice (and avoid higher airfares) and better service quality.

5. We have statutory duties to protect present and future consumers and secure that reasonable demands for airport services are met and must also have regard

to HAL's need to finance its activities and promote efficiency.[2] Taking our duties together with the potential benefits of new capacity for consumers suggests that the regulatory framework should enable the efficient delivery of capacity expansion. Nonetheless, in terms of both airports and regulated companies in the UK, the capital programme that HAL is proposing for capacity expansion is of unprecedented scale and complexity and it would be the largest privately financed infrastructure project in the UK. This means we will need a particular focus on:

- the financing challenge; and
- incentives for efficient delivery and the treatment of construction risk in the regulatory framework so that there are incentives for capacity expansion to be delivered in a way that is affordable for passengers and airlines.

6. In the March 2019 Consultation, we set out a financeability framework to help address these issues in a coordinated way, with a view to promoting the efficient financing of capacity expansion that can support affordable airport charges. This paper further develops this framework and sets out our updated views on:

- incentives for capital expenditure and risk allocation;
- allowed returns; and
- our approach to assessing financeability.

Our approach to the regulatory framework

7. Our approach to the regulatory framework builds on the approach presented in our previous consultations.[3] In those documents, we have talked about the importance of combining incentives for efficiency with protections for HAL from

[2] Appendix A provides a fuller discussion of our statutory duties. In this consultation, the terms "consumers" and "users" are used interchangeably.

[3] Including the updates and consultations published as:

(i) CAP1610 ("the December 2017 Consultation"): see https://publicapps.caa.co.uk/CAP1610;

(ii) CAP1658 ("the April 2018 Consultation"): see https://publicapps.caa.co.uk/cap1658; and

(iii) the March 2019 Consultation.

undue risks, such that the regulatory framework should allow capacity expansion to be financeable and while also incentivising delivery at the lowest overall cost to consumers. It is also important that we avoid any undue complexity in developing the regulatory framework for HAL and have regard to the principles of better regulation, such that our approach is proportionate, targeted and transparent. Building upon this thinking, we have identified the following five policy aims that should facilitate the financeability framework as discussed in the March 2019 Consultation and the overall affordability and financeability of capacity expansion.

Aim 1: create a framework that enables the efficient delivery of capacity expansion

8. We aim to create a regulatory framework that will enable the efficient delivery of capacity expansion in a way consistent with the interests of consumers, as they should benefit from both new capacity and airport charges that reflect value for money.

Aim 2: deliver affordable charges in the H7 price control period

9. We will set HAL's H7 price control in a way that will allow capacity expansion to be financeable and provides for airport charges that reflect value for money, so to best protect the interests of consumers. To the extent it is practicable to do so, we will seek to meet the aspirations set out by the Secretary of State on affordability in 2016 (when the government announced that the northwest runway was its preferred location for capacity expansion) for no real increase in charges as well as meeting airlines' aspirations for affordable airport charges. In this light, we will aim to set charges in a way that is no higher than is necessary, provided that in combination with the other elements of the regulatory framework there are sufficient incentives for investors to make available the funds necessary to deliver capacity expansion.[4]

[4] We published affordability and financeability analysis in the April 2018 Consultation and in our working paper "Heathrow expansion – affordability and financeability update" (CAP1812) ("the June 2019 Working Paper"): see https://publicapps.caa.co.uk/cap1812. These pieces of analysis highlighted the trade-off between charges

Aim 3: provide reasonable assurance about longer term affordability

10. Affordable charges are also important to airlines and consumers in the medium and longer-term, and would also support overall financeability by making Heathrow airport more competitive. Therefore, to make a longer term assessment of financeability, we need to be reasonably confident that the longer-term profile of charges is credible.

11. We will continue to produce affordability and financeability analysis that assesses the credible range of charges in the longer term with a view to making decisions on the regulatory framework that promote a credible and reasonable profile of airport charges in the longer-term.

Aim 4: enable efficient equity financing, risk allocation and incentives

12. Equity financing has a key role in allowing a business to manage risks and providing a financing buffer to allow the business access to relatively low cost debt finance. This will be particularly important during capacity expansion.

13. While the regulatory framework allows risks to be allocated to either HAL or consumers, there are advantages in developing arrangements that provide incentives for efficiency, but with these incentives calibrated in such a way that the risks on HAL:

    - are appropriate and proportionate; and
    - do not trigger undue increases in the cost of equity finance and the overall level of allowed returns (which might jeopardise affordability).

14. A key theme in our previous consultations on the regulatory framework for HAL has been to improve the incentives for the efficient delivery of capital expenditure. Such incentives can help to align HAL's incentives better with the interests of consumers and airlines. Our analysis in the April 2018 Consultation[5] provided an initial assessment of the potential impact on HAL's returns on equity of new incentive arrangements. We intend to build on this approach during the

which are lower and benefit consumers more in the shorter term and charges which are higher and benefit consumers more in the longer term by enabling the financeability of expansion.

[5] See the April 2018 Consultation.

price control review and will seek to set a price control under which HAL is exposed to appropriate risks (i.e. those that it is reasonably able to control or mitigate and which are proportionate to its capital base and the allowed returns profile of a relatively low risk regulated company).

Aim 5: expose debt finance to risks consistent with a low cost of debt

15. We have previously said debt finance will play an important role in financing the very significant sums required for expansion[6] and set out our initial view that the H7 price control should be compatible with a "reasonable investment grade credit rating"[7] to enable HAL to continue to access cost effective debt finance. This remains important and we will seek to develop the regulatory framework (including the incentive arrangements and associated risks and rewards for HAL) in a way that is consistent with our assumptions on credit ratings and assumptions on the cost of debt finance.[8] This will mean exposing debt investors to risks consistent with a relatively low cost of debt and consumers benefitting from a lower overall level of allowed returns.

Incentives for capital efficiency

16. Chapter 1 discusses the advantages of new incentives for capital efficiency and the importance of carefully calibrating incentives so that they are consistent with an efficient approach to equity financing. This is central to aim 1 (create a framework that enables efficient financing) and aim 4 (efficient equity financing, risk allocation and incentives). Appropriate incentives for efficiency also support affordability, particularly in the medium and longer-term.

17. Incentives will expose HAL to some risk on the delivery of its capital expenditure programmes, but can also offer rewards for effective and efficient delivery, and chapter 1 explains how we intend to explore the development of new incentives and allocating risks in a measured and proportionate way. Where appropriate this approach will build on that which is used to set HAL's current ("Q6") price

[6] See, for example, paragraph 1.19 of the March 2019 Consultation.

[7] See paragraph 1.28 of the March 2019 Consultation.

[8] See paragraphs 1.8-1.14 of the March 2019 Consultation.

control. We also intend to develop new incentives for capital efficiency. New capital efficiency incentives could clarify and strengthen the incentives on HAL (including by reducing returns in the event of construction cost overruns against cost baselines) and so would promote efficient and affordable delivery. Such an approach, including providing HAL with rewards for effective and efficient delivery, should also provide assurance to airlines that HAL's incentives are aligned with their desire to see capacity expansion delivered in a timely and efficient manner. Nonetheless, we will calibrate these incentives and allocate risks in a way that is appropriate and proportionate (including providing realisable opportunities for rewards) and does not unduly increase the cost of equity or jeopardise HAL's access to relatively low cost debt finance.[9]

18. We also set out our response to the concerns of respondents about new incentives and explain our next steps with respect to these matters.

Allowed return

19. Chapter 2 updates our thinking on the base level of allowed returns that will support the efficient financing of capacity expansion and be consistent with the incentive arrangements which will be designed to incentivise the delivery of capacity expansion at the lowest overall efficient costs.

20. We explain our latest views and position on the following elements of the allowed returns (or weighted average cost of capital (WACC):

- the "business as usual" cost of equity;[10]
- the impact of expansion on the cost of equity;
- the allowance for the cost of debt; and

[9] To provide some context to the materiality of the allowed return, the Heathrow regulatory accounts for 2018 (see https://www.heathrow.com/content/dam/heathrow/web/common/documents/company/about/regulatory-accounts/Heathrow-(SP)-Limited-Regulated-31-December-2018.pdf) show a RAB of £16.2 billion and airport charges of £1.7 billion. One percentage point of allowed return would alone generate an annual allowance of £162 million, which equates to almost 10% of airport charges in 2018.

[10] The "business as usual" cost of equity means the cost of equity that would apply if there were no capacity expansion

- the allowance for tax.

21. Although we discuss these different elements of the estimate of returns, we will also judge the appropriate cost of capital in the round, taking account of a broad range of analysis informing the different components of WACC. We are ultimately seeking to estimate a cost of capital sufficient to reward investors for an efficiently financed project, taking account of the risks that they will have to manage and incentive arrangements that will be part of our price control proposals.

22. Our approach to estimating the cost of equity finance is based around a two stage process: (i) estimating HAL's business as usual cost of equity; and (ii) making an extra allowance for the special circumstances of capacity expansion. Assessing the impact of capacity expansion will be particularly important and challenging given the scale of the investment programme, which is very different from the programmes typically financed by regulated companies. We will also consider the overall return for equity in the round having regard to the risks that HAL faces in the light of broader regulatory framework and incentive arrangements that will form part of the H7 price control.

23. Bearing in mind the challenges of the capacity expansion programme and that HAL will need to raise very significant amounts of new debt finance, the focus of the discussion on debt finance is the cost and regulatory treatment of new debt. Our aim is to create a regulatory framework that will support efficient and low cost debt financing. We note that expansion is of such scale that HAL will likely need to widen its access to a more diverse range of debt finance, including increased reliance on raising debt in currencies other than sterling.

24. Our approach is designed to appropriately remunerate debt costs (including non-sterling debt costs) while recognising that HAL's management should retain responsibility for managing its financing arrangements in a prudent and efficient way.

25. The allowance for tax was provided for in the Q6 price control as an element of the allowed return. In this consultation, we explore the possibility of setting a separate allowance for tax in a similar manner to the approach used by Ofgem

and Ofwat. Our aim is that consumers fund an appropriate allowance for corporation tax costs that better reflects the costs that are actually incurred.

Creating a financeable regulatory framework for expansion

26. Chapter 3 sets out our broad approach to designing a regulatory framework that should enable the efficient financing of capacity expansion and updates our thinking on a range of issues (in addition to those covered in chapter 1 and chapter 2) that will be important to financeability, including:

- Longer term certainty: consistent with our aims of achieving an affordable and financeable approach to capacity expansion, we consider the possibility of extending certain elements of the price control beyond the period during which HAL is expected to deliver the initial phase of capacity expansion and the new runway. We explain that longer term certainty is likely to be most suitable for the allowances for the cost of equity and the overall approach to incentives. This could promote a lower overall cost of equity finance and a smoother profile of allowed returns. Each of these considerations should support affordability in the short and medium term. It would be more difficult to set other elements of the price control for longer, as the possibility of forecasting errors could create undue risks that would push up the cost of capital and jeopardise overall affordability;
- Equity commitment: given the reliance on HAL to deliver expansion and the importance of equity finance to overall delivery, we explain that we intend to ask HAL to demonstrate (as part of the H7 price control process) its ability to secure the necessary amount of equity financing;
- Credit rating: to access the volume of debt necessary for expansion, HAL will need to be sufficiently credit worthy. In the March 2019 Consultation, we set out our thinking that the price control should be consistent with a "reasonable investment grade credit rating". In this consultation, we explain our view that a credit rating materially lower than the existing A- rating would not be compatible with efficient financing;
- Financial structure and gearing: we have discussed in previous consultations our use of a "twin track" approach to assessing financeability.

This would involve considering a traditional regulatory approach of assuming a moderate level of gearing and also an approach that would better align with the circumstances of the efficient financing of capacity expansion. We maintain the view that a twin track approach is helpful for assessing financeability and discuss the merits of assuming a whole business securitisation structure in the context of the efficient financing of capacity expansion.

- Equity financeability: the March 2019 Consultation discussed our approach to assessing debt financeability and this consultation focuses on our approach to assessing equity financeability. As we explain in our broad aims for the regulatory framework above, equity financing is important to support appropriate incentives and to create a financial buffer to allow access to cost effective debt finance. In chapter 3 we discuss how we should assess whether our price control proposals will provide sufficient rewards for equity financing.

The regulatory timetable

27. HAL issued its interim business plan in December 2019 and we were expecting it to provide a final business plan in July 2020, around the same time as it was expected to make a DCO application. Between now and finalising its business plan, we expect a period of constructive engagement with airlines and for HAL fully to support the next main programme gateway M5, when airlines will have an opportunity to express their commercial views on whether the capacity expansion programme should proceed.

28. We consulted on the regulatory timetable in July 2019 as part of our consultation on early costs. At that time HAL was targeting the opening of the new runway by the end of 2026. It is now clear that the wider timetable for capacity expansion will be delayed. For instance, HAL is now not expecting to complete the first phase of its capital expenditure programme and deliver a new runway until 2028 or 2029. HAL has also said its DCO application will now not be made until towards the end of 2020.

29. We are currently reviewing the timetable for our work on HAL's next main price control in the light of these developments and expect to provide an update on these matters in Spring 2020. Nonetheless, we have previously stressed there would be advantages for consumers in retaining the existing timetable for setting the H7 price control. This would involve us in making initial proposals for HAL's new price control in late 2020. These proposals would then be updated in Spring 2021 with the CAA's final decision on the H7 price control with associated licence modifications made in second half of 2021.

30. In the more immediate term, we plan to issue the following documents on the regulation of HAL and the H7 price control:

- early Category C costs decision document in late April 2020 or early May 2020;
- an update on allowed returns and affordability to help inform programme gateway M5 and our views on HAL's initial business plan in April 2020; and
- working paper / updates on capital efficiency incentives and financial ring fencing in Spring 2020.

Our duties

31. In developing this consultation, we have had full regard to our statutory duties under CAA12, which are set out more fully in Appendix A.

Structure of this document

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

- chapter 1 deals with issues around developing our approach to the incentives on HAL to deliver its capital programme efficiently;
- chapter 2 presents our thinking on issues related to the allowed return including the cost of debt and allowance for tax costs;
- chapter 3 sets out our thinking on financeability policy matters, including equity commitment, credit rating, financial structure and gearing, regulatory depreciation and the approach to assessing equity financeability;

- Appendix A summarises our statutory duties;
- Appendix B describes our approach to making adjustments and allowances for corporation tax cost; and
- Appendix C presents our analysis of factors relevant to credit rating policy.

Chapter 1

Incentives for capital efficiency

Introduction

1.1 As we have explained in the Executive Summary we are seeking to develop a regulatory framework for HAL that facilitates the expansion of Heathrow airport in the most cost effective way practicable. Consistent with this approach we aim to create a package of measures that delivers both relatively low cost financing, but also incentivises HAL to deliver in a timely and efficient way, aligned with the interests of consumers and airlines. Developing this package is particularly challenging in the context of capacity expansion since it will require a large and complex construction programme over a long period of time.

