13. Cost and Commercial Viability: Funding and Financing

Airports Commission

November 2014

pwc

Contents

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Scope and context

The Airports Commission (AC), an independent commission, was established in 2012 by the UK Government to consider how the UK can maintain its status as an international hub for aviation in response to increasing concern over existing and future capacity requirements. Since September 2012, the AC has considered and evaluated a variety of options for meeting the UK's international connectivity needs, the results of which were outlined in the AC's Interim Report published in December 2013. The Interim Report outlined three firm short-listed options (one option for an additional runway at Gatwick and two options relating to an additional runway at Heathrow). In addition, the option for a new airport development located within the Inner Thames Estuary was considered further by the AC, with a decision made in September 2014 to not include this in the shortlist. The AC is due to publish its Final Report in the summer of 2015.

This report considers the Funding and Financing of the proposed schemes as part of the Cost and Commercial Viability workstream. At a high level, it considers the overall cost of the commercial propositions inclusive of financing and funding for the schemes. This report is broken down by each scheme into the following sections:

- **Section 1:** Introduction and methodology;
- **Section 2:** Gatwick Airport Second Runway (LGW 2R);
- **Section 3:** Heathrow Airport Northwest Runway (LHR NWR);
- **Section 4:** Heathrow Airport Extended Northern Runway (LHR ENR); and
- **Section 5:** The aeronautical charge context.

This report details and discusses the three shortlisted scheme proposals in relation to:

- An assessment of the overall cost of each scheme, including privately funded elements of the scheme drawing on the analysis undertaken in the following reports:
  - 13. Cost and Commercial Viability: Literature Review report; and
  - 13. Cost and Commercial Viability: Financial Modelling Input Costs report.
- The scale of private investment required and the conditions needed to make this a desirable proposition for infrastructure investors; and
- The possible quantum and timing of public funding should it be available to fund surface access costs.

It is not the purpose of this report to propose specific options for financing each of the various short-listed proposals, but to assess the range of cost of financing options and their deliverability at a high level.

This report comments on the impact the regulatory environment may have on the financing of the proposed schemes. However, it is the role of the Civil Aviation Authority (CAA) to set the regulatory regime in which UK airports operate. Further information can be found in the CAA's 'Economic regulation of new runway capacity – a draft policy' report dated October 2014[1].

[1] http://www.caa.co.uk/docs/2888/CAP1221.pdf

1 Introduction and Methodology

1.1 Introduction

This report provides a high level assessment of the cost and financeability of the commercial proposition to finance and fund the schemes under consideration. It considers how the three alternative schemes will be financed, the cost of that finance and the implications of the combined capital and operating costs in relation to the potential level of aeronautical charges required to fund each scheme.

Unless stated otherwise, the cost and revenue assumptions included in this report are those provided by the AC and the AC's cost consultants, LeighFisher.

Sections 2 to 4 have been drafted so that they can be read independently from each other, resulting in a level of repetition between these sections.

1.2 Process

This document supports the AC in its evaluation of the scheme proposals. This report will be made available for public consultation.

1.3 Demand Scenarios

A range of possible demand outcomes may, in reality, arise. This is recognised by the AC in the Strategic Case and Strategic Fit: Forecasts report, which considers ten different demand scenarios for each scheme. In assessing the cost and commercial implications, the AC has taken a subset of these scenarios, which reflects the full range of demand outcomes from the Strategic Fit: Forecasts report. This subset, which forms the basis of the detailed analysis in this report, encompasses the following four scenarios for each scheme:

Table 1: Demand Scenarios

LGW 2R	LHR NWR	LHR ENR
Assessment of Need – Carbon Capped (AoN-CC)	Assessment of Need – Carbon Capped (AoN-CC)	Assessment of Need – Carbon Capped (AoN-CC)
Assessment of Need – Carbon Traded (AoN-CT)	Assessment of Need – Carbon Traded (AoN-CT)	Assessment of Need – Carbon Traded (AoN-CT)
Low Cost Is King – Carbon Traded (LCIK-CT)	Global Growth – Carbon Traded (GG-CT)	Global Growth – Carbon Traded (GG-CT)
Global Fragmentation – Carbon Capped (GF-CC)	Global Fragmentation – Carbon Capped (GF-CC)	Global Fragmentation – Carbon Capped (GF-CC)

Sources: AC

A description of these scenarios is as follows:

- **Assessment of Need** – This scenario is consistent with the forecasts underpinning the AC's Assessment of Need. Future demand is primarily determined by past trends and the central projections published by sources such as the Office for Budgetary Responsibility, OECD and IMF;
- **Global Growth** – This scenario sees higher global growth in demand for air travel in the future. It adopts higher passenger demand from all world regions, coupled with lower operating costs and assumes any actions to manage carbon emissions from aviation (see below) are taken at the global level. The 'Carbon Traded' version of this scenario sees the highest passenger numbers for the two Heathrow Scheme Promoters (SPs);
- **Low Cost Is King** – This scenario sees the low cost carriers strengthening their position in the short-haul market and capturing a substantial share of the long-haul market. As with Global Growth, it also

sees higher passenger demand from all world regions, lower operating costs, and assumes any actions to manage carbon emissions from aviation are taken at the global level. The 'Carbon Traded' version of this scenario sees the highest passenger numbers for GAL; and

- **Global Fragmentation** – This scenario sees economies close themselves off by adopting more conditional and interventionist national policies. As a result, there is a decline in passenger demand from all world regions, coupled with higher operating costs and no global carbon agreement is reached, leading to UK introducing unilateral measures on carbon emissions from aviation. The 'Carbon Capped' version of this scenario sees the lowest passenger numbers for all SPs.

Each scenario has two variants, 'Carbon Capped' and 'Carbon Traded'. These are defined as follows:

- **Carbon Capped** – These represent the level of aviation demand consistent with the Climate Change Committee's (CCC) current assessment of how UK climate change targets can most effectively be met. This means that carbon prices in each forecast are increased to the point the aviation emissions in 2050 return to 2005 levels; and
- **Carbon Traded** – These assume that aviation is subject to a carbon price, for example through the European emissions trading scheme or a global market-based measure as proposed by the International Civil Aviation Organisation, but that no specific level of carbon emissions is targeted. The DECC carbon price forecasts are used in modelling these forecasts. Please refer to the '1. Strategic Fit: Forecasts' report for further details on these scenarios. Note that none of these scenarios are considered to be a central case.

1.4 Analysis structure

The analysis of the financing and funding aspects of the scheme proposals is built up as follows:

- A financial model has been developed for each scheme proposal that considers the scheme development as part of the wider corporate airport entity;
- Each model uses the AC estimate of capital expenditure (capex), operating costs (opex) and non-aeronautical revenue streams as provided by LeighFisher. Further details on the cost assumptions are available in '13. Cost and Commercial Viability: Financial Modelling Input Costs' and the LeighFisher '13. Cost and Commercial Viability: Cost and Revenue Identification' reports for each scheme;
- Given these cost and non-aeronautical revenue profiles, the financial models identify the additional debt and equity financing required for each scheme;
- Each financial model also estimates the level of aeronautical revenues required for each scheme under each demand scenario, and therefore the aeronautical charge per passenger, to meet the finance and operating costs;
- It is in the nature of this type of analysis that at this early stage of scheme development there remains a relatively high degree of uncertainty around the actual cost of any particular scheme. The results of the analysis should therefore be considered only as indicative of a point in a particular range; which could in practice prove to be materially higher or lower. To give an indication of the sensitivity of these aeronautical charges to changes in key variables, a number of individual sensitivities have been run on the AoN-CC scenario. These sensitivities are:
  - Capex +10%;
  - Opex +10%;
  - Non-aeronautical revenues -10%;
  - Debt financing costs (all in rate) +100bps (i.e. 1.00% additional margin added to the cost);
  - Equity return +100bps;
  - Indexation +1%; and
  - Full private sector contribution to surface access costs.
- Separately, the AC is considering the impact of potential changes in aeronautical charges on the competitiveness of each scheme as part of its broader work on competition. This report includes high level commentary on the revenue uncertainty that the aeronautical charges might give rise to;

- Sensitivity analysis on the robustness of a particular finance structure for a scheme once that scheme is underway is not carried out as part of this report. This report simply considers at a high level how the scheme might be financed at the outset given financiers' assessment of its financial robustness given its risk profile. At the point of determining the appropriate capital structure, potential lenders and credit rating agencies would run a range of such sensitivities; and
- This report also identifies the surface access costs associated with each scheme and that such costs could be met through different combinations of public and private funding.

1.5 Methodology and Key Assumptions

This section summarises the approach adopted in developing the financial models and highlights a number of key assumptions.