1.2 There are clear advantages for consumers in efficiency incentives to encourage the delivery of capacity expansion in a way that is affordable. Nonetheless, in the context of such a large programme, we need to take particular care in developing and calibrating these arrangements to avoid allocating risks to HAL which are disproportionately burdensome. Doing so would require a higher level of allowed returns (to compensate for the risks), which would unduly increase airport charges and, so, would not be in the interests of consumers.

1.3 This chapter deals with issues around developing our approach to the incentives on HAL to deliver its capital programme efficiently and:

- summarises what we said in the March 2019 Consultation on these matters and the main points raised by respondents in response;
- sets out our views on the way forward; and
- explains the next steps in developing our work programme.

The March 2019 Consultation and stakeholder views

The importance of new incentives

1.4 In setting HAL's present price control, we relied on a number of mechanisms to encourage capital efficiency. These included:

- the classification of capital expenditure as core or development spending;[11]
- the use of capital expenditure triggers;[12]
- airport/airline governance arrangements to help monitor spending; and
- the scope for retrospective reviews of capital expenditure with the scope to disallow spending from the HAL's regulatory asset base ("RAB") if there is evidence of inefficient spending.

1.5 If the retrospective reviews show there is evidence of inefficiency, we can make proposals to disallow the expenditure from HAL's RAB, which would prevent HAL from recovering the costs of this spending through airport charges. This approach, combined with the high level scrutiny of HAL's plans at the time of the price review, and on an ongoing basis through the airport and airline governance arrangements, was designed to provide HAL with incentives for capital efficiency.

1.6 The March 2019 Consultation explained that we could strengthen these arrangements with new incentives under which HAL would bear a pre-determined share of any under- or overspend against the capital expenditure baseline used to set the price control. These new incentives could either replace or work alongside existing incentive arrangements (and the March 2019 Consultation discussed both improving existing incentives as well as new incentives). The broad rationale for this approach is that incentives based around a pre-determined budget have the potential to deliver greater focus on overall affordability, in part because the calibration of these incentives depends on setting cost baselines. Further, in the context of capacity expansion relying solely

[11] This distinction allowed the price control to be flexible to the emerging capital expenditure needs of the airport while retaining pressure (through airline scrutiny) to be efficient in meeting those needs.

[12] The use of capital expenditure triggers provides an incentive for HAL to deliver new capital projects timely and to deliver the full scope specified.

on reviews after projects have completed to disallow inefficient capital expenditure could be unduly burdensome and create perceptions of greater regulatory uncertainty and risk.

1.7 We set out two high level options for new capital efficiency incentives under which HAL would share the risk associated with any capital over- or under-spend against a cost baseline:

- a relatively weaker incentive applying to all capital expenditure; or
- a relatively stronger incentive applying to categories of capital expenditure over which HAL has greater control (so as not to expose HAL to the risks of cost variations in cost areas over which it has relatively less control).

1.8 The March 2019 Consultation also noted some of the practical challenges involved in developing new efficiency incentives and said that our work programmes would focus on these matters. In particular, we said we would:

- consider what might be a feasible timetable for setting a cost baseline and what levels of uncertainty might be associated with such a cost baseline;
- understand more about the likely phasing of HAL's capital programme and the key projects that are expected to be delivered during the H7 price control period; and
- work out at a high level the possible deliverables associated with key projects.

Stakeholder views

1.9 In response to the March 2019 Consultation, stakeholders expressed a range of views:

- HAL (consistent with its responses to previous consultations on improving capital efficiency incentives) said that new capital efficiency incentives were unnecessary and harmful to delivery of efficient and financeable expansion. It disagreed with the findings presented in the CEPA report[13]

[13] We commissioned CEPA to develop high level options for implementation of capital efficiency incentives and to

and said that the conceptual frameworks have little practical use, and that Ireland's Commission for Aviation Regulation is adopting a framework similar to HAL's current one, moving away from *ex ante* controls. In addition, HAL formally asked the CAA to demonstrate the value for consumers of moving away from the current framework;

- airline representatives said that the CAA has not yet conducted sufficient analysis on what the scale of the problem or worked out what the likely costs of different approaches are likely to be. On this basis, they did not wish to engage in the detail of the CAA's proposals. They also said that the CAA should make existing processes work better and rigorously assess expenditure, only allowing efficient spending into HAL's RAB. In addition, they said that the CEPA proposals seemed to assume a static and fully worked out capex plan. They noted that this is not always the case, and that use of the Q6 core and development capex model sought to address these issues;
- one airline noted that, if it can be clearly demonstrated that improved incentives would be likely to protect consumers from the risks of capital cost escalation, it would be open to exploring the idea further. However, it also questioned whether there is enough time available for the CAA to resolve the issues raised and develop a robust set of new incentives that improves the regulatory process; and
- another airline said that there remains the clear requirement for rigorous scrutiny of forecast capital investment to ensure allowances are reasonable, as well as a rigorous retrospective review and scrutiny of actual capital investment, to ensure passengers benefit from capital investment efficiency.

consider the practical issues associated with each option. See: https://www.caa.co.uk/uploadedFiles/CAA/Content/Accordion/Standard_Content/Commercial/Airports/CAA_ExAnteCapexIncentives_310319.pdf

Way forward

1.10 While we recognise the desirability of more effective retrospective reviews of capital efficiency, we are not clear that sole reliance on such an approach represents a practicable or effective way forward in the context of capacity expansion. In addition to these concerns about practicality, if we do not establish carefully calibrated new incentives it is likely to make it more difficult to deliver a regulatory framework that supports both financeability and affordability.

1.11 Without appropriate capital efficiency incentives, HAL's potential returns would not be linked to timely delivery of the full scope of works required. There would be a risk that HAL would not be properly incentivised to deliver capacity expansion in a way that would be affordable or most beneficial for consumers. We note the aspiration of airlines for us rigorously to scrutinise cost forecasts and, while we could seek to do so, without a commercial incentive on HAL not to understate its cost forecasts, we would be able to provide less assurance on affordability.

1.12 We are also conscious of the need to carefully calibrate incentives to deliver on our aim to create a framework that enables efficient financing and that:

- equity financing manages appropriate risks and incentives; and
- the regulatory framework is consistent with HAL retaining access to low risk and low cost debt finance.

Our previous consultations on the regulatory framework started to explore how new capital efficiency incentives could be consistent with these aims and we explain below how we intend to build further on this work.

1.13 In the context of capacity expansion, with a large, relatively novel and complex capital programme, similar considerations would apply to incentives based around retrospective reviews. There would be a strong case for us making explicit assumptions on the risks that HAL would face, the likely scope of possible future capital expenditure adjustments and for us to make assumptions on allowed returns consistent with these risks. We do not accept (as some respondents to the March 2019 Consultation appear to suggest) that incentive

arrangements can simply be constructed in an asymmetric way, because investors would want fair compensation for the risks and uncertainties that this would create, so unduly pushing up the level of allowed returns. Additionally, creating an incentive structure purely based on penalties would struggle to create a strong incentive for HAL to outperform baseline cost allowances. Hence, it may benefit consumers to reward HAL for delivering an appropriate scope of capital works under budget.

1.14 While we note HAL's support for the continuation of Q6 price control incentive arrangements, it has not however provided analysis of the above issues. In the circumstances of capacity expansion and new price control arrangements, it would not be appropriate simply to assume that the level of risk experienced at the Q6 price control review (in relation to the Q5 capital programme) reflects the appropriate level of risks for the H7 price control review.

1.15 Bearing the above discussion in mind, there is a strong case for continuing to explore new incentives that have the potential better to incentivise capital efficiency in a way that also supports both affordability and financeability. These new incentives would require HAL to commit in advance to a baseline level of capital expenditure (at a suitable point in time) against which its actual spending will be monitored and assessed, providing a degree of comfort and certainty to investors, lenders, airlines and consumers. Such a commitment to a baseline level of expenditure would require mature and reasonably robust cost estimates, supported by a process of engagement and challenge for stakeholders to have confidence in them.

1.16 We also consider that well designed incentives can provide the opportunity to reward HAL for delivering outcomes in a timely and efficient manner that are valued by users, including passengers. This could include meeting key milestones on time or early. We would look to develop incentive mechanisms that both reward good performance, while providing incentives to avoid poor performance.

1.17 In this context, we consider that any new capital efficiency incentives should have the following goals:

- to increase focus on a realistic expansion budget ahead of construction and create better incentives for efficiency: the development of new capital efficiency incentives will require a reasonable understanding of the project costs to set a baseline cost allowance and incentives. This should support understanding of the scope, timing, outcomes and cost of the project, as well as the risks around the timing and costs. Overall, we would expect this focus to provide a greater degree of certainty around levels and remuneration of capex to support longer term affordability and financeability;
- to reward HAL for delivering key outputs in a timely and cost efficient way and put a sharper incentive on it to manage risks effectively: as well as a cost baseline, the new incentives would need to be based around a set of deliverables and outputs. This would promote the efficient delivery of the outputs that benefits, and be key to furthering the interests of, consumers; and
- to mitigate the risks surrounding capital expenditure over- and underspending: the incentives should be appropriate and proportionate to the scale of risk and the level of control that HAL has over the potential over- and underspending. They should also help create an overall package that incentives delivery in an efficient way but does not unduly impact financeability, allowed returns and/or overall affordability.

1.18 Nonetheless, as we said in the March 2019 Consultation, new incentives are likely to be only part of the answer. We are looking to develop an overall package that provides the best prospect for timely and efficient delivery of an affordable and financeable expansion. A single form of incentive mechanism or approach is unlikely to be appropriate for all aspects of such a complex expansion project. We will also need to consider:

- how best to develop existing governance arrangements; and
- the appropriate use of retrospective reviews where this is the best approach for particular categories of costs.

1.19 For instance, as we have noted in the December 2019 Consultation document on early costs,[14] there are significant difficulties in establishing cost baselines that enable us properly to assess efficiency. In these circumstances, we will rely considerably on expert reviews as a means of scrutinising HAL's costs, including the use of retrospective reviews (although we will also consider other options such as the comfort that might be provide by HAL "market testing" contracts and setting initial "top down" benchmarks where these tools are practicable).

1.20 However, the experience of our work on early costs also illustrates some of the difficulties with this approach. Without a sharp focus on the initial estimates of cost baselines provided by incentive arrangements the estimates increased by a factor of more than two. There is also a lack of clarity about the risk and reward that HAL's investors are exposed to and the relationship with the level of allowed return. Given the immediacy of the work on early costs, we consider that these arrangements represent a pragmatic solution, but it is not clear they could reasonably support the much larger capital programme associated with the H7 price control period.

1.21 We are also undertaking work on the retrospective reviews of Q6 capital expenditure projects. As part of this analysis, we will assess the lessons learnt for the H7 price control period and where and how retrospective reviews work best. We will also consider further the package of risks and rewards that should be associated with these incentive arrangements for the H7 price control period.

1.22 We have an open mind as to the way in which the operation of incentive mechanisms could feed through in to HAL's revenues. The adjustments to HAL's revenues that follow from the operation of incentive arrangements can either be made on an annual or periodic basis. The adjustments can also be made directly to revenues or to the RAB (in which case the impact of the adjustment will be amortised over an extended period of time). We will consider a range of options for how incentive arrangements should operate.

[14] See the December 2019 Consultation for further information on our approach to these costs (CAP1871) ("the December 2019 Consultation"): see https://publicapps.caa.co.uk/CAP1871.

New incentives as part of an overall package

1.23 New capital efficiency incentives will need to fit within an overall package for expansion that works to further the interests of consumers, as well as taking appropriate account of the roles played by airlines and investors. It will be important for us to establish what impact capital efficiency incentives will have on the risks borne by HAL and consumers and show that this is consistent with an efficient cost of capital (in particular the cost of equity) and financeability. This will involve testing the capital efficiency incentives as part of the overall package of incentives for HAL, so that the overall package is affordable, financeable and works when considered as a whole. The analysis we have undertaken to date on the return on regulatory equity ("RORE") and set out in the April 2018 Consultation,[15] suggested that it will be possible to design proportionate capital efficiency incentives that are consistent with expansion being financeable.

1.24 The way risks are allocated in the regulatory framework and the approach we take to incentives will need to enable relatively low cost financing so that capacity expansion remains affordable and financeable. This will result in HAL taking a level of risk that is appropriate (i.e. that it can reasonably be expected to control) and proportionate to its capital base and allowed returns. An appropriate and proportionate envelope of risk will be developed to be consistent with these aims. Allocating too much risk to HAL would be counterproductive since it will lead to a higher cost of capital.

1.25 The regulatory and financial framework are closely intertwined because they provide the key elements of the overall financeability package. So, decisions we take on other elements of the regulatory framework (e.g. traffic risk sharing, approach to other incentives, whether we index the cost of debt finance) will have an impact on the capacity of HAL to take risks in relation to capital efficiency incentives. The details of incentive arrangements can also have an impact on financeability: for instance, capital efficiency incentives may need to allow for timely recognition of efficient spending in HAL's RAB to support financeability.

[15] See the April 2018 Consultation.

1.26 In our further work on capital efficiency incentives, we will continue to adopt an integrated approach to incentives, financeability and estimating the cost of capital, and the cost of equity in particular, as discussed further below and in the following two chapters.

Next steps

1.27 We recognise airlines' concerns over the difficulties in engaging on the detail of new efficiency incentives given that we are only at the relatively early stages of developing these arrangements. Given this, our focus will now be on developing more detailed design options for new capital efficiency incentives and carrying out further work to ensure that our approach builds on the lessons from the current incentive arrangements in place for HAL and those used in other regulated sectors (including energy and water). In parallel, we will continue our other work on related issues such as early costs and the retrospective reviews of capital projects undertaken in the Q6 price control period.

1.28 For new capital efficiency incentives, our plan is to concentrate at first on the most difficult or contentious issues, including:

- treatment of different cost categories: it is unlikely that a "one size fits all" approach will be appropriate. We will consider what types of costs should be subject to new capex incentives. Examples of these could include: (i) where HAL and/or its supply chain has the ability to manage its costs and, so, should be incentivised to maintain costs at an efficient level; and (ii) categories where the cost is largely outside the control of HAL's management, where new efficiency incentives may be less effective. We will also need to consider where a phased approach to setting incentives may be appropriate, such as, where costs are highly uncertain at the start of the H7 price control period, but over time the increasing maturity in cost estimates would facilitate the setting of more robust incentives for efficiency. It will also be important to consider whether there are categories of costs where either stronger or weaker incentives might be applied and how these categories could be best defined;

- setting delivery obligations: we will look at how the design of capital efficiency incentives can be linked directly to consumer needs. For example, delivery obligations could be specified taking account of which aspects of expansion consumers prioritise most highly. A capital efficiency incentive could then be used to align HAL and consumer interests by providing rewards for early delivery (or penalty for late delivery) where there are clear additional benefits to consumers;
- in practice this will involve us considering what the delivery obligations will look like for each cost category. For example, delivery obligations could be linked to either the delivery of particular outputs or linked more closely to user and consumer outcomes measured by performance targets. They could also be time related. We will need to consider the level of detail required to deliver each approach and how to ensure the approach is both flexible enough to allow responses to any changes in the outputs being delivered, and meets consumer and airline needs;
- cost baseline: we will need to consider when and how the efficient cost allowance (against which any under or overspend would be calculated) could be set for different cost categories. As noted above, for some categories, it may be appropriate to phase this over the H7 price control period as more mature information becomes available on the scope and levels of costs; and
- reconciliation of the incentives compared to the baseline and delivery obligations: we will need to consider the approach to reconciliation, including how to accommodate any changes in design, scope or timing, and the process for assessing and adjusting for outperformance or underperformance. As we develop the incentives for the different categories, we will also need to consider dealing with the interdependencies of the projects within the programme as well as the appropriate timing of any true ups and reviews.

1.29 We recognise that each of the above issues are complex and multi-faceted. A particular area of difficulty is likely to be the current level of detail around the cost information for the wider capital programme, which reflects the early stage of maturity and ongoing development of HAL's masterplan. This means it may be

challenging to identify those categories of costs which might be well suited to capital efficiency incentives and setting cost baselines. We will also need to consider the implications of our work on early costs and the information that suggests that HAL may not be able to fully deliver the results of the first broad phase of its spending (including the construction and opening of the new runway) until 2028 or 2029.

1.30 The availability and robustness of cost data should improve with HAL's initial business plan, with the provision of the M5 Masterplan in early 2020 and final business plan later in 2020, which should allow us to make more progress with developing incentives. Nonetheless, we will continue to work on the information that is currently available. For example, we are working with our technical advisors (Arcadis) to develop a better understanding of the risks associated with capacity expansion. We will use the outputs of this work, in conjunction with our financial advisors (Centrus), to support our work on developing benchmarks for the cost of equity. This is explained further in chapter 2.

1.31 We will retain an integrated approach to the development of the incentive package for HAL, which will encompass all the incentives and risks HAL faces and the challenges of the capacity expansion programme. As well as incentives for efficiency, this work will encompass rewards and penalties for outcomes and overall delivery, given the importance of capacity expansion to consumers and the scope for consumer detriment to arise from significant failures in overall delivery. In developing these incentives, we will seek to avoid rewarding or penalising HAL for factors outside its control and take a proportionate approach to issues such as late delivery, given the challenges of the capacity expansion programme.

Future publications

1.32 We intend to publish further information on our approach to incentives in the spring 2020, covering the following issues:

- an update on the scope for developing an incentive either on overall costs or ones targeted on specific categories of costs or some combination of both;

- how we might best combine the development of new incentives with retrospective efficiency reviews;
- approaches to setting cost baselines and delivery obligations; and
- options for setting incentive rates, including any rewards and penalties for non-delivery, use of caps/collars, ongoing monitoring and wash-up arrangements.

Views invited

1.33 Views are invited on any of the matters raised in this chapter and on the next steps set out above in relation to our work on the development of incentives for capital efficiency.

Chapter 2

Allowed return

Introduction

2.1 To allow HAL to finance capacity expansion, we will need to make an appropriate allowance for the cost of capital. This level of allowed return is important in setting a "business as usual" price control, and it is even more significant in the context of capacity expansion. This is because:

- it should provide an appropriate return for shareholders, proportionate to the risks that they face, so that shareholders are willing to invest in HAL and the regulatory framework can provide HAL with incentives to deliver capacity expansion efficiently;
- an appropriate proportion of equity finance also provides a financing buffer that should allow HAL to access relatively low-cost debt finance; and
- providing an appropriate return to debt investors to allow HAL to continue to access low cost debt finance, but on a sufficient scale and over an extended period of time to enable capacity expansion.

2.2 Allowed returns consist of allowances for (i) the cost of equity finance, (ii) the cost of debt finance and (iii) corporation tax. It is likely that there will be an important element of judgement required in determining the level of allowed return, particularly in relation to the cost of equity where it is more difficult to observe market-based benchmarks.

2.3 As noted in the Executive Summary we will judge the appropriate cost of capital in the round, taking account of a broad range of analysis informing the different components of WACC. We are ultimately seeking to estimate a cost of capital sufficient to reward investors for an efficiently financed project, taking account of

the risks that they will have to manage and incentive arrangements that will be part of our price control proposals.[16]

2.4 This chapter:

- summarises our previous consultations on the cost of capital and the main views of respondents;
- provides an update on our process in the light of our final proposals for the NERL RP3 price controls (which also include assumptions on the cost of capital for NERL) and the subsequent Competition and Markets Authority ("CMA") inquiry into these matters;
- explains our current position on HAL's cost of equity for its business as usual activities and discusses how we should establish an adjustment to the business as usual cost of equity to take account of the impact of capacity expansion on HAL's cost of equity;
- describes our current approach to estimating the cost of debt finance; and
- sets out our approach to allowed tax costs.

Our early work on allowed return

2.5 We have published a number of consultation papers setting out our initial thinking on allowed return.

December 2017 and February 2019 Consultations on HAL WACC

2.6 The December 2017 Consultation[17] discussed the advantages of indexing the costs of new debt and referred to the findings of a report we had commissioned from PwC (the "December 2017 PwC report").[18] The December 2017 PwC report set out an "*early and preliminary*" range for HAL's cost of capital.[19] Under the "as

[16] The overall consideration of the cost of capital will also take account of wider policy developments that we are considering, including in relation to financial resilience and ringfencing.

[17] See the December 2017 Consultation.

[18] Estimating the cost of capital for H7 (the "December 2017 PwC report"): see www.caa.co.uk/CAP1611.

[19] See the December 2017 Consultation at Appendix C, paragraph 1.

is" scenario (i.e. in the absence of expansion), PwC estimated a range for HAL's "vanilla"[20] cost of capital of 3.0% to 3.9%. Under the "with R3" capacity expansion scenario, PwC's estimated range for HAL's vanilla cost of capital was 2.8% to 4.6%.[21]

2.7 Between December 2017 and February 2019, we received feedback from stakeholders on a range of issues relating to the cost of capital. We published a report by PwC in February 2019 (the "February 2019 PwC report"), which provided a summary of these issues and set out PwC's responses. Given the volume of responses and wide range of relatively technical issues, we have not sought to reproduce either a summary of the issues, or PwC's response in this document.

2.8 Nonetheless, in broad terms, PwC concluded that its approach remained appropriate, but it did suggest changes to the following:

- embedded debt: updated, at CEPA's suggestion, so that the cost of embedded debt reflects the average cost of embedded debt over the price control period, not just the cost of embedded debt at the start point of the H7 price control. PwC's updated approach assumed that, as each year passes during H7, the first year of the trailing average[22] is removed from the cost of embedded debt calculation. This simulates the maturing of the oldest bonds in HAL's financing structure as time progresses; and
- debt beta: [23] in the light of feedback from stakeholders, PwC updated its estimate of the debt beta from 0.05 to 0.1.

[20] Using a pre-tax cost of debt and a post-tax cost of equity.

[21] See the December 2017 Consultation at Appendix C, paragraphs 4-5.

[22] The February 2019 PwC report estimates the cost of embedded debt based on an average of the past 15 years of yields on a cost of debt index. This is referred to as a trailing average.

[23] Debt beta represents non-diversifiable risk borne by debt investors. We indicated in the December 2017 Consultation that "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". See the December 2017 Consultation at Appendix C, paragraph 17.

2.9 Under the "as is" scenario (i.e., in the absence of expansion), the February 2019 PwC report provided an estimated a range for HAL's RPI-real,[24] vanilla cost of capital of 2.5% to 3.4% reflecting:

- gilt yields and other market derived data as at the October 2018 cut-off date for its analysis;
- PwC's view of the cost of embedded debt, taking account of the expected period of the H7 price control; and
- PwC's assumed value for the retail prices index ("RPI") based on the market evidence at the time of the report.

The March 2019 Working Paper

2.10 We set out our draft proposals for the next price control for NATS En Route Limited ("NERL") ("RP3") in February 2019. NERL's business and circumstances are different from those of HAL, but there are elements of our approach to NERL's cost of capital that have implications for our work on HAL's cost of capital. For instance, total market return ("TMR") and risk-free rate ("RFR") are market wide parameters that apply to both companies.

2.11 In March 2019, we published a working paper[25] on the cost of capital which outlined the implications of our work on NERL for HAL's cost of capital, including our latest views on range for the TMR (5% to 6.25%) and RFR (-1.5% to -0.9%). The March 2019 Working Paper also summarised key elements of our future work programme on the cost of capital and noted we would continue to monitor emerging market and other evidence.

Further developments

Stakeholder responses to the March 2019 Working Paper

2.12 HAL raised a number of significant concerns with our approach to estimating TMR, including the averaging method used to estimate historical *ex post* equity

[24] Deflated by RPI

[25] Working paper on the cost of capital: the implications of the RP3 draft performance plan for Heathrow Airport Limited (HAL) ("the March 2019 Working Paper"): see www.caa.co.uk/CAP1762.

returns; the approach to deflating nominal historical equity returns, the exclusive use of the growth of the measure of UK gross domestic product ("GDP") within the forward looking TMR estimate, and the use of Bank of England TMR estimates.

2.13 HAL also said that it is inappropriate to estimate the equity beta[26] for our preferred comparator airports based on the local equity indices as neither of the comparator airports are members of these indices. More generally, HAL did not consider that local equity indices are representative of the market portfolio of a typical marginal investor in these businesses. Instead, HAL proposed that the equity beta for the comparator airports should be estimated based on the European equity indices that include both stocks.

2.14 HAL also said that recent estimates based on market data suggest that the debt beta for HAL is significantly less than 0.1,[27] and not significantly different from zero. HAL's advisors, NERA, said that 0.05 remains appropriate.

2.15 CEPA, on behalf of IAG, suggested that we should place greater weight on current unadjusted spot rates for gilts when estimating the range for RFR. CEPA supported CAA's proposed point estimate of TMR but said that the CAA should be explicit regarding the weight placed on each source of evidence, in order to allow stakeholders to understand the potential sensitivity of the proposed TMR range to changes in the evidence supporting the estimate.

2.16 CEPA also raised a number of detailed methodological observations in respect of equity beta and the use of cost of debt indices. In relation to equity beta estimation for HAL, CEPA commented on comparator selection, HAL's risk exposure relative to comparators, approaches used by other sector regulators and cross checks.

[26] The equity beta is a measure of the non-diversifiable risk of a company (it is defined as the covariance of the company's equity return against the return on the market portfolio divided by the variance of the returns on the market portfolio). It is the sole company-specific risk factor that determines the required equity return under the Capital Asset Pricing Model.

[27] The value of the debt beta is relevant, since it affects the estimation of the value for the equity beta. A higher debt beta generally implies a lower equity beta.

2.17 Another airline said that HAL should be subject to a significantly lower allowed return in H7, as evidenced by changed market conditions and the decisions of other regulators. It also said the CAA should produce an updated range for the H7 allowed return (i.e. taking account of capacity expansion) as soon as possible.

CAA Decision on NERL's RP3 price controls

2.18 We updated our views on the market-wide parameters, matters such as the approach to debt beta estimation and NERL specific issues in our Final Decisions on NERL's RP3 price controls.[28] These are parameters that are used to inform our overall judgement on the appropriate cost of capital.

2.19 We used an RFR of -1.7% in RPI-deflated terms, based on current and forward looking yields on index-linked gilts published by the Bank of England. We used a TMR of 5.4%, based on a comprehensive review of the latest market evidence, regulatory insight and academic insight in this area. For RP3, we adopted methodologies and assumptions based on this latest evidence that was different from the methodologies and assumptions we used at RP2.

2.20 For equity and debt beta values, we set an equity beta of 1, based on an asset beta of 0.46 and a debt beta of 0.1. These were based on a review of asset betas for relevant listed comparators (an air navigation service provider, airports and utilities), calculations of debt beta using direct (econometric) and indirect (decomposition) approaches, and sense checks of betas against market values and regulatory precedent.

CMA inquiry into NERL's RP3 price controls

2.21 In September 2019, NERL indicated that it would not accept the proposals we had made following our review of its price control arrangements for RP3 and in November 2019 we referred these matters to CMA for determination.

[28] UK RP3 CAA Decision Document, see: https://publicapps.caa.co.uk/docs/33/CAP%201830%20CAA%20Decision%20Doc.pdf

2.22 The CMA will investigate a range of issues including NERL's cost of capital. As well as providing an estimate of NERL's overall cost of capital, it is likely to address the cost equity, cost of debt finance and allowances for corporation tax. This will include market wide parameters such as the TMR and RFR as well as company specific factors such as beta values. It is due to publish initial findings in March 2020 and make a final determination in summer 2020.

2.23 We have provided evidence to the CMA in relation to NERL's cost of capital in November 2019 and December 2019.[29]

Next steps

2.24 Given the CMA's wider role in determining disputes on price control licence modifications (both in relation to licensed airports and other sectors subject to economic regulation), its findings have the potential to create important precedent for our work on HAL. Therefore, we will carefully consider the CMA's analysis of NERL's cost of capital and consider any implications for our work on HAL, particularly in relation to the market wide parameters such as the TMR and the RFR.

2.25 We will also consider whether there are points raised by respondents to the March 2019 Consultation that have not been adequately addressed either by our August 2019 Final Decisions on RP3 or subsequently be the CMA.

2.26 Nonetheless, there are important aspects of HAL's cost of equity and cost of debt that will be heavily influenced by the particular circumstances of capacity expansion and are less likely to be influenced by the CMA's inquiry into NERL's price controls. The elements of HAL's cost of capital that are most likely to be influenced by capacity expansion are the focus of the discussion below, and include the:

- impact of capacity expansion on the cost of equity;
- the approach to allowing for the cost of new debt; and

[29] Both are available on the CMA's case page: https://www.gov.uk/cma-cases/nats-en-route-limited-nerl-price-determination

- the allowances for corporation tax.

Determining the cost of equity finance

Business as usual cost of equity

2.27 The business as usual cost of equity for HAL represents the cost of equity that HAL would currently face if it were not undertaking the expansion programme.

2.28 We intend further to update on our estimate for HAL's business as usual cost of capital in the spring of 2020. To the extent practicable, this will take into account any relevant conclusions from the CMA's inquiry into our proposals for NERL's price controls.