It should be noted that many of the assumptions made could be debated in isolation, as the actual capital structure, perception of risks, debt and equity terms and regulatory position could be materially different from those used in the analysis. The assumptions are designed to be representative in aggregate. They have been applied using a consistent methodology across all three schemes. These assumptions are based on current and historic information but there is always a risk of material, unforeseen, and adverse future market conditions affecting the fund raising process.

1.5.1 General

- **Corporate Financing** – Each new runway proposal will be fully integrated into existing operations and will be financed corporately on top of any existing financing arrangements.
- **Capital Structures** – The starting point is the existing financing structure for each airport and has been informed by each Scheme Promoter (SP).

  Assumptions about how such financing could be structured consider credit rating requirements, financial covenant restrictions and the existing capital structure for the respective corporate entity and, where appropriate, have been informed by discussions with SPs.
- **Aeronautical Charges** – The aeronautical charge per passenger will escalate during periods of capex (excluding asset replacement) but otherwise remain constant in real terms. This is to provide an estimate for the long-run steady-state charge required.
- **Asset Base** – It is assumed that assets are added to the asset base in the year in which the expenditure is incurred and that revenue will increase accordingly thereafter rather than at the next review period. This assumption broadly sits between the possible worlds of a RAB only increasing at each review period following expenditure or, alternatively, the regulator allowing a degree of pre-funding of a RAB before the necessary expenditure has actually taken place.
- **Assessment Period** – The assessment period for the analysis contained within this report is from 2014 to 2050 (inclusive calendar years).

1.5.2 Financing

The funding requirements for each scheme could be met by a range of different financing solutions. The following section outlines the approach adopted in producing this report.

1.5.2.1 Debt

The majority of expenditure for each scheme is assumed to be financed using long dated, fixed rate corporate bonds. Both Gatwick and Heathrow have existing bond programmes in place and it is assumed that these programmes would be extended as appropriate.

For high capacity markets to be accessible, bonds must have a credit rating of BBB+ or higher (see '13. Cost and Commercial Viability: Literature Review' for further details). It is assumed that Heathrow and Gatwick will

maintain their current senior credit ratings of A- and BBB+ respectively throughout the assessment period for each of the schemes (i.e. the credit rating agencies consider that given the risk profile of each and the financial structure and debt coverage ratios that the current ratings can be sustained).

In determining the appropriate rating, the rating agencies will consider both qualitative and quantitative risks of the respective company:

- The qualitative analysis will consider a range of factors including the financial structure of the company, the level of perceived revenue volatility compared to historic norms, cost risks, the track record of the company and its perceived ability to deliver the scheme to time and budget. The perception of the regulatory structure and how it can accommodate adverse scenarios will be important to the rating, as well as the stated intention of the regulator to consider the financing implications of any regulatory settlement;
- The quantitative analysis will consider the net revenue of the company and its forecast ability to meet debt repayments and interest when due. The credit rating agencies have a set of target ratios that they would expect to be met and exceeded by a particular company in a particular sector to achieve a specified investment grade. These ratios themselves will be partly a function of the perceived risk and volatility inherent in the sector in question;
- These key ratios include the following and these are used in this report in determining a suitable capital structure:
  - Interest coverage ratio;
  - Net debt to RAB ratio; and
  - Funds From Operations (FFO) to debt ratio.

Any significant capex programme (which all three schemes represent) will have an impact on the credit rating agency perception of both entities. Such programmes introduce construction risk (including both cost and timing) which could require a debt pricing premium and may also have credit rating implications.

A range of tenors is available to corporates when issuing bonds. The optimal financing strategy will be determined by the company at that time depending on prevailing gilt and interest rates, its exposure to rate movements and its forecast of long-term rates. The size and scale of finance to be raised may also prompt the company to target relatively short term bond finance because of the increase in market size and investor capacity at those tenors, although this could increase refinancing risk.

Our analysis assumes bonds are issued with a tenor of between 8 and 15 years, depending on the tenor that results in a realistic spread of bond maturity dates. Any difference in bond tenor assumptions between schemes is driven by this objective rather than due to underlying differences in the credit characteristics of each scheme. Subsequent bond issues assume they attract rates implied by the gilt yield forward curve. This means that, over the long term, a series of short term bonds will be priced similarly as one long term bond. Transaction costs, which would be higher for multiple, shorter-term bonds, are not considered to be material to this analysis.

In reality, bonds may be issued in a variety of different currencies. The financial models assume all bonds are issued in GBP and do not include any costs of exchange rate hedging or consequential impacts of including foreign currencies within the bond programme. However, commentary on the additional liquidity provided by issuing bonds in different currencies is included within this report.

For all three schemes it is assumed that the capital markets will be used, and have the capacity, to refinance periodic borrowings under a short term Revolving Credit Facility (RCF) which will be used to provide liquidity between bond issues.

The value of each airport's asset base is forecast to increase over time. Since one of the restrictions on the availability of debt is the net debt-to-RAB ratio, more debt is available at the end of the assessment period than the beginning. However, it is assumed that additional debt is only drawn when required to meet capex funding requirements (excluding asset replacement). It is assumed that repayment of existing bonds is in line with the scheduled maturities as determined by the bond issuer. This means that, during periods of no capex, the net debt-to-RAB ratio will reduce over time.

1.5.2.2 Debt Pricing

Indicative bond pricing has been determined using the implied forward curve for 10 year gilt rates based on market data. A corporate spread is then added to this curve to arrive at indicative pricing for each of the schemes. These spreads are based on recent market data for a range of comparable indices and corporates, including Heathrow and Gatwick's currently trading debt issues. The spreads assumed for the purposes of this report also include a premium for the project risk introduced by each scheme as well as a small buffer to reflect future market uncertainty.

A similar approach is adopted for determining indicative pricing for each scheme's RCF, except that an implied forward curve for 6 month LIBOR is used as the base rate.

1.5.2.3 Equity

Where credit rating requirements or financing covenants prevent bonds being issued, it is assumed any shortfalls in funding will be met by raising additional equity. The financial models assume that equity is available as required, without restriction, at a price that reflects the risks of each company and a number of other factors documented in this report.

'Equity' could be provided in a number of different forms, such as subordinated debt and pure equity, and still provide the loss-absorbing capital required by senior lenders. Typically, the balance between subordinated loans and pure equity is driven by the tax and accounting analysis. Such structural analysis has not been undertaken as part of this report and so the models do not distinguish between different forms of loss-absorbing capital. This may mean that the figures in this report include conservative tax estimates.

1.5.2.4 Equity Pricing

A key component of the overall cost of finance will be the return on equity required by the new investors. This rate of return requirement will reflect investors' perceptions of the construction risk being undertaken by the company, demand volatility and the regulatory environment in which the investment may be made.

In determining the rate of return likely to be required by investors, consideration has been given to a number of factors. In particular:

- Existing rates of return on equity seen in comparable airports and other utility sectors;
- The size of the proposed investment relative to the existing regulated asset base, recognising any phasing of construction, and therefore the level of cost uncertainty for the company;
- The Financial Gearing (the relative size of debt and equity financing);
- The perceived level of demand risk;
- The nature of the existing investors in each airport and the likely longer-term investors that might be introduced;
- The high level of competition and investor appetite for infrastructure assets. Such strong appetite can either mean that long-term, low-cost investors could be accessed at the outset or that investors with slightly higher return requirements can invest during the construction phase but realise their return through selling their holdings at a later date, with a capital gain, to investors with lower return requirements. This potential capital gain and therefore the consequential rate of return is not included in this report; and
- The regulatory environment within which the airports operate. This reflects the subsequent risks of the schemes, the protection that is afforded by the periodic regulatory reviews and the duty of the regulator to be mindful of the ability of the company to be able to finance its activities.

These target returns are blended returns based on cash flows over the assessment period. It is assumed that equity holders would seek an annual cash return. Where there are restrictions on distributions, for example during period of capex, the analysis may include periods of low or no dividend payments.

In reality, the return required by investors would only be determined at the point of investment. This return may prove to be different to the assumption in this analysis, once the project risks, regulatory structure, prevailing cost and revenue forecasts and likely levels of demand are better understood. Depending on the quantum required, a premium may also be required to ensure the equity can be placed in the market.

Alternatively, each scheme's cost of finance may be lower if it can attract long term equity finance from investors who consider the investment as low risk and that the finance is prudently structured. The precise regulatory and commercial structure will be important in ensuring its appeal to such investors. For instance, the regulator could pre-approve expenditure, removing the risk that it would not be allowable in the RAB, allow some pre-charging of expenditure (adding them to the RAB prior to the airlines benefitting from the expenditure), consider longer regulatory review periods or provide greater certainty that capex will be accepted on to the RAB before expenditure is incurred.