The impact of expansion

2.29 The overall estimate of the cost of equity will need to take account of the impact of the expansion programme. There are a number of reasons to expect that the expansion programme (which is a large,[30] long term, complex infrastructure programme) will affect the returns that will be needed to facilitate expansion in a way consistent with the interests of consumers, including:

- as we have explained in chapter 1, the very large capital programme means that it will be important to develop appropriate and proportionate incentives for efficient delivery by HAL, consistent with the interests of consumers. In doing so, it will be appropriate to take account of both (i) the substantial estimates for contingency contained in HAL's masterplan cost estimates, and (ii) that large construction programmes, such as capacity expansion, are subject to asymmetric construction risks (i.e. the possibility of relatively large cost over runs). These factors need to be taken into account, either by the provision of a specific allowance or through an adjustment to the allowed return. In developing our approach to these matters, we will pass only appropriate and proportionate risks to

[30] For comparison, HAL expects the costs required to open the runway to be in the region of £14 billion (in 2014 prices) while the capex projection for Q6 was £3.1 billion (in 2014 prices, using the Q6 final proposals figure of £2,885m and rebasing using CPI).

shareholders, to enable the development of incentives and the creation of a framework that enables capacity expansion;

- expansion could drive a broader range (or "variance") of possible returns and/or change the profile of HAL's risks such that they relate more to risks in the wider economy (for instance, if incentives lead to HAL being more exposed to construction risk). These factors could lead to investors requiring a risk premium to the extent risks associated with expansion are assigned or carried by HAL.[31] This also highlights the importance of assigning risks and calibrating incentives appropriately and proportionately; and
- as well as construction risks, it will be important to consider how longer term risks should be best taken into account, including the rate of increase in air traffic volumes after the opening of the new runway. We will need to consider carefully what it is reasonable to say at this relatively early stage in relation to risks and incentives, and what is best left for the H8 price control review.

2.30 It will be important to ensure that any expansion-related adjustment to the business as usual cost of equity does not "double count" remuneration that is already being provided elsewhere, including:

- any allowances for contingency in the cost baselines that are used to help calibrate efficiency incentives; and
- the scope for HAL efficiently to share a proportion of its expansion-related risk exposure with its supply chain.

2.31 We are currently exploring two approaches to help inform the quantification of capacity expansion on HAL's cost of equity: scenario analysis and project benchmarking. These are discussed further below.

[31] Under the Capital Asset Pricing Model, higher variance in possible returns will lead to a risk premium to the extent this higher variance is "systematic" in nature: that is, if the additional variance in returns cannot be hedged by holding a diversified portfolio of equity securities.

Scenario analysis

2.32 We intend to use scenario analysis as a way of ensuring consistency between the incentives package and the allowed return. We will look at the impact of contingencies and cost overruns on equity returns and the role of the incentive package in driving the range of possible returns. This work supports a number of our aims as it will helps us to:

- check whether the risks assigned to equity are appropriate and proportionate;
- calibrate incentives;
- understand the impact of cost overruns on the level of charges; and
- inform our assessment of the risk profile debt investor face.

2.33 The immediate focus of this work will be to obtain better information on cost overruns from comparator projects, third party studies on the performance of historical capital projects and historical data on market variables.

2.34 The output of this analysis should be a set of modelling results spanning a range of scenarios, including a "base case" against which other scenarios could be assessed. This can be used to inform an estimate of the difference between returns in the "median" and "mean" scenarios and thus the adjustment required compared to the "business as usual" allowed return. We intend to use our price control model ("PCM") to conduct this analysis.

Benchmarking of required returns

2.35 The aim of the benchmarking analysis we will undertake will be to use the relevant returns that have been determined for relevant comparator projects as a basis for estimating the return required to incentivise investors to invest in the expansion of Heathrow. In the December 2017 PwC report, PwC reviewed and commented on an initial benchmarking analysis conducted by HAL's advisors, KPMG. This analysis identified a series of benchmarks for HAL as a whole in the context of expansion and estimated that there should be an uplift to the business as usual cost of equity based on the required returns for these benchmarks. PwC

concluded that this analysis implied an uplift on HAL's cost of equity capital of between 0.25% and 1% per annum.

2.36 We intend to develop this analysis by undertaking a more detailed assessment that seeks to identify benchmarks for individual elements of the expansion programme. This will aim to ensure a closer match between the benchmarks and the expansion programme and, hence, improve the accuracy and robustness of the assessment.

2.37 The immediate focus of this work is to determine an appropriate division of the programme into its constituent sub-elements. This will then enable us to identify and collect data on the relevant set of benchmarks for each sub-element. We will then need to refine the weights applicable to each benchmark based on measures of their similarity to the corresponding sub-element of the expansion programme.

Determining the cost of debt finance

New debt costs

2.38 HAL will need to raise a substantial amount of debt to efficient fund capacity expansion. Our initial estimate is that it may need to raise around £16 billion in new debt,[32] which is a multiple of the amount of debt it has raised during the present price control period.

2.39 There are limits to the liquidity of sterling bond markets, particularly where a single firm is seeking to raise very large amounts of finance. Therefore, the step change in HAL's debt funding requirements is likely to require HAL to access non-sterling debt markets (to a greater extent than is currently the case) if capacity expansion is to be financed efficiently. HAL noted in its response to the March 2019 Consultation that the need to access greater amounts of non-sterling debt reinforces the benefit of it maintaining an A- credit rating throughout the expansion programme, since there is less depth in international debt markets for debt issues below an A- credit rating.

[32] Over the period 2019-2026, 2017 prices.

2.40 Given that HAL raises its revenues in sterling, the use of international bond markets means that it also uses a range of financial contracts known as "swaps to manage the foreign exchange and other risks that would otherwise be involved with the use of these markets. Therefore, HAL's ability to fund expansion is likely to be substantially reliant on access to international capital markets and bank credit lines to swap any non-sterling debt to sterling debt. Retaining a strong investment grade credit rating is also important for HAL to ensure that it has ongoing access from these international capital markets and bank credit lines.[33]

2.41 At the Q6 price control review, the CAA made an estimate of HAL's debt costs for the period of the Q6 price control. While this had the advantage of providing a stable allow for financing costs, it also exposed HAL to windfall gains and losses if wider debt conditions (over which HAL has little or no influence) move interest rates and debt costs in a way that was not anticipated in setting the price control. The risks associated with this approach would be magnified during the H7 price control period because of the greater level of bond issuance. Noting this, we have been examining ways to set the price control in a way that is consistent with efficient low-cost financing and deal with risks in a measured and proportionate way.

Debt indexation

2.42 We have previously explained that the indexation of new debt costs has been used in other regulated sectors to limit the variance between allowed and actual debt costs and can create appropriate incentives for efficient financing. However, such arrangements typically involve the use of a sterling iBoxx index, which would bring a heightened risk of over/underperformance to the extent that HAL moves from its current practice of using non-sterling markets opportunistically to being more reliant on them.

2.43 The use of non-sterling indices does not necessarily mitigate this risk, since the proportion of different currencies in which a notional efficient operator would

[33] See Appendix C for further analysis of debt financing.

issue cannot readily be determined. Additionally, HAL's foreign debt costs may not reflect the relevant benchmark index.

Limited pass through

2.44 We have also considered "limited pass through" mechanism that combines indexation of new debt with a pass through mechanism. Under this approach, the cost of debt allowance would be set by calculating a weighted average of a debt index value and a value that approximates the actual cost of debt for HAL debt that has been in issue for more than a fixed period of time (for example two years).

2.45 This approach would preserve an incentive for HAL to raise financing at lowest cost, since HAL retains the exposure to out- or under- perform compared with the index for the first two years. In setting the incentive, we would need the period for which HAL was exposed to debt risk to be long enough that it provided a meaningful incentive for HAL to be efficient. At the same time this period would need to avoid being so long that HAL is exposed to undue variability between the cost of debt index and the actual efficient cost of debt.

2.46 However, this approach is not without its limitations. The element of pass through might weaken the incentive for HAL's management to seek the most efficient cost of debt. This could happen as a result of the pass-through arrangement creating a perverse incentive for HAL to issue longer dated debt to gain the benefits of pass through for a longer period, even if this were not efficient.

2.47 This approach would also be reasonably complex as it would require year-by-year review of HAL's debt issuance and require extensive and detailed policy on which elements of HAL's capital structure would be in scope of the pass-through arrangements. For example, it may be difficult to determine whether certain swap transactions are sufficiently closely tied to a particular debt issue that they represent the hedging of the financial risks of that specific issue and should, therefore, be included within the pass-through arrangements. Similarly, it may be difficult to draw a clear boundary between debt raised by different companies within HAL's corporate group.

Tramlines approach

2.48 The second approach is to set allowances annually based on an index and impose "tramlines" either side of the allowance.[34] To the extent that HAL's actual cost of debt were to fall outside the tramlines (i.e. they were materially higher or lower than expected), this could trigger adjustment to the allowed cost of debt. For example, once the upper or lower tramline had been breached, the cost of debt allowance could increase or decrease in proportion to HAL's actual cost of debt.

2.49 Such an approach would limit the maximum out- or under- performance HAL could achieve. It could also retain an incentive on HAL to continue to seek the lowest cost of debt by only making adjustment for less than 100% of the difference between the actual cost of debt and the index. A key advantage of this approach is that it provides a "safety valve" so that consumers are not exposed to large windfall gains or losses should the cost of debt index not reasonably reflect HAL's cost of debt.

2.50 The tramlines approach shares some of the limitations of the limited pass through approach in that it would still involve a degree of complexity in establishing HAL's actual cost of debt. However, during the routine operation of these arrangements (i.e. when HAL operates within the tramlines), there would not be a direct impact of HAL's actual debt costs on its revenues and so the impact of this complexity (and the distortions it might create) would be reduced.

2.51 On balance, allowing for new debt costs on the basis of tramlines of the kind described above appears to be preferable to either a simple cost of debt index or limited pass through arrangement.

Nominal cost of debt

2.52 In setting the Q6 price control, we allowed for the real cost of debt finance with HAL compensated for the impact of inflation by indexing its price control and RAB by inflation. Nonetheless, corporate debt markets tend to have more liquidity for nominal rather than indexed debt and we would expect the efficient

[34] This would involve identifying a range above and below the index, specified in terms of a number of basis points.

financing of capacity expansion to involve a substantial amount of nominal debt. If we retain the approach used for the Q6 price control, we will continue to have an approach under which there would be a delay in the receipt of HAL's revenues compared to its interest costs.

2.53 It would remain open to HAL to reduce this mismatch in the timing of its financing costs and revenues by issuing inflation or RPI swaps.[35] However, the volume of debt required to fund capacity expansion is likely to be very large and it is not clear whether the market for inflation swaps will be sufficiently liquid to support an efficient inflation hedging programme by HAL.

2.54 One way of dealing with these constraints could be to provide at least some of the cost of debt allowance in nominal terms. Setting a nominal cost of debt would mean that the portion of the RAB notionally funded by debt would not be indexed but would earn a cost of debt allowance at the nominal rate. The nominal cost of debt would be calculated by reference to a real cost of debt and an assumption about the rate of inflation in a way that produced the same net present value revenues as the real cost of debt.

2.55 As we noted in our December 2017 consultation,[36] it will eventually become necessary for the CAA to move to CPI or CPIH for setting all aspects of the price control. This aligns with the recommendation from the chair of the UK Statistics Authority to the chancellor of the exchequer that the publication of the RPI be stopped at a point in future.[37] We therefore need to ensure that, in the longer term, our price control decisions need to be robust to no longer having a reliable RPI to use. A nominal cost of debt allowance would be one way of achieving this, but we could also transition the indexation of the RAB from RPI to CPI or CPIH at the H8 price control review.

[35] An RPI swap is a financial instrument in which one party pays an amount that inflates with RPI and the other party pays an amount that does not inflate with RPI.

[36] Economic regulation of capacity expansion at Heathrow: policy update and consultation, see https://publicapps.caa.co.uk/docs/33/CAP1610(120014-12-2017).pdf

[37] See https://www.parliament.uk/documents/lords-committees/economic-affairs/Letter%20from%20UKSA%20to%20Chairman%204%20Sept%202019.pdf

2.56 The practical impact of a nominal cost of debt allowance would be to increase short term revenues and to decrease revenues in the longer term compared to the current position of using the real cost of debt. This would clearly have implications for both affordability and financeability, and we would take these into consideration when making any decision on whether to adopt a nominal cost of debt.

Liquidity

2.57 A construction programme of the scale of capacity expansion will mean that HAL will need to have access to large amounts of liquid funding. Using cash as the only means of providing this liquidity is unlikely to be most efficient as it would involve a large amount of additional capital being invested in the business. A more efficient approach to maintaining sufficient access to liquidity may be to make use of liquidity facilities.

2.58 In the Q6 price control review we made a general allowance for a revolving credit facility (which involved adding five basis points to HAL's cost of debt). We will need to consider whether a similar approach is justified as part of the H7 price control review and will assess the efficient level of these costs as part of our work on determining the best approach for allowing for the cost of debt finance.

Embedded debt costs

2.59 As well as making allowance for the new debt necessary to enable capacity expansion, we have to consider how best to take account of the existing debt that supports HAL's RAB, known as embedded debt. This will take account of the five broad policy aims discussed in the executive summary, consistency with our previous approach to allowing for debt costs and consistency with our approach to allowing for the costs of new debt. We will consult further on our approach to these matters once we have developed further our approach to allowing for new debt costs.

Determining allowed tax costs

2.60 In setting the Q6 price control, we made an allowance for HAL's corporation tax costs by uprating its cost of equity by the average headline tax corporation tax rate (20.2%). This provided about £110 million of revenue in 2018.[38]

2.61 For the H7 price control, we have suggested in previous consultations that it would be in consumers' interests for the tax allowance to be capped at a level that takes account of its actual level of gearing in the new price control period.[39] We did not receive responses from HAL or other stakeholders on this issue.

2.62 We have subsequently engaged Grant Thornton to advise us on the approach to modelling tax and options for regulatory treatment of tax. This included looking across approaches used by other UK economic regulators. Grant Thornton's full report is published alongside this consultation.[40]

2.63 Grant Thornton suggest the following two options for modelling corporation tax in the analysis we will use to support the setting of HAL price control:

- using the headline rate of corporation tax to calculate a pre-tax cost of equity for use in the calculation of the WACC, similar to the approach that we used in setting the Q6 price control; or
- using the estimates of tax costs in our financial modelling (based on a gearing level consistent with that used to set the WACC) to calculate a separate allowance for corporation tax. This would be separate from the WACC, which would be calculated on a vanilla basis, similar to the approach used by other economic regulators (including Ofwat and Ofgem).

2.64 Our preferred approach to setting an allowance for tax costs in H7 is consistent with option (ii) above. This approach should provide a reasonable and transparent estimate of the tax costs that HAL will incur in practice. The alternative approach of remunerating tax through setting a pre-tax cost of equity

[38] This is based on a HAL RAB of £16 billion in 2018, multiplied by the difference between the Q6 pre-tax WACC (5.35%) and vanilla (i.e. post tax) WACC (4.66%).

[39] See the December 2017 Consultation.

[40] Grant Thornton, H7 Price Control Model – approach to corporation tax, November 2019

and allowed cost of capital is less transparent and risks significantly over or underestimating the actual tax costs that HAL is expected to incur during H7.

2.65 Grant Thornton also reviewed the approaches used by UK economic regulators to recovering any tax benefits from companies adopting higher levels of gearing than assumed in setting their price controls. This is sometimes called a "tax clawback mechanism". The CAA already applies such an approach to NERL and we consider that there would be advantages in adopting such an approach for HAL, as it could reduce any undue incentive on HAL to adopt a highly leveraged structure (that might create risks to its financial stability). We discuss a possible design for this mechanism in Appendix B.

2.66 Grant Thornton also reviewed approaches by UK economic regulators to adjust allowed tax costs for unexpected changes that are deemed to be outside reasonable management control. This could include, for example, changes in the headline tax rate, capital allowance rates, or other changes in taxation law or interpretation of that law. Given the materiality of tax costs we consider it is reasonable to adjust tax allowances for factors broadly outside management control. These matters are also discussed further in Appendix B.

Views invited

2.67 Views are invited on any of the issues raised in this chapter and, in particular, how we should best estimate the uplift on the cost of equity necessary to enable capacity expansion, the best approach to allowing for new debt costs and our proposed approach to assessing corporation tax costs.

Chapter 3

The regulatory framework and financeability

Introduction

3.1 Consistent with the broad aims set out in the Executive Summary we are seeking to create a regulatory framework that facilitates both efficient financing and the setting of affordable airport charges. By combining incentives for efficiency with protections for HAL from inappropriate risks, the regulatory framework should allow capacity expansion to be financeable, while also incentivising delivery at the lowest overall efficient cost to consumers. This approach should allow capacity expansion to be financeable and (to the extent it is reasonable and practicable) and to the extent practicable meet airline aspirations for no real increase in charges.

3.2 In this light, we will aim to set charges in a way that is no higher than is necessary, provided that, in combination with the other elements of the regulatory framework, there are sufficient incentives for investors to make available the funds necessary to enable capacity expansion. Nonetheless, financeability is particularly important for the H7 price control as HAL will need to raise significant new financing to fund investment in capacity expansion. Chapter 1 in this paper discusses are approach to efficiency incentives and chapter 2 discusses allowed returns.

3.3 This chapter:

- briefly summarises what we said in the March 2019 Consultation on financeability and the views of respondents on these matters;
- sets out our response to key issues raised by respondents;
- discusses a number of key areas where we are seeking to develop our approach further, including in relation to providing regulatory; certainty, equity commitments and how we should best calibrate the H7 price control

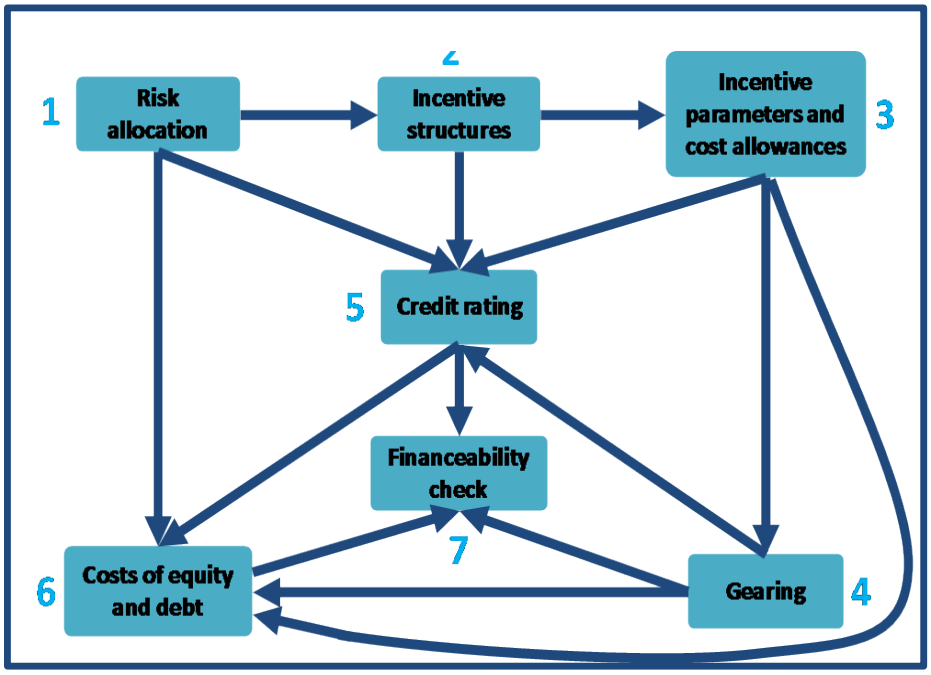
(including our approach to credit ratings, financial structures and gearing); and

- finally we discuss how we should best assess the equity financeability in developing our proposals for the H7 price control.

The March 2019 Consultation

3.4 The March 2019 Consultation discussed the importance of taking a holistic approach to financeability in order to develop a price control that incentivises the delivery of capacity expansion for the lowest overall cost. Key to this is providing proportionate incentives for efficiency while allowing HAL to retain access to relatively low cost investment grade debt finance on the scale required to meet the challenges of capacity expansion. This requires a careful approach to risk allocation and the calibration of incentives, in the context of the financing challenges associated with successful delivering new capacity. Key factors and inter-relationships are illustrated in Figure 3.1 below.

Figure 3.1: the financeability framework



Source: CAA

3.5 The March 2019 Consultation also set out our thinking on key elements of financeability, including financial structure, gearing, how we should assess

financeability and how we could make adjustments to our approach to setting the price control to support financeability.

Stakeholder views

3.6 In response to the March 2019 Consultation, we received comments on our financeability policy from HAL, airlines, airlines representatives and one other respondent.

3.7 HAL and one airline were supportive of the overall, holistic approach to financeability, although one airline was concerned that the CAA appeared to not place much weight on qualitative considerations when assessing financeability. Another airline expressed strong views that the CAA has gone beyond its statutory duty in respect of financeability and was inappropriately trying to ensure the financeability of capacity expansion. It also restated its view of affordability and the importance of airport charges not increasing.

3.8 There were mixed views in respect of gearing policy. One airline supported the introduction of a gearing sharing mechanism. The airline representatives were concerned that the CAA might be too inclined to consider the actual financeability of HAL rather than a notional company. HAL also supported the assessment of financeability on a notional rather than actual basis. By contrast, another correspondent suggested that the CAA should use HAL's actual gearing and impose a cap on gearing.

3.9 No stakeholders were opposed, in general terms, to our proposed policy in respect of stress testing, although some made suggestions for how the policy should be further developed. One airline supported the use of Bank of England inputs for macroeconomic values when developing the stress test scenarios. Airline representatives said that it was important that the CAA provide more clarity about what would be considered a pass or fail in the stress tests.

3.10 HAL said that regulatory certainty beyond a five year price control period is essential due to the large investment required and the elevated degree of risk that expansion poses. In response to the affordability and financeability analysis set out in the June 2019 Working Paper, HAL restated its preference for longer

term regulatory certainty. Airline representatives also expressed support for a longer period of regulatory certainty, although their concerns focused on the overall affordability of capacity expansion.

3.11 Respondents broadly supported our approach to credit ratings. One airline noted that HAL's credit rating reflects, among other factors, its financial structure which includes a large amount of debt that was raised at the point of HAL's acquisition. It also highlighted the importance of qualitative factors in assessing whether H7 was compatible with a given credit rating.

3.12 HAL recognised the possible need to adjust its price control to support financeability but opposed using efficiency adjustment to provide such support. One airline and another respondent both broadly supported our policy proposals in respect of financeability adjustments. Another airline proposed unitised depreciation[41] to smooth the depreciation allowance per passenger over a longer period of time.

3.13 Another airline expressed strong views on affordability, taking the view that the CAA had not done enough to explain what affordability means and that affordability and financeability are essentially the same thing.

CAA views

3.14 Stakeholders raised a range of important points in their responses. As noted above, one airline expressed its view that the CAA had gone beyond its statutory duty in respect of financeability and that we had set ourselves the objective to "ensure the financeability of capacity expansion".

3.15 We do not accept that we are acting in a way inconsistent with our statutory duties. As we have explained in the executive summary we have a balance of aims that span both affordability and financeability, with the intention of ensuring capacity expansion is delivered and at the lowest overall cost to both present and future consumers. Nonetheless, we are clear that the efficient and affordable

[41] Unitised depreciation involves calculating depreciation of an asset on the basis of its usage. For example, the value of a runway might be depreciated in proportion to the number of flights taking off or landing on it.

delivery of capacity expansion is in the interests of consumers. Therefore, we will seek to set price control allowances in a way that enables an efficient operator to expand capacity. This does not guarantee that expansion will happen or that HAL will be financeable (HAL's management and shareholders have the primary role delivering financeability). Nonetheless. our approach will enable capacity expansion by allowing it to be financed by an efficient operator.

3.16 The same airline also set out its views on what affordability should mean in the context of the expansion of Heathrow airport and quoted statements made by the former Secretary of State for Transport to argue that "affordability requires that airport charges remain flat".[42] We do not take such a relatively narrow view of what constitutes affordability. Our "primary" duty under CAA12 is to "further the interests of users of air transport services" and we are required to have regard to a range of factors in discharging our primary duty. This suggests a broader interpretation of affordability is appropriate, taking account of both the advantages to future consumers of capacity expansion while also having regard to the advantages of avoiding any undue increase in airport charges, that could ultimately be passed to consumers and/or reduce demand for new capacity. We will therefore take account of these wider factors while still noting the importance of the benchmark that charges in future should not increase in real terms from 2016 levels.

3.17 The airline in question said that "the CAA has confirmed that it is prepared to transfer risk and cost onto passengers, in order to ensure dividends can be paid, while financing capacity expansion, irrespective of inefficiency, inappropriate capital structure or unwise dividend policies."[43] Any price control makes decisions about how risks are distributed between the regulated business and its customers. However, we have not made any commitment to passengers taking on cost or risk to ensure dividends can be paid, nor do we expect to make any such commitment. We will provide a reasonable allowance for the cost of equity, in line with our statutory duties, and it will then be up to HAL to perform efficiently

[42] See paragraph 18 of IAG's response to the March 2019 Consultation.

[43] See paragraph 26 of IAG's response to the March 2019 Consultation.

enough to actually generate sufficient cash to pay dividends, which may be larger or smaller than the cost of equity allowance depending on HAL's performance.

3.18 Another airline highlighted the importance of qualitative factors for credit rating agencies when they make their credit rating assessments and suggested that the CAA should likewise consider qualitative factors when assessing financeability. We agree that qualitative factors are material considerations when assessing financeability and will take account of them in our assessment. We regard this as consistent with the approach that we have discussed in previous consultations in relation to how we would interpret the results of quantitative analysis.[44]

Financeability policy

3.19 The responses to the March 2019 Consultation also suggested that we should explore further issues relating to:

- whether longer-term commitments relating to financeability and/or affordability might be appropriate given the special challenges of capacity expansion; and
- how we should best calibrate the H7 price control, including in relation to assumptions on credit ratings, financial structure and gearing.

3.20 An issue related to longer term commitment is whether, when and how HAL should demonstrate it has access to sufficient equity financing to support capacity expansion. All these issues are discussed further below.

Providing longer term regulatory certainty

3.21 The regulatory framework for HAL already relies on the RAB, which is a regulatory commitment that endures beyond each price control settlement and there are other elements, such as the single till nature of our regulation, which we also do not plan to change. Nonetheless, as noted above, the challenges of financing capacity expansion and delivering it in a way which is affordable and financeable means that it is appropriate to consider whether we should provide greater regulatory certainty with respect to the longer term. If providing longer

[44] See, for example, paragraph 1.57 of the March 2019 Consultation.

term certainty can reduce financing costs compared to the counter-factual then this could provide a benefit for affordability, and therefore consumers and airlines.

3.22 HAL has raised the concern that allowed returns might be reduced after H7, leaving material amounts of capital still to be invested, but producing lower returns than investors had expected. Such uncertainty might make investors reluctant to invest. Airlines are principally concerned about uncertainty in the level of airport charges and that they might increase materially, either during the H7 price control period and/or in the longer term.

3.23 There are a number of potential benefits to a providing a longer period of regulatory certainty for aspects of the H7 price control, including:

- flexibility to manage the profile of airport charges: a longer price control could have advantages in allowing a greater "smoothing out" of any peak in charges caused by capacity expansion and might go some way to dealing with airline concerns about real increases in airport charges. It might also provide additional cash flows in years when financeability is tightest (such as during construction); and
- greater certainty of returns: given the long timeframe for capacity expansion at Heathrow airport, investors may be concerned that a five-year commitment does not match their underlying exposure to risk. This uncertainty might lead investors to seek higher returns in years one to five than would otherwise be the case. Determining allowed returns for a longer period could reduce this uncertainty and consequently lead to a lower overall return, which can benefit consumers.

3.24 Nonetheless, we also note that there are potential disadvantages in providing a longer period of regulatory certainty. These include:

- forecasting risk: key elements of the price control (e.g. operating cost allowances, non-aeronautical revenue allowances and passenger volume projections) will be significantly affected by the opening of new runway capacity and forecasting these factors well into the future without some

evidence closer to "real time" would risk windfall gains or losses for HAL and consumers; and

- difficulty in responding to uncertainty: over time, there is always the possibility of very significant and unexpected events happening. A five yearly price control review allows for any such unexpected events to be reflected in the new price control settlement. Making decisions which endure significantly beyond five years potentially limits that flexibility.

3.25 Because of these difficulties, we would not expect to be able sensibly to determine all elements of HAL's price control for a period significantly greater than five years. We will also need to consider how best to provide for very significant and unexpected events, including using appropriate mechanisms to reopen or adjust the price control.[45]

3.26 In practice, this means that the best way to provide airlines and consumers with reasonable certainty on charges is to ensure that HAL faces incentives to deliver efficiently and that the H7 price control and broader regulatory framework is consistent with efficient financing. Determining operating costs allowances, non-aeronautical revenue figures or passenger volumes beyond five years, without adjustment mechanisms, creates forecasting risk without any obvious benefit.

3.27 Given the challenges of financing capacity expansion, it is worth considering whether we should provide greater certainty on the cost of equity in setting HAL's price control. If we were to provide a longer period of regulatory certainty for the cost of equity, it would also be appropriate to consider key aspects of the regulatory framework that influence the cost of equity, for example: the broad approach to risk allocation and efficiency incentives.

3.28 Extending the length of the regulatory determination for the allowed cost of equity would provide more certainty over the level of this allowance. It would not provide investors with certainty over actual returns, which would continue to be

[45] We are mindful of the need to ensure that these reopeners do not undermine the certainty that creates some of the benefits described above. We would expect that the circumstances in which the price control could be reopened would be tightly defined and limited in scope.

determined by HAL's delivery against the incentive arrangements that are part of each price control settlement.