1.5.3 Aeronautical charges

The aeronautical charge per passenger is assumed to escalate during periods of capex (excluding asset replacement) but otherwise remain constant in real terms. The profile of aeronautical charges is therefore calculated as follows:

- During periods of capex (excluding asset replacement), the total amount of revenue for the airport is determined as being the level required to meet all operating costs, asset replacement expenditure and financing costs. This total revenue figure, less the non-aeronautical revenues provided by LeighFisher, gives the required aeronautical revenues (nominal) for each year.
- At the point in time where the aeronautical charge per passenger peaks in real terms for each phase of capex, the aeronautical charge is fixed so as to be constant in real terms until, if applicable, there is another phase of capex.
- This profile is then sized through an iterative process to give the level of aeronautical revenues that will provide the required return to equity over the assessment period.

The estimate of aeronautical charges is based on cash flow modelling and does not make explicit assumptions about how the airports will be regulated in the future.

1.5.4 Tax

Detailed analysis of the direct and indirect tax position of each scheme has not been performed in producing this report. Instead, high level assumptions have been made to give an approximation of these positions.

Corporation Tax is assumed to be charged at 20% on each entity's Profit Before Tax after adding back depreciation and providing for capital allowances. It is not possible to calculate the level of capital allowances that would be available to each scheme without undertaking more detailed analysis of the underlying costs. For the purpose of this report, capital allowances are assumed to be equal to 20% of the period's accounting depreciation based on figures seen elsewhere in the airport sector.

The VAT implications of each proposal cannot be estimated without undertaking detailed analysis outside the scope of this report. For the purpose of this report, it is assumed that VAT would be incurred on all costs except for those relating to staff and charged on all non-aeronautical and aeronautical revenues. Consequently, all VAT paid is assumed to be fully recoverable.

It is possible that a VAT facility would be put in place to manage the working capital requirement this causes. The cost of such a facility is not considered to be material to this analysis and therefore has not been included.

2 Gatwick Airport Second Runway

2.1 Introduction

This section considers the funding and financing arrangements for GAL to deliver the LGW 2R scheme as part of the existing corporate entity. Four demand scenarios have been considered in this analysis as well as a number of sensitivities based on one of these scenarios (AoN-CC).

To explain the analysis in this report, a step by step build-up of the AoN-CC scenario is provided:

- Existing airport financing structure;
- Proposed scheme financing; and
- Proposal assessment - used to derive aeronautical revenues, which incorporates:
  - Non-aeronautical revenue assumptions;
  - Cost assumptions; and
  - Financing.

Aeronautical revenues are used to generate an aeronautical charge per passenger profile over the assessment period. The assessment looks at how this profile varies over a range of demand scenarios and sensitivities and considers the financing implications.

Except where noted otherwise, this report therefore details the AoN-CC scenario. The costs and non-aeronautical revenues include risk and mitigated OB. For the avoidance of doubt, this is not considered a central case.

2.2 Existing airport financing structure

The following table summarises the AC's understanding of GAL's existing financial structure. Further detail on the existing financing arrangements including ownership structure is detailed in '13. Cost and Commercial Viability: Literature Review'.

Table 2: Gatwick Airport's existing financing structure

Feature	Commentary
Financing Structure	• Current debt consists of: - c. £1.5bn made up of four £300m and one £350m Class A Bonds issued between 2011 and 2014 and maturing between 2024-39 (scheduled maturity). Weighted average yield of 5.7% (at issue); and - Committed Revolving Credit Facility of £300m (available until 2019 and currently undrawn) • Equity of c. £336m (ordinary share capital). • Credit rating: BBB+ • Financial Gearing of c.80%. • Debt to Asset Base Gearing of c. 60%.
Aeronautical Charges	• Q6 average charge per passenger of c. £9 for 2013/14 (in 2014 prices). • Q6 for Gatwick is defined as being 5 years plus a 2 year extension (please see '13. Cost and Commercial Viability: Literature Review'). This report assumes that the 7 year smoothed prices remain in place.
Regulatory WACC	• Q6 WACC of 5.70% (pre-tax, real).[2]

[2] http://www.caa.co.uk/docs/33/CAP1152LGW.pdf

Feature	Commentary
Revenues	• Total £593.7m (year end 31 March 2014) - Aero £317.4m - Non-aero £276.3m
RAB	• £2,498.6m as at 31 March 2014

Sources: Financial accounts, GAL management

2.3 Proposed scheme financing

Table 3 outlines the financing structure for the LGW 2R scheme assumed in this report.

Table 3: LGW 2R assumed financing

Feature	Assumptions
Financing Structure	• GAL's existing financing strategy extended to cover funding requirements subject to maintaining its current senior credit rating of BBB+. • Debt funding is the maximum allowable within the credit rating constraints. • Asset replacement costs are funded through operating cash flow. • A £400m RCF is available to provide liquidity between bond issues. • The RCF is refinanced with periodic senior corporate bonds with a BBB+ credit rating. These bonds: - Have a 10 year tenor; - Are issued in a single currency; - Are priced at 200bps above the underlying 10 year gilt forward curve; and - Have an issuing fee of 0.65%. • Equity requires a blended cash nominal return (pre-shareholder tax) over the assessment period of 10%.
Other	• Public funding available for the full surface access costs. A sensitivity has also been run with no public funding to demonstrate the range of impacts to the SP.

Sources: Financial models

This approach has been informed by the approach identified by GAL within its financing proposal submitted in May 2014 and through discussions between the AC and the SP. This is outlined in Table 4.

Table 4: GAL's financing proposal

Feature	Commentary
Financing Structure	• GAL proposes to deliver the scheme entirely through an extension of GAL's existing financing strategy subject to maintaining its current investment grade credit rating of BBB+. • GAL proposes that all capex (excluding asset replacement) is funded through 65% debt and 35% equity. • Asset replacement costs are funded through operating cash flow. • Equity is expected by GAL to be met by its infrastructure fund owners, and others if needed, through new issues and foregone dividends. GAL has not provided their assumed required return for equity. • Debt is expected to be raised through a combination of:

Feature	Commentary
	- c.£400m revolving credit facility; - new Sterling, Euro, USD and CHF bond issuances (which will be used to refinance the credit facility) over 20years at an estimated weighted average yield of 6%; and - a six year £300m EIB facility has also been assumed to be available if required.
Estimated impact on aeronautical charges	• Increase to a range of £12-£15 per passenger from the current level of £9 (2014 prices). • The charge is expected to start gradually increasing from 2018/19 as expenditure ramps up, with a more pronounced step up in 2021/22. • The charge remains constant in real terms from 2039 onwards.
Other	• The CAA has changed the economic regulation of GAL, moving away from the previous RAB approach to an operating licence approach underpinned by 'contracts and commitments'. • GAL notes that the returns forecast in the transition period will be lower than "traditional" RAB returns and therefore they will require appropriate mechanisms to be put in place to sufficiently mitigate long term regulatory and Government risks (i.e. assurance of future regulatory actions for a longer period than the current 5 years, due to the period of time that the extension investment case will be assessed over). • GAL has not suggested or provided any assumptions around a suggested Weighted Average Cost of Capital (WACC) requirement.

Sources: GAL Financing Proposal, May 2014

2.4 Proposal assessment

The following section outlines the revenue, cost and financing assumptions underpinning the AC's assessment of the LGW 2R proposal. Four demand scenarios have been considered in this analysis as well as a number of sensitivities based on one of these scenarios (AoN-CC). The detailed cost and non-aeronautical revenues assumptions can be found in '13. Cost and Commercial Viability: Cost and Revenue Identification Gatwick Airport Second Runway'.

2.4.1 Non-aeronautical revenue assumptions

This section provides a summary of the AC's non-aeronautical revenue assumptions for the LGW 2R scheme including GAL's non-aeronautical revenue estimate based on GAL's passenger demand scenario.

Non-aeronautical revenues are revenues from services provided by the airport, such as car parks, retail and property rental, which do not relate to the aeronautical services. The AC has calculated non-aeronautical revenues for the airport to include the additional non-aeronautical revenues which are earned from the implementation of the LGW 2R scheme and the non-aeronautical revenues earned from existing airport operations for years 2014-2050.

A detailed explanation of the AC's methodology and assumptions used in calculating non-aeronautical revenues is available in '13. Cost and Commercial Viability: Cost and Revenue Identification Gatwick Airport Second Runway'.

In summary, the approach used by the AC in calculating non-aeronautical revenues is an elasticity[3] based approach. In applying this approach, the AC first had to establish the non-aeronautical revenue categories for the airport such as retail and property rental. An appropriate 'revenue driver' (e.g. passenger numbers/ Terminal space) was then applied to each category to which a degree of elasticity is assumed.