3.29 Making a longer term decision in respect of the approach to regulatory depreciation, could also have the potential to provide greater certainty over the level of charges in the longer term. However, since other elements of the price control (e.g. operating costs) would continue to have five yearly reviews, there would still be scope for variability in the level of prices.

3.30 We are currently considering the length of time for which we might provide longer regulatory certainty on the cost of equity and approach to incentives. Our initial thinking is that a 10- to 15 year period is meaningfully longer than the usual five year price control and would make it relatively simple to return to "full" price determinations in future.

3.31 We will also need to consider whether the base price control should be for a five year period or whether this should be changed to reflect recent developments in the wider programme, with HAL not expecting to deliver the new runway until 2028 or 2029. For instance, it might be possible to set a 7 or 8 year price with re-openers to manage difficulty with forecasting risk.

Equity commitment

3.32 As we have already explained, equity financing can be important in terms of allowing HAL to manage the risks associated with incentives and in terms of a financing buffer consistent with access to relatively low cost debt finance. The scale of capacity expansion and the financing challenge further emphasizes the importance of equity finance (including new equity injections). Bearing these circumstances in mind, we are considering how HAL can best demonstrate it has access to the equity financing necessary to support capacity expansion.

3.33 HAL has chosen to deliver expansion itself, and not to initiate a competitive process to procure new shareholders or to find partners for a construction joint venture or similar model based on a special purpose vehicle. It is for HAL to make such decisions and it has stated that its choice reflects the commitment of its existing shareholders to expansion.

3.34 This approach does not mitigate the risk that shareholders' willingness to invest may change over time. To meet our aim of creating a framework that enables expansion, we are considering whether to ask HAL to provide support letters at various milestones prior to our final price control proposals and licence modification, that would demonstrate increasing levels of assurance on the appropriate equity commitment. We understand that this is consistent with market practice in certain corporate finance transactions.[46] We expect that the letters would be produced by HAL but would contain a number of key commitments specified by the CAA.

3.35 We will consult further on the possible milestones and assurance levels to be provided. We note the importance of ensuring an approach which aligns with the wider regulatory process – for example, ensuring that equity commitments we seek from HAL do not undermine its right of appeal to the CMA.

3.36 We will consider further the advantages and disadvantages of this approach in the light of responses to this consultation.

Calibrating the price control

3.37 In setting the H7 price control we will need to make a number of important assumptions about the financing arrangements, so that we can properly estimate HAL's cost of capital and test the financeability of our proposals. These include our approach to credit ratings, gearing (the ratio of debt finance) and the profile of regulatory depreciation. Each of these parameters has an impact both on affordability and financeability and our approach will need to take account of the unprecedented nature of capacity expansion at Heathrow airport. Our latest thinking on these matters is set out below.

Credit rating

3.38 In the March 2019 Consultation, we noted our intention to test financeability against the benchmark of a "reasonable investment grade" credit rating. Our financial advisors have examined the evidence on availability and cost of debt

[46] This practice is standard in major public sector procurement and PFI type bidding situations as well as corporate mergers and acquisitions.

finance at different credit rating levels further to inform our thinking on these matters.[47]

3.39 In summary, the key considerations are:

- funding expansion will require a substantial amount of capital to be raised. Our estimates suggest a notional efficient operator would need to issue approximately £16bn (in 2017 prices) of incremental debt in the period 2019-2026. This is significantly larger than typical financing requirements for a regulated utility company in a single price control period;
- efficiently raising the volume of debt required will require access to non-sterling debt markets. We therefore expect cross currency swaps to be an important part of an efficient risk management strategy. Banks are able to transact larger volumes of swaps with counterparties which are more highly rated.[48]
- a higher credit rating allows more flexibility to access the sterling index-linked bond market[49]; and
- a higher credit rating allows a lower cost of debt and swap credit charges.

3.40 HAL is already one of the largest issuers in sterling debt markets and will become more reliant on non-sterling capital markets to finance capacity expansion efficiently. The same would be true of the notional efficient financing structure, as there is unlikely to be enough depth in the sterling debt capital markets alone to fund a single issuer of debt seeking funding on the scale necessary to finance capacity expansion.[50]

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[47] See appendix C for a summary of the relevant evidence.

[48] Banking regulations deriving from a global regulatory framework known as Basel III require that banks reserve capital when transacting with counterparties. The amount they must reserve is higher for lower rated counterparties which limits the amount that they will be willing to transact.

[49] We expect an efficient operator would seek to limit its exposure to inflation by issuing inflation linked debt and entering into RPI swaps to align with the RPI-linked profile of allowed revenues. Doing so reduces the risk that revenues are insufficient to cover debt service costs, thereby mitigating the risk that consumers suffer the disruption caused by financial distress.

[50] Sterling debt capital markets are deep and liquid though when an entity the size of HAL seeks to issue £16bn of debt over seven years it is likely that many debt investors would reach their own limits on what they are willing to lend to a single issuer.

3.41 There are some recent precedents for large privately financed infrastructure projects in the UK. These include the Moray East and Triton Knoll offshore wind projects that each raised about £2 billion of debt in 2018 and Thames Tideway Tunnel in 2016 that raised about £3 billion. These projects raised funding with a credit rating of Baa1 (one notch below A-) and while they are large in absolute terms they are still materially smaller than capacity expansion at Heathrow airport.

3.42 Capacity expansion will require very significant amounts of new finance, and the cost of debt will have significant impact on HAL's cost of capital and overall affordability. Bearing this in mind, there appear to be significant advantages for consumers in setting the next price control on the basis of HAL having access to relatively strong investment grade debt finance. For instance, Heathrow Funding Ltd's senior notes currently have an A- rating and this allows access to larger pools of finance and better facilitates use of non-sterling capital markets for the scale of debt finance required more efficiently than lower investment grade ratings.

3.43 To access the volume of debt necessary for expansion, HAL will need to be sufficiently credit worthy. In the March 2019 Consultation, we set out our thinking that the price control should be consistent with a "reasonable investment grade credit rating". A credit rating materially lower than the existing A- rating referred to above would not be compatible with efficient financing. We will continue to assess what level of credit rating it would be best to assume in setting HAL's H7 price control.

3.44 It is also important to stress that we are not seeking to guarantee that HAL achieve a particular rating, but rather use metrics consistent with a given rating in setting HAL's allowed return, and to test the calibration of our price control and incentive arrangements.

Financial structure and gearing

3.45 In the March 2019 Consultation, we talked about the "twin track" approach to assessing financeability. One approach would be based on a moderately geared notional company consistent with the approach typically used by economic regulators. The other approach would involve considering a more highly geared

structure that might better reflect what should happen in practice given the challenges of financing capacity expansion efficiently. Bearing in mind comments from stakeholders, we remain of the view that this approach should be helpful in understanding the financial pressures HAL might face during H7.

3.46 We also published a report by EY[51] which examined mechanisms for adjusting the price control and airport charges in response to changes in the level of actual gearing. This report identified a number of difficulties associated with such mechanisms, including complexity and the risk of distorting incentives on HAL to finance its business efficiently (which might ultimately increase costs for consumers).

3.47 We are also conscious that the clearest advantage from higher levels of gearing relate to tax efficiency and savings in corporation tax. We have explained in chapter 2 the that work we are doing on allowed returns and the cost of capital to put in place an adjustment mechanism to ensure that HAL does not make windfall gains from the tax savings associated with higher rates of gearing. Bearing the above factors in mind, we do not intend to pursue the development of wider gearing sharing mechanisms further.

3.48 The twin track approach involves considering how capacity expansion could be efficiently financed. There are credible arguments for assuming a notional company which has a whole business securitisation structure ("WBS") similar to the arrangements HAL currently has in place. A number of regulated companies in other sectors (such as energy and water) have similar structures and these structures provide additional protections to creditors which, among other things, allow companies to sustain a higher level of gearing. We propose, therefore, to assume a notional efficient company with a WBS, but with a single, senior class of debt consistent with a reasonably simple and transparent approach to financial modelling and our approach to assessing credit ratings. This would be simpler than HAL's current debt structure (which involves two classes of debt).

[51] See http://publicapps.caa.co.uk/docs/33/CAA%20Gearing%20Sharing%20Mechanisms%20Report-v1.0-issued.pdf

3.49 In the context of expansion and the overall scale of investment required, it is likely that efficient financing would involve a reduced level of gearing from HAL's present level of gearing. We will continue to develop our thinking on the appropriate level of gearing to use as part of our cost of capital calculations and in our financial modelling. For instance, if we were to assume an A- rating it is likely that a level of gearing of 60%-70% would be consistent with this for the initial period of capacity expansion.

Regulatory depreciation

3.50 We have previously discussed the use of regulatory depreciation as a lever to help manage financeability and affordability. Regulatory depreciation policy has a direct impact on affordability as it moves cash between periods. It could, in principle, be used to smooth out peaks and troughs in the profile of charges and, thereby, support affordability. But we would need to be mindful of not in effect creating a problem at a later point in time by re-profiling regulatory depreciation. The impact of depreciation on financeability is less clear cut as there are some differences in the approaches of the credit rating agencies in the treatment of regulatory depreciation in the key metrics used to assess debt finance.

3.51 The possible use of a nominal cost of debt allowance is also relevant to regulatory depreciation policy. As mentioned in chapter 2, a nominal cost of debt allowance has the effect of bringing cash flows forward. The same effect could be achieved by certain regulatory depreciation policies. Conversely, other regulatory depreciation policies[52] could have the effect of deferring cash flows, thereby offsetting the impact of a nominal cost of debt policy.

3.52 When assessing regulatory depreciation policy options, we will be mindful of other factors, such as a possible nominal cost of debt allowance, that will have a bearing on the overall profile of cash flows. We will assess the approach of credit rating agencies further in deciding on our approach to regulatory depreciation.

[52] Such as the unitised depreciation preferred by IAG.

Assessing financeability

3.53 In the March 2019 Consultation, we discussed how we would assess financeability from a debt perspective. Below, we set out our initial thinking on how we will assess financeability from an equity perspective. This should support our work on creating a balanced package of incentives and appropriate risk and reward package for shareholders. It should also ensure the price control is consistent with shareholders providing the equity financing necessary to enable capacity expansion.

Equity financeability

3.54 Debt financeability measures can be transparently benchmarked against the approach taken by the credit rating agencies. Equity financeability is less transparent as each investor conducts its own analysis and these analyses are likely to differ in response to each investor's own priorities. This will tend to make our assessment of equity financeability more difficult and subjective.

3.55 To the extent that it is practicable, it is important for us to conduct a quantitative assessment of equity financeability. Such an assessment provides feedback on the appropriateness of the price control as a whole, potentially indicating whether the package is too generous or too stringent. By combining both this and the assessment of debt financeability with the assessment of affordability, we can make an overall judgement on whether the price control that takes appropriate account of the interests of consumers, debt and equity investors.

3.56 The advice we have received from our financial advisors (Centrus) suggests that shareholders consider a range of factors when assessing the adequacy of returns. These factors typically include:

- the rate of return in the long-run;
- timing of cash flows; and
- variability of returns.

3.57 We have identified a range of metrics below with the intention of being able to create a "dashboard" of measures that will capture the above factors.

Return on regulatory equity

3.58 Return on regulatory equity is typically calculated by dividing annual post tax returns (measured on an economic basis[53]) by the share of the RAB that relates to equity.[54] RORE, therefore, has several features which make it an informative measure of equity financeability. RORE:

- is calculated with reference to the notional capital structure. It is, therefore, not affected by the financing decisions of the actual shareholders. Rather, it focusses on the financeability of the price control and, so, reflects the decisions of the CAA rather than those of the shareholders;
- can be used to capture the impact of incentives. This helps to make RORE a useful measure for assessing whether the price control provides an appropriate range of possible equity returns. Similarly, it can be compared to the allowed cost of equity. Outturn average RORE over a price control period should be equal to the allowed cost of equity if outturn costs were equal to allowances and there were no bonuses or penalties arising from incentives; and
- reflects cash flows in a particular year. By looking at RORE and its trend over time, we can assess the timing of cash flows. We can also calculate measures of spread of RORE over time, for example, the standard deviation of RORE over the length of the price control. This allows us to measure the volatility of returns.

3.59 Nonetheless, we are also mindful that RORE does not look at actual cash flows as it calculated on a notional basis. This means that RORE could show higher or lower returns than shareholders are able to access in a particular year. Therefore, it needs to be supplemented with other measures which do reflect actual returns to obtain a rounded picture of equity financeability.

[53] An 'economic basis' means that the impact of incentive bonuses or penalties are reflected in the year to which they relate, not the year in which their impact is felt in cash flows.

[54] So, for example, if the notional gearing were 60% then the regulatory equity would be calculated as 40% of the RAB.

Modified internal rate of return

3.60 Internal rate of return provides an indication of the investment returns deriving from a series of cash flows. The modified rate of return ("MIRR") is conceptually similar but does not assume that cash flows are reinvested at the internal rate of return. It provides an overall reflection of equity returns over a period which may include net inflows of equity capital. This is particularly relevant during capacity expansion, as it is likely that shareholders will need to invest further in the business to enable expansion.

3.61 The MIRR has a number of useful features that help us to assess equity financeability:

- it takes account of cash flows over a period of more than one year. Investors in infrastructure take a long term view and, so, to get an appropriate impression of how investors might view the price control, we need to look at returns over a reasonably long period of time; and
- it reflects actual cash flows and so is complementary to RORE and together they help to provide a rounded picture of equity financeability.

3.62 One limitation with MIRR is that it requires an assumption about the capital value of the business at the beginning and end of the period. We can make such an assumption but, in the absence of direct market evidence, we will need to make estimates of these values.[55]

Running yield

3.63 One aspect of equity returns which neither MIRR nor RORE fully reflect is the year-to-year variation in actual cash flows. We propose to calculate the "running yield" to fill this gap and complete the picture on equity financeability. Running yield is calculated as the actual, post tax, cash flow to equity divided by its market value. Calculating market value for running yield is subject to the same considerations as apply to MIRR.

[55] Such as the RAB or RAB adjusted for ratio of transaction price to RAB in other regulated sectors.

3.64 The key advantage of running yield in the H7 context is that it allows us to identify particular periods in which equity returns are projected appear relatively high or relatively low.

Views invited

3.65 Views are invited on any aspect of the issues raised in this chapter and, in particular, on:

- advantages and disadvantages of longer-term commitments to both the cost of equity and the broad approach to regulatory incentives;
- our suggestion that, as part of the H7 price control review process, HAL should be asked to demonstrate that it has appropriate commitments for equity financing;
- what assumptions we should make on credit ratings and whether it is reasonable to assume the efficient financing of capacity expansion would involve a company with a WBS structure and a single class of investment grade debt; and
- our approach to assessing equity financeability.

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

Further detail on policy for tax costs in H7

Calculation of tax in the Price Control Model (PCM)

1. In the Price Control Model ("PCM"),[56] the calculation of tax costs is on a "cash" basis (excluding deferred tax). It uses the assumptions for HAL's notional gearing to calculate interest costs, which are deducted from taxable profits. The tax costs are calculated as:

   - profit before tax (EBITDA less depreciation, interest and facility fees);

     PLUS

   - disallowable expenditure (both recurring expenditure, such as third party entertaining, and any one-off disallowable expenditure) and accounting depreciation;

     LESS

   - capital allowances (calculated from capital allowance pools), other deductions and tax losses used as offsets, including the corporate loss restriction.

   The sum of these elements is then multiplied by the compounded headline corporation tax rate (compounding is used to account for tax calculated on tax allowance).

2. This is a simplified approach that does not include all tax adjustments where these are unlikely to be material, based on discussions with HAL, or are outside the scope of the PCM, such as fair value adjustments and group transfer payments.

[56] The PCM is the analytical tool we will use to calculate allowed maximum yield per passenger. The PCM includes flexibility to allow us to assess a range of possible policy options and how the notional company would fare in a range of scenarios.

3. We plan to review the tax assumptions in the light of HAL's business plan, with the intention of ensuring the tax calculations in the PCM are reasonable and are not missing any material items.

Recovery of tax benefits from higher gearing

4. The PCM calculates allowed tax costs based on the assumed notional gearing. Where HAL's actual gearing is higher, HAL could receive a benefit from additional tax-deductible interest.

5. For NERL, the CAA currently applies a tax clawback mechanism where the tax benefits from actual gearing above 60% are returned to users. We understand that both Ofwat and Ofgem operate similar tax clawback mechanisms and these are described in Grant Thornton's report published alongside this consultation.

6. For H7, we are minded to include a mechanism for HAL that is similar to the mechanism applied for NERL. This would seek to recover for customers the tax benefits to HAL from adopting a higher level of gearing than the notional level. This also removes what could otherwise be a specific incentive for HAL to increase its gearing during H7.

7. This tax clawback mechanism could follow the following steps:

    i. compare actual gearing (year end net debt to RAB) to notional gearing. If actual gearing is higher go to step ii;

    ii. compare actual interest to modelled interest in the PCM tax charge calculation. If actual interest is higher go to step iii;

    iii. revenue to be returned is calculated as the actual interest less modelled interest, multiplied by the headline tax rate.

8. One consequence of this approach is that, if HAL's forecast gearing in H7 is higher than our notional gearing, the tax clawback may apply even if HAL does not increase gearing from its forecast level. However, we could consider applying a "dead band" to mitigate this effect if such an approach would better protect consumers or better support financeability.

9. For this mechanism, as well as applying any dead band we will also need to consider whether the clawback adjustment is applied to the RAB or to HAL's revenue, the timing of assessing and making adjustments and how the adjustment is applied to be present value neutral.

Uncertainty mechanism for tax costs

10. The PCM will include a forecast for allowed tax costs in H7, with HAL taking the risk if its actual tax costs are higher or lower during H7. This is the same as the treatment of operating expenditure in Q6 and provides strong incentives on HAL to manage its tax costs efficiently.

11. From a review of other UK regulated sectors, Grant Thornton found that both Ofwat and Ofgem seek to pass on to customers some of the risks that are outside reasonable management control. To achieve this:

- Ofwat has introduced a true up for PR19 that takes account of changes to corporation tax or capital allowance rates in the period; and
- Ofgem used tax trigger events in RIIO-1 that includes true ups for changes in tax legislation, HMRC's interpretation of legislation or accounting standards.

12. The CAA also has experience in adjusting allowed tax costs for uncertainties. Under European charging rules, NERL is able to pass through unforeseen and significant changes in costs resulting from unforeseeable changes in national taxation law.

13. For H7, we are minded to include a tax uncertainty mechanism, which would recover windfall gains to HAL from unexpected changes in tax costs outside HAL management control for customers, or seek to allow HAL additional revenue to support financeability if HAL faced higher tax costs for reasons outside management control.

14. This tax uncertainty mechanism could seek to recover changes in tax costs as a result of unexpected changes to:

- the headline tax rate;
- capital allowance rates; and
- taxation law, or interpretation of that law.

15. In the case of higher than expected costs, we would only seek to remunerate HAL for costs after all reasonable mitigation, so would expect HAL to provide evidence to demonstrate how it had responded to higher than expected costs.

16. Similar to the tax clawback mechanism above, we would need to consider similar design issues such as any dead bands, whether the adjustment is applied to RAB or revenue, the timing of assessing and making adjustments and how the adjustment is applied to be present value neutral.

Appendix C

Analysis of credit rating considerations

Introduction

1. This appendix provides further detail on the considerations in respect of credit rating described in paragraphs 3.38-3.44. As noted in paragraph 3.44, we do not guarantee HAL's credit rating. Instead, we will make an assumption about the credit rating a notional operator would require to efficiently issue the debt required in the H7 period.

2. The level of credit rating that we assume will have costs and benefits for consumers. Higher credit ratings are, broadly speaking, more difficult to achieve (i.e. require stronger credit metrics) but provide access to cheaper debt finance, while the opposite is true for lower ratings.

3. As noted in paragraph 3.42, HAL currently issues its senior debt with an A- credit rating and our March 2019 Consultation said it would be appropriate to assume a reasonable investment grade credit rating for the notional efficient operator. We have focussed our analysis around the A- level to assess the costs and benefits from the consumer perspective of different credit ratings, in the context of the very large investment programme associated with capacity expansion.

4. We have identified three advantages of a relatively strong A- credit rating:

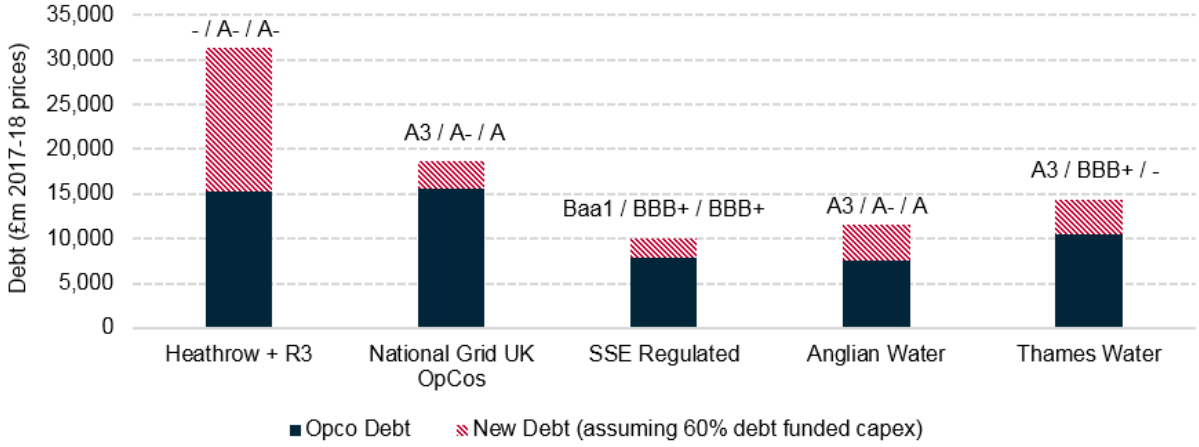
   - additional **flexibility to access liquidity from international markets** that a notional efficient operator would need to access due to the size of existing refinancing needs and new H7 funding requirements;
   - additional **market capacity**, particularly for index-linked bonds and swaps given the need for a large amount of index linked debt; and
   - lower **cost of debt** that a higher rated issuer would be likely to attract (as well as lower volatility).

5. The rest of this appendix considers each of these issues in turn.

Flexibility to access liquidity from international markets

6. The scale of expansion requires HAL to raise debt of around £16 billion[57] between 2019 and 2026. This is in addition to its existing £15.3 billion of debt.[58] This is significantly more than the debt HAL is expected to raise in the Q6 price control period and higher than other large-scale infrastructure projects undertaken by HAL's current peers, a selection of whom can be seen from the below.[59]

Figure C.1: Peer Group - current operating company debt plus estimated debt for next regulatory period



Source: CAA analysis, annual reports and business plan submissions, CAA price control model

7. HAL is already one of the largest corporate issuers in the sterling debt market and its H7 capex requirement will push its debt requirement

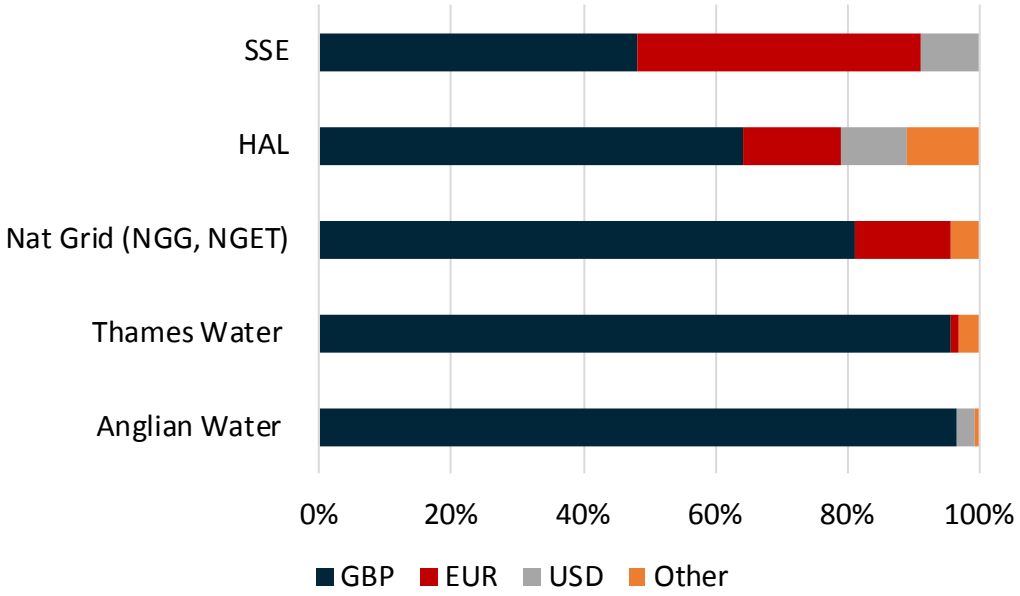
57 £16 billion is at 2017 prices, source: CAA price control model

58 See https://www.heathrow.com/content/dam/heathrow/web/common/documents/company/investor/debt-information/amounts-and-costs-of-debt/2019/2019-Jun-Heathrow-Finance-debt-summary.pdf.

59 Sources and notes: Annual reports and business plan submissions. HAL current OpCo Debt is as of September 2019 at 2019 prices while new debt requirements for 2020-2026 are taken from CAA PCM, prices at 2017/2018, for the rest of the peers new debt requirements is taken from their business plans for the period 2020-2025 at 2017/2018 prices.

significantly beyond the UK regulated utility peer group. The sterling bond market is a fraction of the size of the Euro and US dollar bond markets. In common with National Grid and other UK peers, HAL is already pursuing more diversity of funding via international markets as can be seen from the figure below.

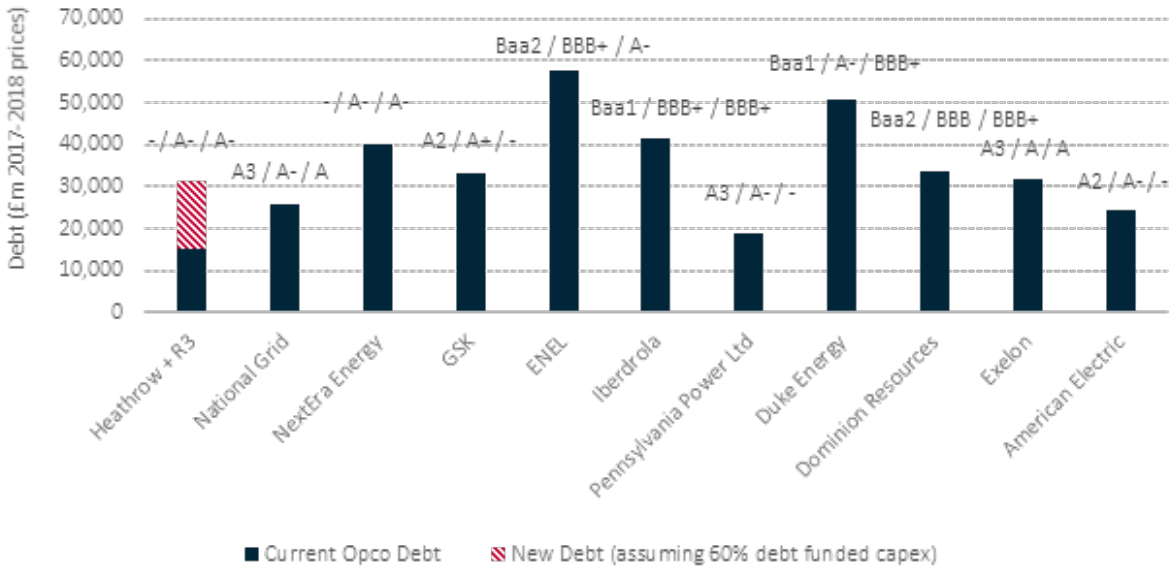
Figure C.2: Debt currency splits of HAL and current comparators



Source: CAA analysis, annual reports and business plan submissions

8. Expansion means HAL will out-grow its UK peer group and likely need to align its debt issuance strategy with larger sized issuers. To understand how HAL may look to fund this substantially increased debt requirement we have looked at larger UK corporates and US and European Utilities as shown in figure C.3 below.