For instance, the non-aeronautical revenues generated from property rental (e.g. airline lounges) is driven by the size of the terminal where an elasticity of 20% was applied. In this example, it is assumed that the revenues generated from property rental would increase by 20% for a given increase in terminal size.

This elasticity based approach was used to calculate the base revenues to which risk and optimism bias is applied. The AC has included risk and optimism bias in their calculation of non-aeronautical revenues to account for the systematic tendency for the actual revenues received to be lower than forecasted. The AC has assumed a reduction in the real compounded growth rate of -0.5% for risk and -0.5% for OB.

In providing another view of non-aeronautical revenues, the AC also presents the scheme promoter's non-aeronautical revenues in this section.

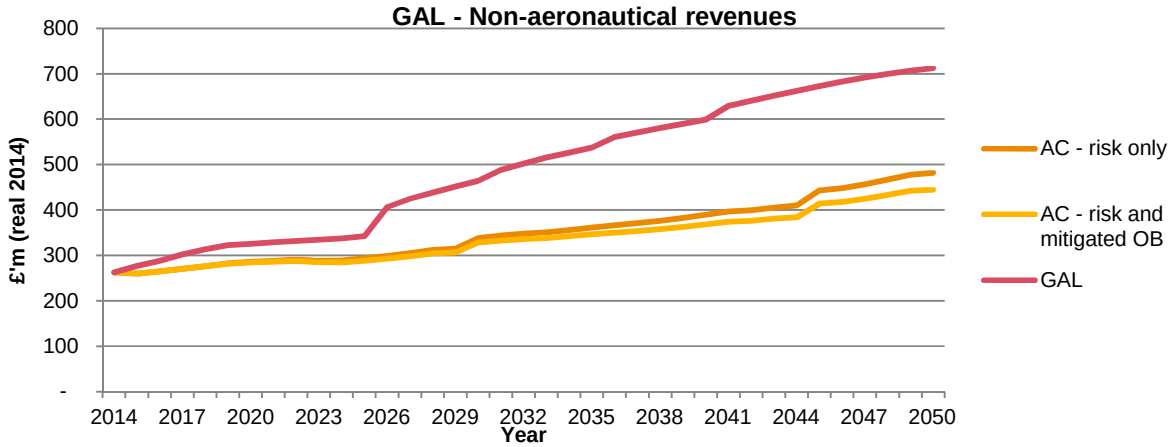
Chart 1 presents two cases of the AC's non-aeronautical revenues as well as GAL's view of non-aeronautical revenues. Note that the AC's revenues are based on the AoN-CC passenger forecast and GAL's revenues are based on their own passenger forecast.

Table 5: GAL - Non-aeronautical revenues

£'m	Real (2014 prices)	Nominal	NPV (2014)
AC assumptions			
Inc. risk	12,798	19,750	6,917
Inc. risk and mitigated OB	12,296	18,889	6,709
GAL assumptions	18,174	28,588	9,375

Sources: LeighFisher, Financial models

Chart 1: GAL – Non-aeronautical revenue



Sources: LeighFisher

[3] 'Elasticity' in this context refers to how revenues are affected by another parameter – a revenue driver. Revenues are said to be highly elastic when a small change in a revenue driver results in a large change to revenue.

The AC's revenue profiles include step increases in the years 2030 and 2045 to reflect the completion of phase 1 and phase 2 (see the phasing discussion in '13. Cost and Commercial Viability: Financial Modelling Input Costs' for further details). The completion of phases 1 and 2 increases the amount of terminal space, car parking bays, and passenger throughput resulting in higher non-aeronautical revenues. GAL's profile shows a higher growth in non-aeronautical revenues, due mainly to its higher passenger profile compared with the AoN-CC forecast. The main step up in GAL's profile occurs in 2025, when it is assumed the new runway will be operational.

The difference between the AC's forecast of total non-aeronautical revenues, £12,296m when compared to GAL's estimate of £18,174m is due mainly to the following:

- The difference in passenger forecasts, where the AC's AoN-CC passenger forecast is less optimistic relative to GAL's forecast;
- The difference in elasticity assumptions assumed by GAL and the AC;
- The AC's inclusion of OB (whereas GAL does not include OB in its assessment); and
- The difference in risk assumptions applied by the AC and GAL (see '13. Cost and Commercial Viability: Cost and Revenue Identification Gatwick Airport Second Runway')

2.4.2 Cost assumptions

This section presents a summary of the assumed costs. Please refer to '13. Cost and Commercial Viability: Financial Modelling Input Costs' for further details.

2.4.2.1 Airport costs

Table 6 summarises the scheme and core capex, asset replacement costs, and the operating costs over the assessment period.

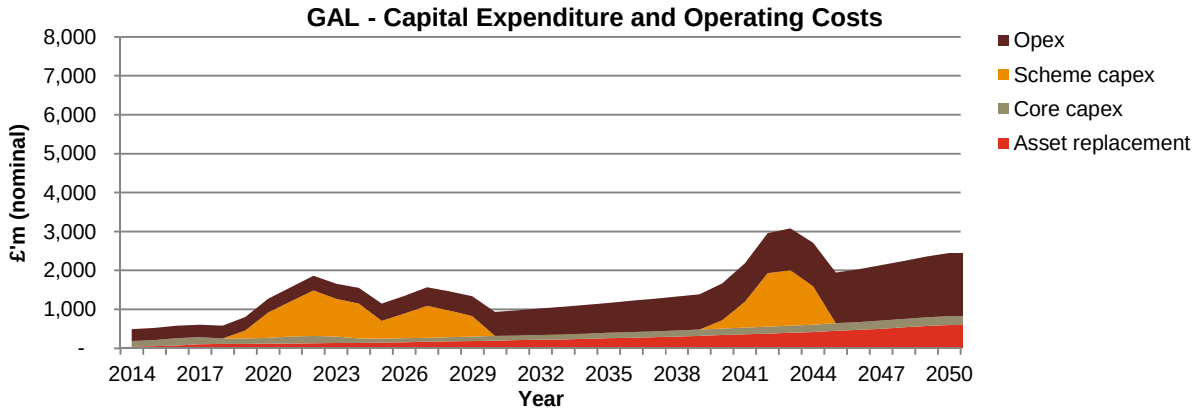
Table 6: GAL - Airport costs

£'m	Real (2014 prices)	Nominal
Scheme capex	7,387	12,566
Core capex	3,224	5,800
Asset replacement[4]	4,408	9,516
Opex	14,521	27,724

Sources: LeighFisher, Financial models

[4] Including asset replacement costs for both scheme and core capex.

Chart 2: GAL – Capital Expenditure and Operating Costs



Sources: LeighFisher

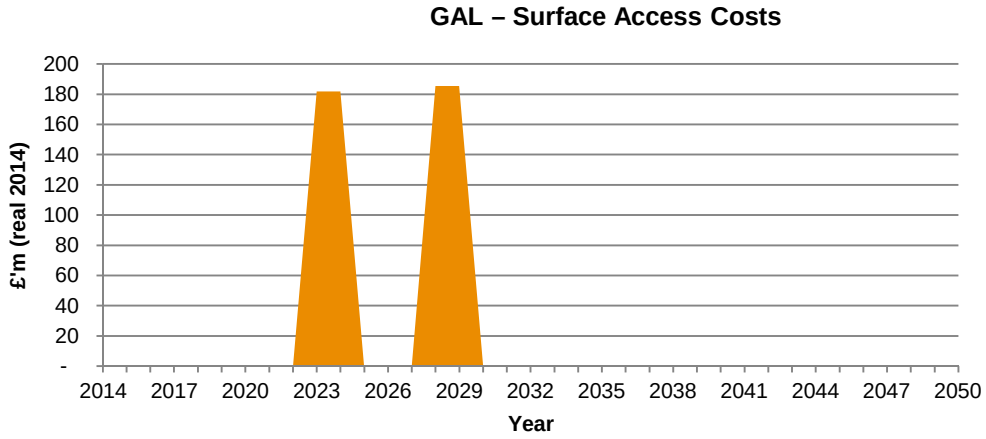
The LGW 2R scheme includes a four phase delivery approach of one transition phase (phase 0) and three subsequent phases (phases 1 to 3). Phase 0 is built to meet air traffic demand with the subsequent phases built to meet passenger demand.

Chart 2 incorporates three of the four scheme capex phases, core capex, asset replacement and opex throughout the assessment period. The three scheme capex phases have peaks of expenditure in 2022, 2027 and 2043 (see the 13. Cost and Commercial Viability: Financial Model Inputs report for further details on the implications of this).

2.4.2.2 Surface access costs

The LGW 2R scheme requires surface access expenditure estimated to be £787m (real 2014). Further details on these costs can be found in '13. Cost and Commercial Viability: Financial Modelling Input Costs'.

Chart 3: GAL – Surface Access Costs



Sources: Jacobs

This expenditure could be funded from a combination of public and private funding. It would be customary for an SP to make a contribution to surface access costs. The AC has not taken a view on the level of contribution but has considered a range of possible outcomes in its analysis. A decision on the level and timing of a contribution would ultimately be made following discussions between the airport and the relevant public sector bodies. A sensitivity is included in section 2.4.4.1 to demonstrate what the impact of this would be.

2.4.3 Financing

With the exception of asset replacement costs, all capex is assumed to be funded by debt and equity. Asset replacement costs are funded by operating cash flows.

2.4.3.1 Debt

Debt financing is assumed to be in the form of fixed rate corporate bonds. Assumed pricing has been determined using the implied forward curve for 10 year gilt rates. A corporate spread is then added to this curve to arrive at indicative pricing for each of the schemes. These spreads are based on recent market data for a range of comparable indices and corporates, including GAL's currently trading debt issues[5]. This analysis shows an average spread of approximately 150bps (rounded to the nearest 25bps). Examples of the indices and comparable corporates used for this analysis can be found in Appendix 3.

A premium of 50bps is then added to reflect the additional project risk introduced by the scheme, future market uncertainty and the typical additional cost associated with new bonds issues. GAL's bond pricing is therefore assumed to be 200bps above the forward curve for 10 year gilt rates.

It is assumed that the bond financing will be used to refinance periodic borrowings under a short term Revolving Credit Facility (RCF) which will be used to provide liquidity between bond issues. A similar approach is adopted for determining indicative pricing for GAL's RCF, except that an implied forward curve for 6 month LIBOR is used as the underlying rate.

The average spread for comparable, short-term debt with a credit rating of BBB+ is approximately 125bps. A premium of 25bps is added to reflect projects risks to give indicative RCF pricing of 150bps above 6 month LIBOR.

2.4.3.2 Equity

Where credit rating requirements or financing covenants prevent bonds being issued, it is assumed any shortfalls in funding will be met by raising additional equity. 'Equity' could be provided in a number of different forms, such as subordinated debt and pure equity, and still provide the loss-absorbing capital required by senior lenders.

A key component of the overall cost of finance will be the return on equity required by the new investors. This required rate of return will reflect investors' perception of the construction risk being undertaken by the company, demand volatility and the regulatory environment in which the investment may be made.

In determining the rate of return likely to be required by investors, consideration has been given to a number of competing factors for GAL. In particular:

- Existing rates of return on equity seen in comparable airports and other utility sectors;
- The size of the proposed investment relative to the existing regulated asset base, recognising any phasing of construction, and therefore the level of cost uncertainty for the company;
- The Financial Gearing;
- The perceived level of demand risk;
- Perceived cost risk in the scheme (noting that the cost and non-aeronautical revenue assumptions in this report include risk and mitigated optimism bias);
- The nature of the existing investors in GAL and likely longer-term investors that might be introduced;
- The high level of competition and investor appetite for infrastructure assets. Such strong appetite can either mean that long-term, low-cost investors could be accessed at the outset or that investors with slightly higher return requirements can invest during the construction phase but realise their return through selling their holdings at a later date, with a capital gain, to investors with lower return requirements. This potential capital gain and therefore the consequential rate of return is not included in this report; and
- The regulatory environment within which the airport operates. This reflects the subsequent risks of the scheme, the protection that is afforded by the periodic regulatory reviews and the duty of the regulator to be mindful of the ability of the company to be able to finance its activities.

[5] As at 25th September 2014.

Given all of these considerations, the analysis assumes a 10% pre-shareholder tax nominal rate of return for equity. This is a target blended return based on cash flows over the assessment period. It is assumed that equity holders would seek an annual cash return. Where there are restrictions on distributions, for example during period of capex, the analysis may include periods of low or no dividend payments.

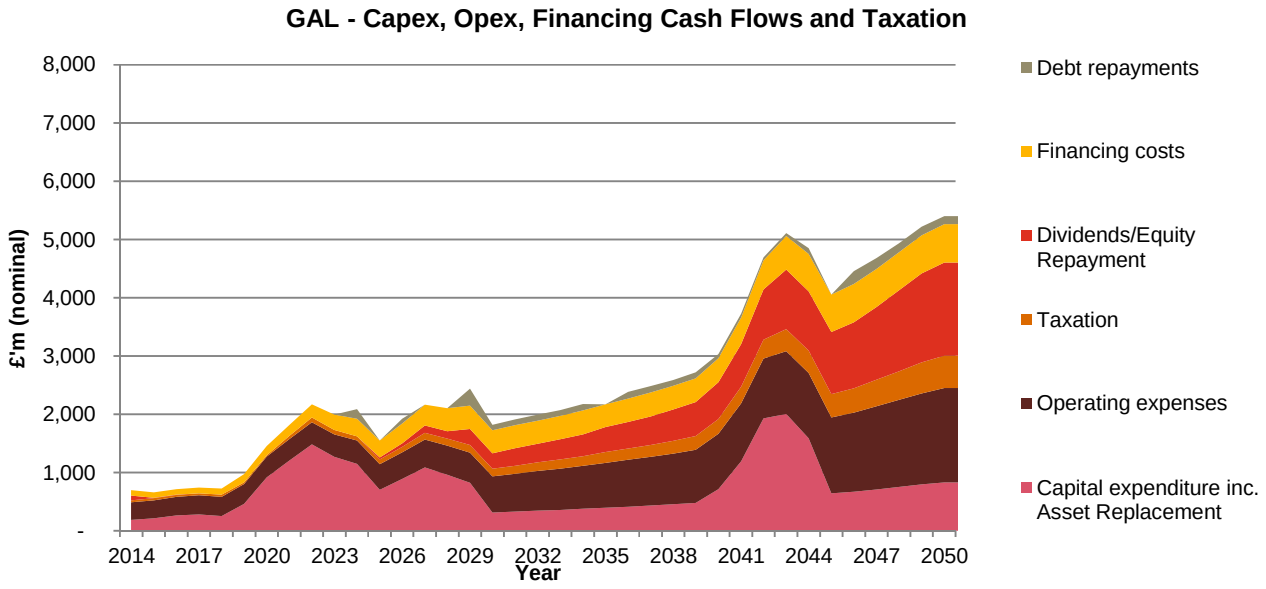
In reality, the return required by investors would only be determined at the point of investment. This return may prove to be different to the assumption in our models, once the project risks, regulatory structure, prevailing cost and revenue forecasts and likely levels of demand are better understood. Depending on the quantum required, a premium may also be required to ensure the equity can be placed in the market.

Alternatively, the scheme's cost of finance may be lower if it can attract long term equity finance from investors who consider the investment as low risk and that the finance is prudently structured. The precise regulatory and commercial structure will be important in ensuring its appeal to such investors. For instance, the regulator could pre-approve expenditure, removing the risk that it would not be allowable in the RAB, allow some pre-charging of expenditure (adding them to the RAB prior to the airlines benefitting from the expenditure), consider longer regulatory review periods or provide greater certainty that capex will be accepted on to the RAB before expenditure is incurred.

A sensitivity has been run to assess the impact of a 100bps movement in the equity return (see section 2.4.4.1).

The inclusion of financing costs, as well as taxation, to Chart 2 gives the profile in Chart 4.