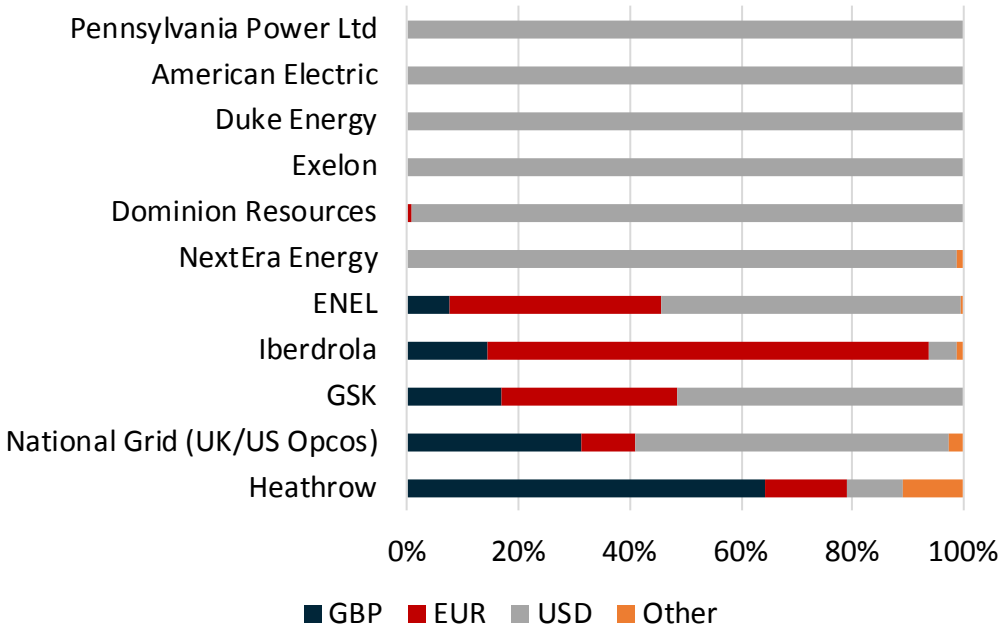
Figure C.3: Peer group post expansion



Source: CAA analysis, company presentations, annual reports and Bloomberg

9. We have also looked at currencies in which these comparators issue debt to understand how HAL's approach to debt issuance may change to fund expansion. The debt splits by currency for the post-expansion comparator group are shown in figure C.4 below.

Figure C.4: Debt currency splits of HAL and comparators post expansion



Source: CAA analysis, company presentations, annual reports and Bloomberg

10. The non-US based borrowers in this group generally raise significant amounts in non-domestic markets. US companies tend to issue principally in their domestic (US dollar) market which is the largest in the world. For comparison in 2019, $4,430 billion of bonds were issued in US dollar, $1,750 billion in Euro and $176 billion in sterling markets[60]. Given the relatively small size of the sterling market, we expect HAL will be relying on non-sterling markets for the bulk of its debt funding requirements during H7.

11. While there are BBB examples, most issuers have at least one single A category rating. Where some issuers are rated below single A they generally have much larger domestic markets, have previously held higher ratings, have lower debt issuance requirements or at least have more financial flexibility in their capital expenditure plans than HAL. It is

[60] Source: Bloomberg.

also important to note that in order to access international markets at scale and avoid foreign currency risk, HAL will need to execute a very large volume of cross currency swaps for which capacity is higher with an A- rating than lower ratings.

12. The key conclusions from the above analysis are that HAL retaining its A- rating would align to international peers with debt issuances comparable in size to HAL's expected programme and that an A- rating will support more cross-currency swap capacity to allow efficient access international markets.

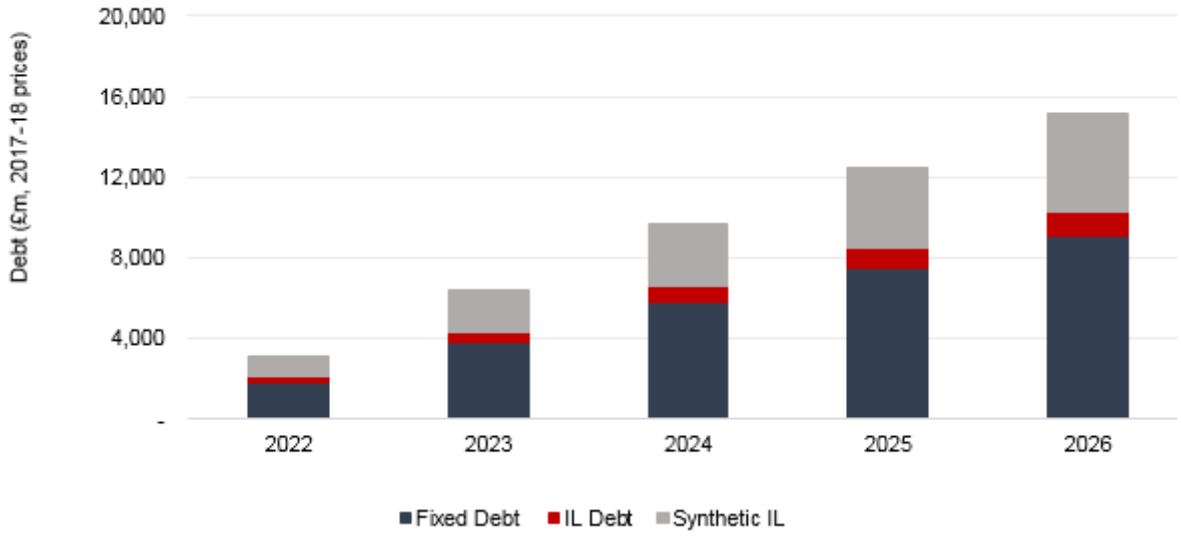
Market capacity

13. Consistent with the reasoning set out above, we expect HAL to issue the bulk of its large debt requirement in non-sterling currencies. This will require cross currency swaps to hedge HAL's exposure to foreign exchange movements. Swap counterparties (banks and financial institutions) allocate and charge for capital based on credit ratings. As such, by maintaining higher ratings HAL will have access to more swap capacity and lower charges which benefits customers through lower costs and greater certainty over deliverability.

14. In addition, HAL will look to raise a substantial amount of debt in inflation linked format which is desirable as it matches their cost of debt allowance. Based on the notional company we estimate HAL will need to seek around £6 billion of debt in an index linked format.[61]

[61] We expect this index linked debt will be composed of index linked bond issuance and nominal bond issuance covered with an RPI swap. This combination of a nominal bond and an RPI swap produces a similar liability profile as an index linked bond and we refer to it as "synthetic index-linked debt".

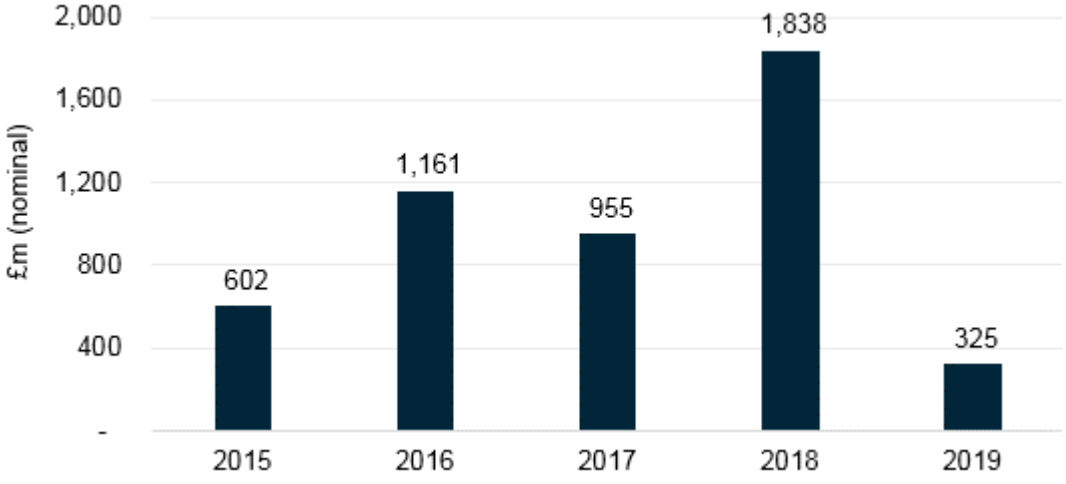
Figure C.5: Notional HAL index linked debt requirement



Source: CAA analysis

15. The chart and table below show that HAL's Index-linked debt requirement is substantially greater than has been issued in the entire sterling index linked public bond market in the last 5 years and far larger than any peer has issued into the market in the last 5 years.

Figure C.6: sterling corporate index linked bond issuance



Source: Bloomberg

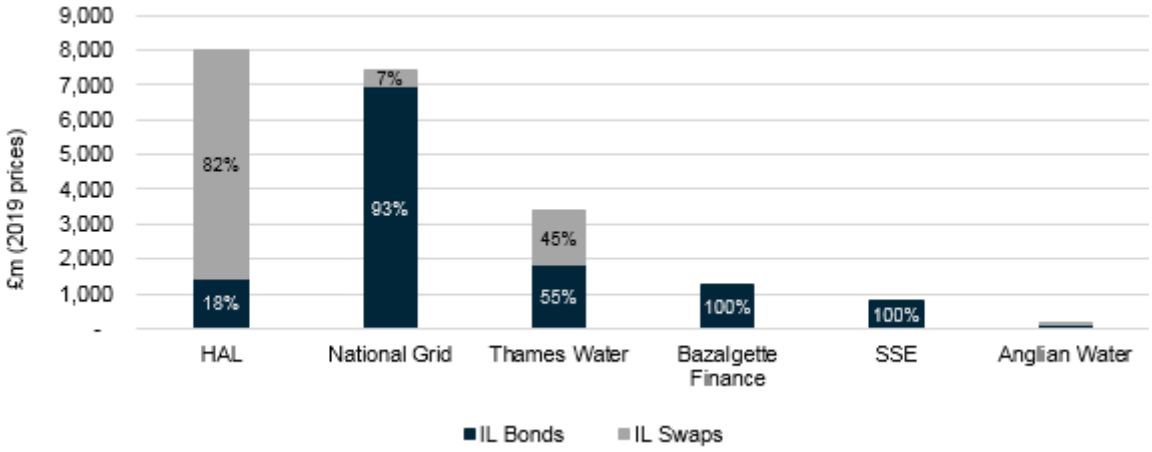
Figure C.7: Top 10 sterling corproate index linked issuers, 2015-2019

Issuer Name	2015	2016	2017	2018	2019	Total
Bazalgette Finance Plc	-	500	400	275	75	1,250
British Telecommunications PLC	-	-	-	1,000	-	1,000
Aberdeen City Council	-	368	-	-	-	368
United Utilities Water Finance PLC	60	116	125	-	-	301
University of Cambridge	-	-	-	300	-	300
Heathrow Funding Ltd	115	-	-	160	-	275
Ørsted A/S	-	-	-	-	250	250
East Slope Residencies PLC	-	-	186	-	-	186
Warrington Borough Council	150	-	-	-	-	150
Western Power Distribution South Wales	-	-	50	60	-	110

Source: Company presentations & annual reports and Bloomberg

16. Therefore, we expect HAL to be substantially reliant on the index linked swap market, substantially increasing its requirement for swap capacity. As can be seen on the chart below, HAL is already a significant user of inflation linked swaps, with a current swap portfolio of £6.5 billion (notional value).

Figure C.8: index linked exposure of HAL and current comparators



Source: Company presentations & annual reports

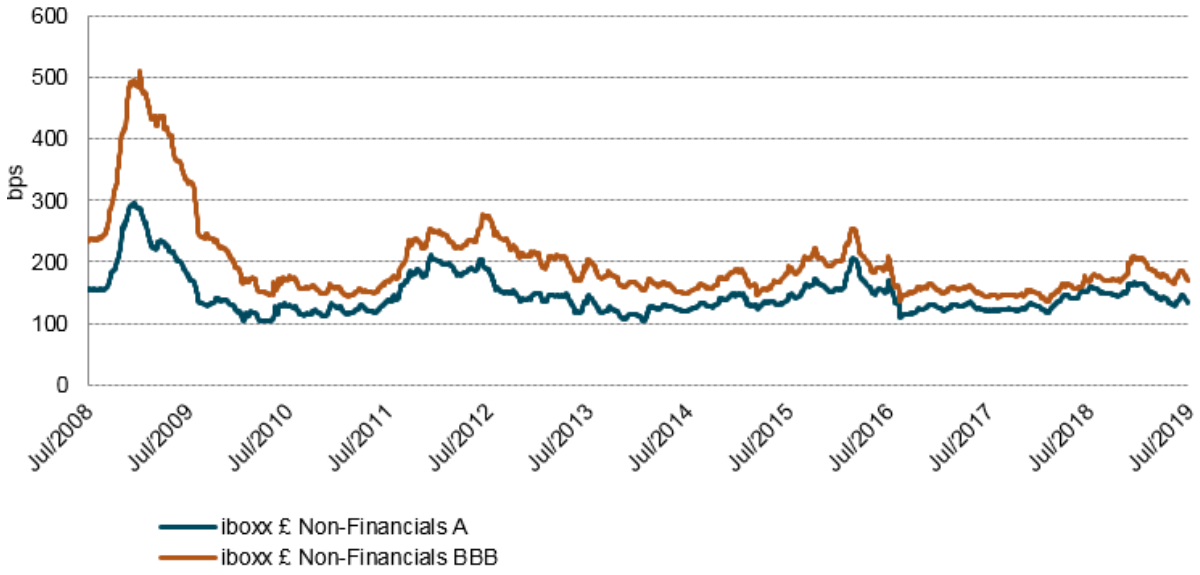
17. The requirement to access index-linked swaps on this scale is unprecedented and this would be incremental to HAL's cross currency swap capacity requirement identified above. Due to their capital models (e.g. Basel III) and risk policies banks generally have more single name

counterparty exposure capacity for A rated counterparties than BBB rated counterparties.[62]

18. A key conclusion from the above is that HAL retaining its A- rating would help HAL to maximise swap market capacity (cross currency and index linked) which in turn gives HAL more flexibility to optimise its debt issuance structure and strategy. However, evidence of the impact of credit rating level on swap availability is not publicly available and we will seek further information from HAL on these matters.

Cost of debt

Figure C.9: iBoxx sterling non-financials A and BBB



Source: IHS Markit[63]

[62] Basel Committee on Banking Supervision, Overview of revised standardised approach to credit risk: https://www.bis.org/bcbs/publ/d424_hlsummary.pdf.

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19. The above chart demonstrates clearly that A rated bonds have historically enjoyed a lower cost of debt than BBB rated bonds. On average the differential has averaged 53bps per annum over the last 10 years. The differential was most pronounced during the financial crisis where the cost of BBB debt demonstrated significantly more volatility during this period. In the two years between September 2008 and 2010 the differential averaged 117bps per annum.

20. Given the amount of debt that HAL will need to raise in H7, this indicates that there are cost of debt benefits of HAL retaining an A- rating compared to a BBB category rating. In addition, we would expect less pricing and market volatility for an A- rating.

21. In the context of expansion specifically it is relevant that HAL has limited flexibility on the timing of its debt issuance. In the absence of a major capital investment program, HAL might be able to respond to a financial crisis by limiting its issuance of new debt in the period when debt costs are elevated.

22. Pausing new debt issuance in the midst of a multibillion-pound expansion program could delay construction and the associated potential consumer benefits and increase the period during which debt is invested in capital assets that are not yet in use, and thus not generating revenue or consumer benefits.

Conclusion

23. The analysis above suggests that there are incremental benefits for consumers arising from the H7 price control being compatible with an A- credit rating rather than a lower credit rating. There may be incremental

costs associated with achieving an A- credit rating which will need to be considered in assessing the net consumer impact.

24. We will continue to analyse the costs and benefits of different credit rating levels to understand the net consumer impact.