Chart 4: GAL – Capex, Opex, Financing Cash Flows and Taxation

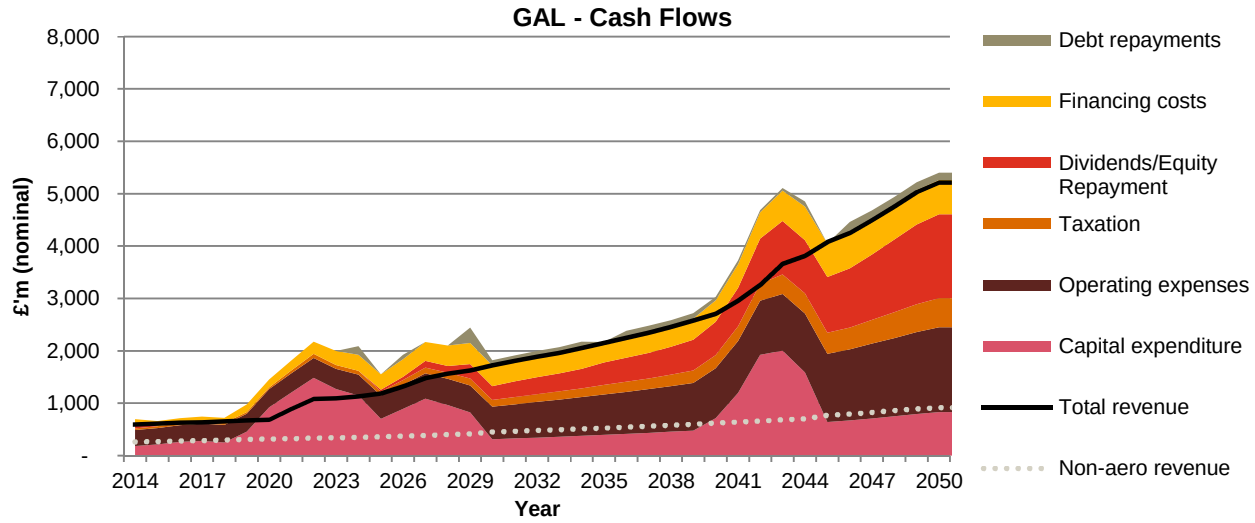


Sources: LeighFisher, Financial models

2.4.4 Revenue

Total revenue for the airport is a combination of non-aeronautical (£18,889m nominal) and aeronautical revenues. This total revenue is required to meet the operating and financing costs of the airport, as demonstrated in Chart 5.

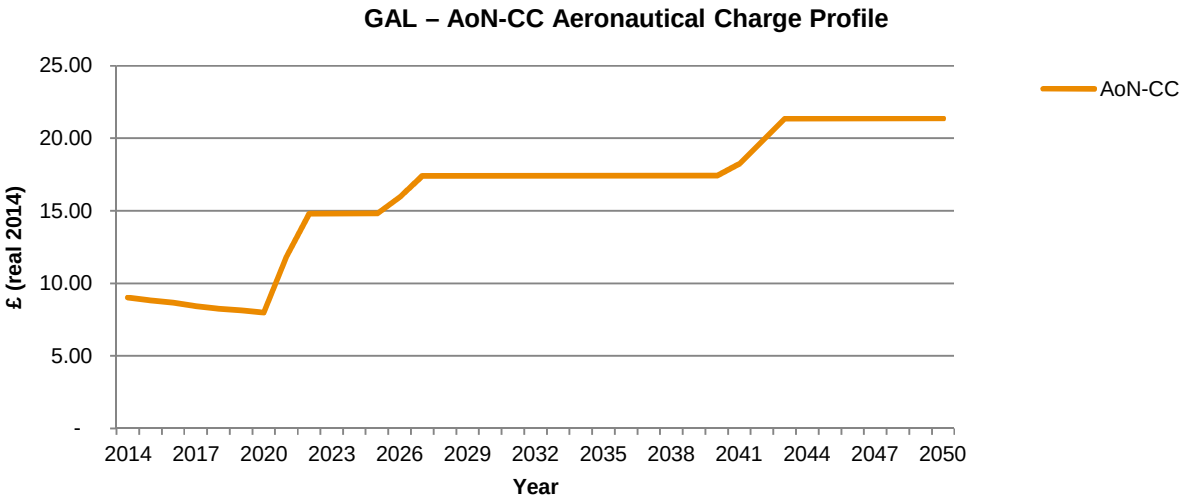
Chart 5: GAL – Cash Flows



Source: LeighFisher

The aeronautical revenues portion of total revenue is £62,380m (nominal) over the assessment period. The real aeronautical charge per passenger, as shown in the chart below, reaches £21.34 following the third capex peak in 2043. The average charge per passenger (weighted by number of passengers) is £16.95 from 2014 to 2050.

Chart 6: GAL – AoN-CC Aeronautical Charge Profile

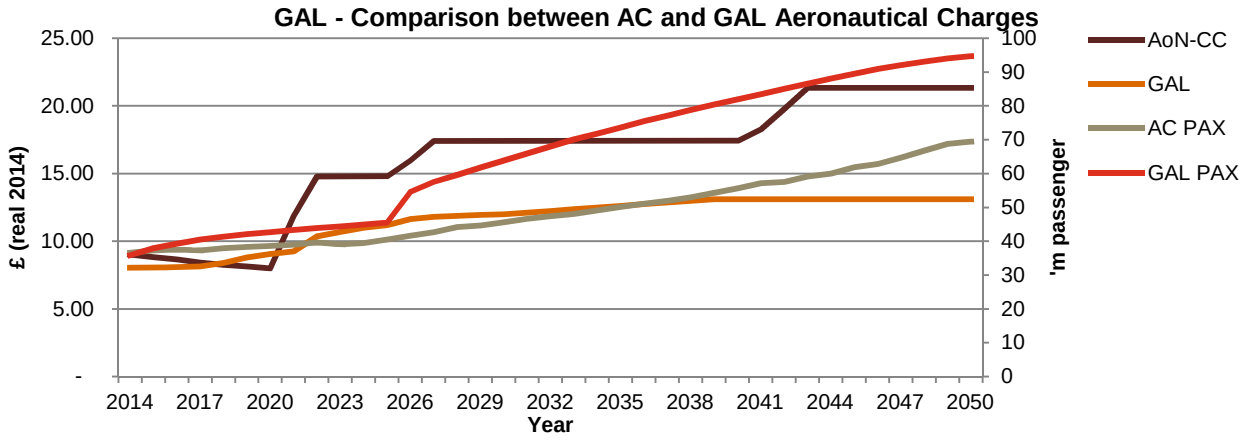


Sources: Financial Models

The AC forecast of aeronautical charges per passenger is higher than the estimate by GAL (a range of £12-£15 per passenger). This is primarily due to different passenger demand forecasts, which subsequently impact the construction phasing, and the costs themselves. It is worth noting that the also AC applies an OB premium (whereas the SP does not).

Chart 7 provides a comparison of the charges calculated by the AC and the SP for the GAL scheme.

Chart 7: GAL – Comparison between AC and GAL Aeronautical Charges



Sources: Financial Models, GAL submission[6], LeighFisher

2.4.4.1 Aeronautical charge sensitivities

There is an inherent degree of uncertainty over a number of factors which might impact the actual aeronautical charge, including the precise capital and operating costs, the cost of finance and changes in passenger numbers.

A range of possible outcomes has been considered by running a number of high level sensitivities to show the impact on aeronautical charges of specified assumption changes. These sensitivities assume that those changes are known at the outset and are therefore factored into the forecast aeronautical charges.

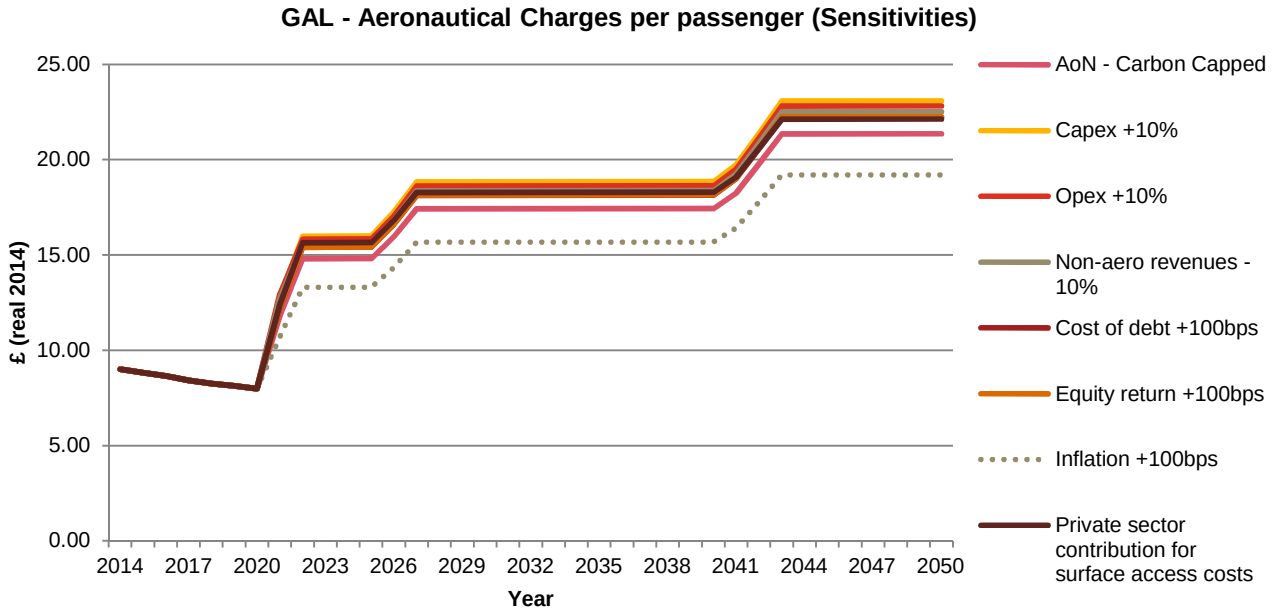
Table 7: GAL – Aeronautical Charge Sensitivities

Sensitivity	Weighted average aeronautical charge (£ real 2014)[7]	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
AoN-CC Scenario	£16.95	£21.34	£10.4bn	£11.9bn	£2.4bn	£2.7bn
Capex +10%	£18.22	£23.08	£11.6bn	£13.2bn	£2.6bn	£3.0bn
Opex +10%	£18.04	£22.82	£10.4bn	£11.9bn	£2.4bn	£2.7bn
Non-aeronautical revenues -10%	£17.81	£22.51	£10.4bn	£11.9bn	£2.4bn	£2.7bn
All-in cost of debt +100bps	£17.59	£22.23	£10.4bn	£11.9bn	£2.4bn	£2.7bn
Equity return +100bps	£17.60	£22.24	£10.4bn	£11.9bn	£2.4bn	£2.7bn
Inflation +100bps	£15.37	£19.20	£14.4bn	£15.9bn	£2.3bn	£2.6bn
Full private sector contribution to surface access costs	£17.89	£22.74	£10.7bn	£12.2bn	£2.7bn	£3.1bn

Sources: Financial Models

[6] In the above chart the GAL assumption for aeronautical charges per passenger is estimated based on the chart within the GAL submission.
[7] For the duration of the assessment period (2014 to 2050).

Chart 8: GAL – Aeronautical Charges per passenger (Sensitivities)



Sources: Financial Models

These sensitivity results demonstrate the variability in aeronautical charges per passenger. With the exception of the inflation sensitivity, all of these represent an adverse impact on the schemes and therefore require an increase in aeronautical charges per passenger. Conversely, if capex was reduced or non-aeronautical revenues were increased, for example, the opposite effect would be observed.

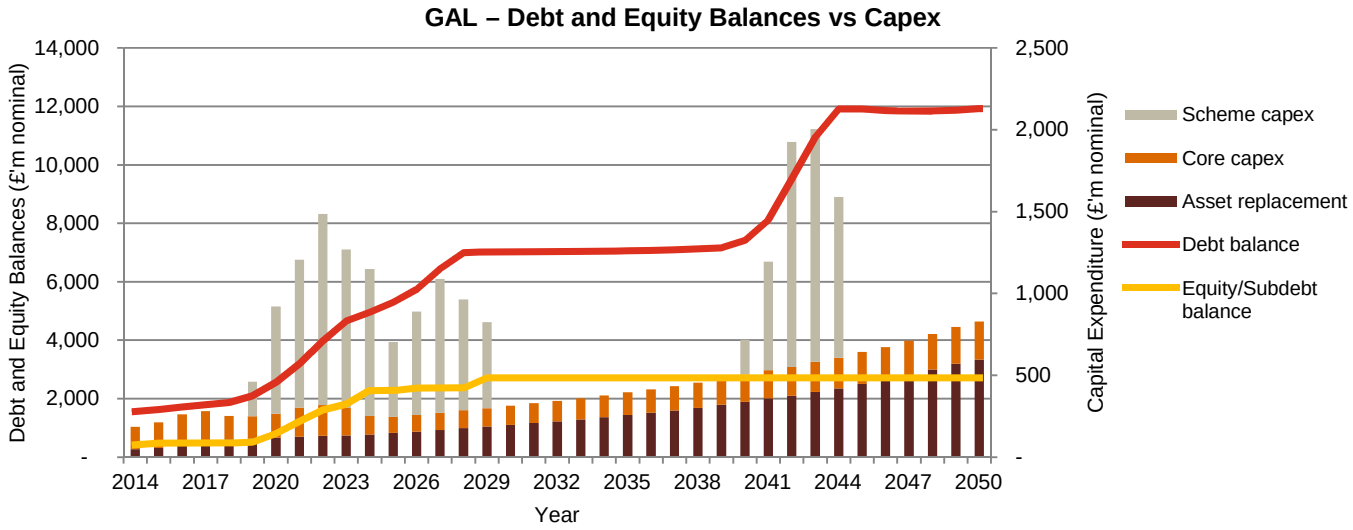
The decrease in aeronautical charges when increasing inflation by 100bps is due to the fact that the assumed debt structures do not include inflation-linked financing. Therefore, while the operating and construction costs change with inflation, the consequential financing costs do not. Aeronautical charges, which are subject to inflation, pay for both operating costs and financing costs and so a lower real charge is required with higher inflation.

Please see the section 5 for further details on the impact aeronautical charges may have on demand.

2.4.5 Funding requirement

Building a new runway at Gatwick will be a major undertaking. Currently GAL has around £1.6bn in long-term debt and £336m in equity. The AoN-CC scenario suggests GAL may have to increase the maximum debt and equity outstanding by the order of £10.4bn and £2.4bn respectively. This is a material increase from the current levels. Chart 9 shows the increase in debt and equity outstanding compared with GAL's capex requirements.

Chart 9: GAL – Debt and Equity Balances vs Capex



Sources: LeighFisher, Financial models

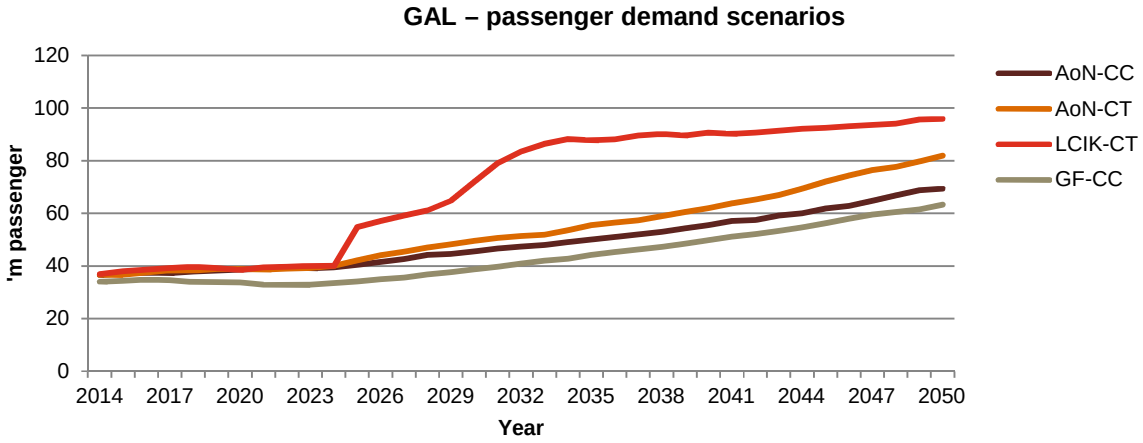
Over the assessment period, debt is repaid in line with the scheduled bond maturities. However, since there is a constant core capex funding requirement, the net impact on the outstanding balance is that it stays roughly constant between each phase of scheme capex.

As shown in Table 7, the required increase in debt and equity could be larger depending on a number of factors. As an example, the sensitivity with the largest increase (full private sector contribution to surface access costs) requires an increase to the maximum debt and equity outstanding balances by approximately £10.7bn (to £12.2bn) and £2.7bn (to £3.1bn) respectively.

2.4.6 Demand scenarios

As well as considering sensitivities around the AoN-CC demand scenario, a further four demand scenarios have been analysed as part of this report.

Chart 10: GAL – passenger demand scenarios



Source: LeighFisher

2.4.6.1 Aeronautical charges

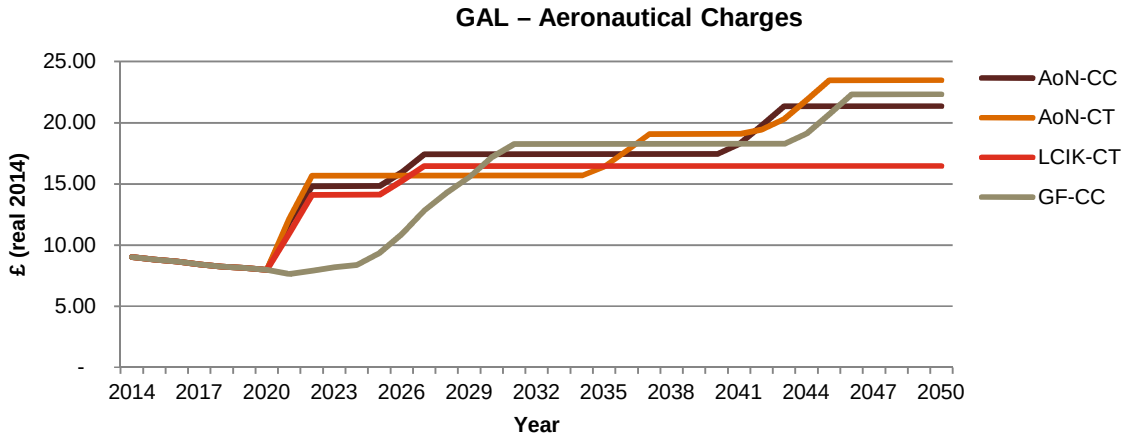
The indicative aeronautical revenues calculated for each of the four demand scenarios result in an estimated aeronautical charge per passenger profile over the assessment period. Table 8 and Chart 11 illustrate these profiles and the average (weighted by passenger volume) passenger charge for each scenario.

Table 8: GAL Demand Scenarios – Aeronautical Charges

£ real (2014)	AoN-CC	AoN-CT	LCIK-CT	GF-CC
Charge peak	£21.34	£23.48	£16.46	£22.31
Weighted average (2024-2050)	£18.76	£19.28	£16.33	£18.29
Weighted average (2014-2050)	£16.95	£17.55	£15.36	£16.19

Sources: Financial models

Chart 11: GAL – Aeronautical Charges



Sources: Financial Models

Note that while the weighted averages for GF-CC appear comparable to AoN-CC, this is driven by ending the assessment period in 2050. The GF-CC capex, and therefore increase in aeronautical charges, occurs later in the assessment period and so there is a shorter period of time at the peak charge.

2.4.6.2 Debt and Equity

The four demand scenarios require the following quantum of debt and equity financing.

Table 9: GAL debt and equity financing requirement

	AoN-CC	AoN-CT	LCIK-CT	GF-CC
Increase in maximum debt outstanding	£10.4bn	14.3bn	£9.3bn	£12.3bn
Increase in maximum equity outstanding	£2.4bn	£2.5bn	£3.7bn	£3.1bn

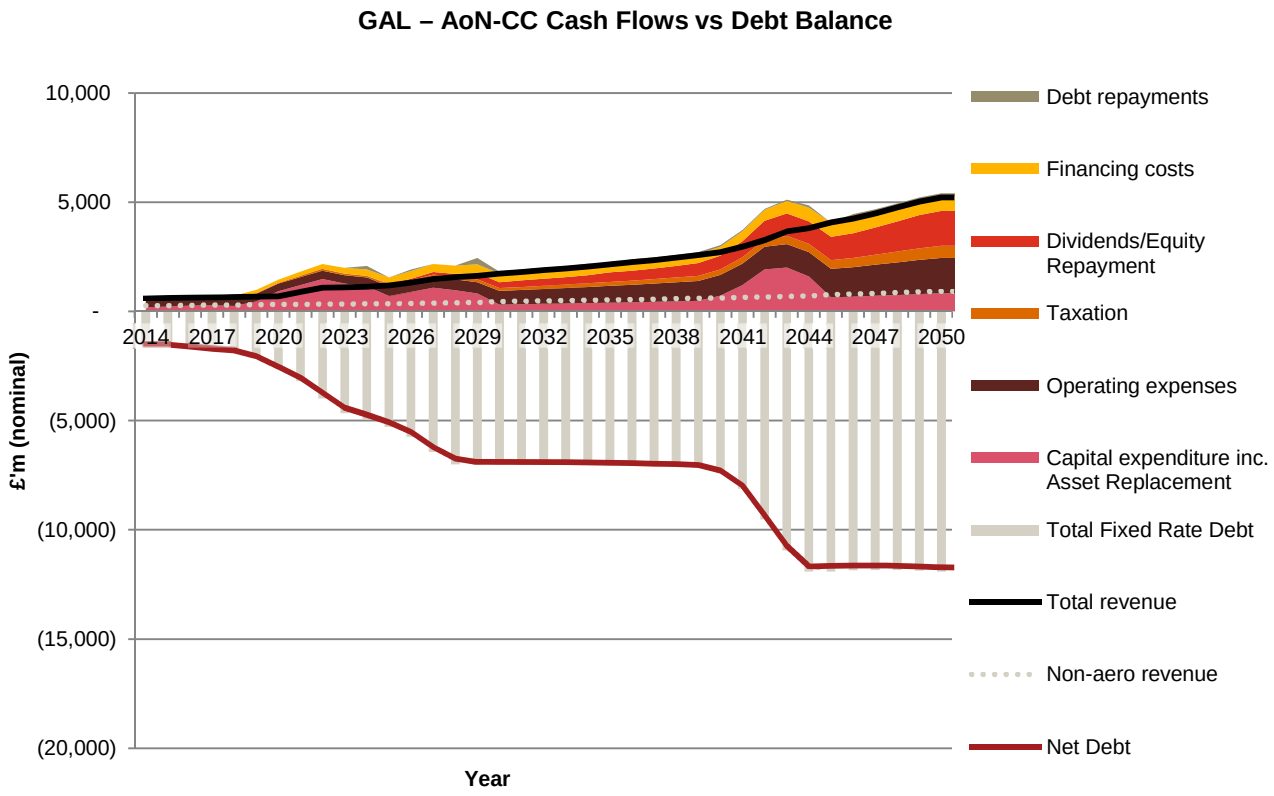
Sources: Financial models

The increase in debt and equity required for each scenario reflects the availability of debt, given the credit rating restrictions, over the assessment period. Debt, to the extent available, is always drawn ahead of equity. In early periods, there is a greater restriction on the quantum of debt that can be drawn.

Demand scenarios with greater capex during the early stages of the assessment period, such as LCIK-CT, are therefore unable to draw as much debt. In later stages, capex can be funded by a greater proportion of debt. This can be seen in both the AoN-CT and GF-CC scenarios.

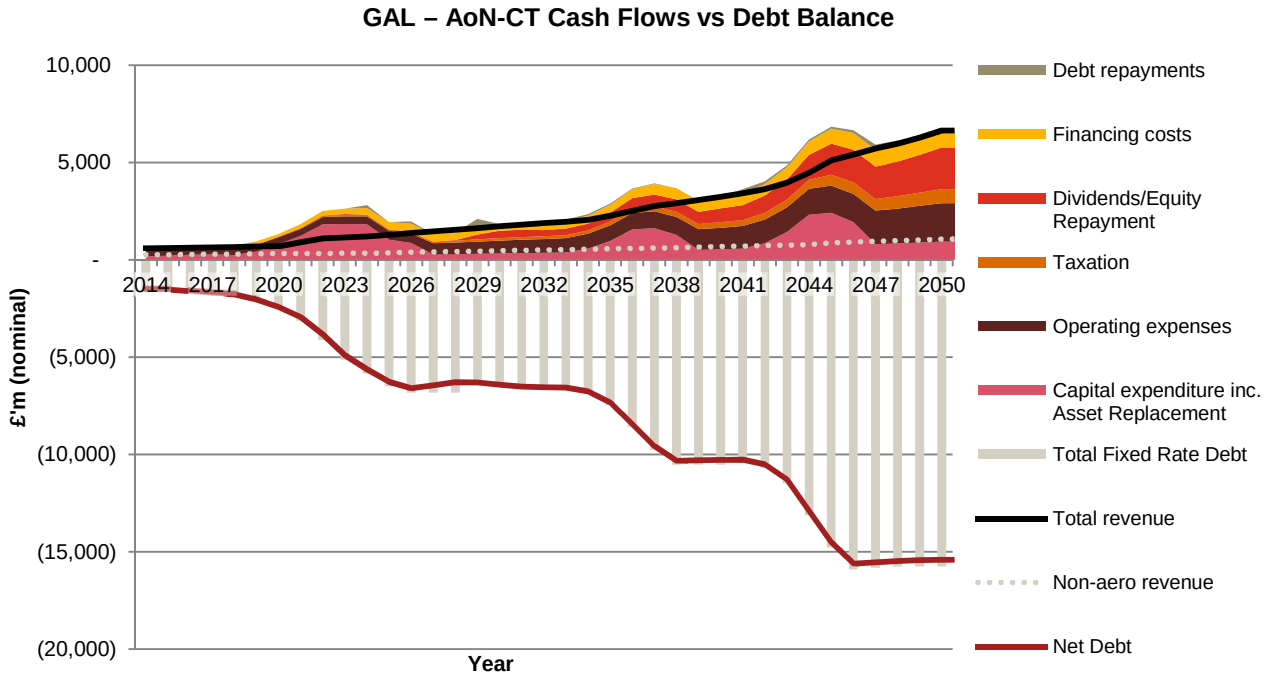
Charts 12 to 15 show the different cash flows and debt requirements for each demand scenario.

Chart 12: GAL – AoN-CC Cash Flows vs Debt Balance



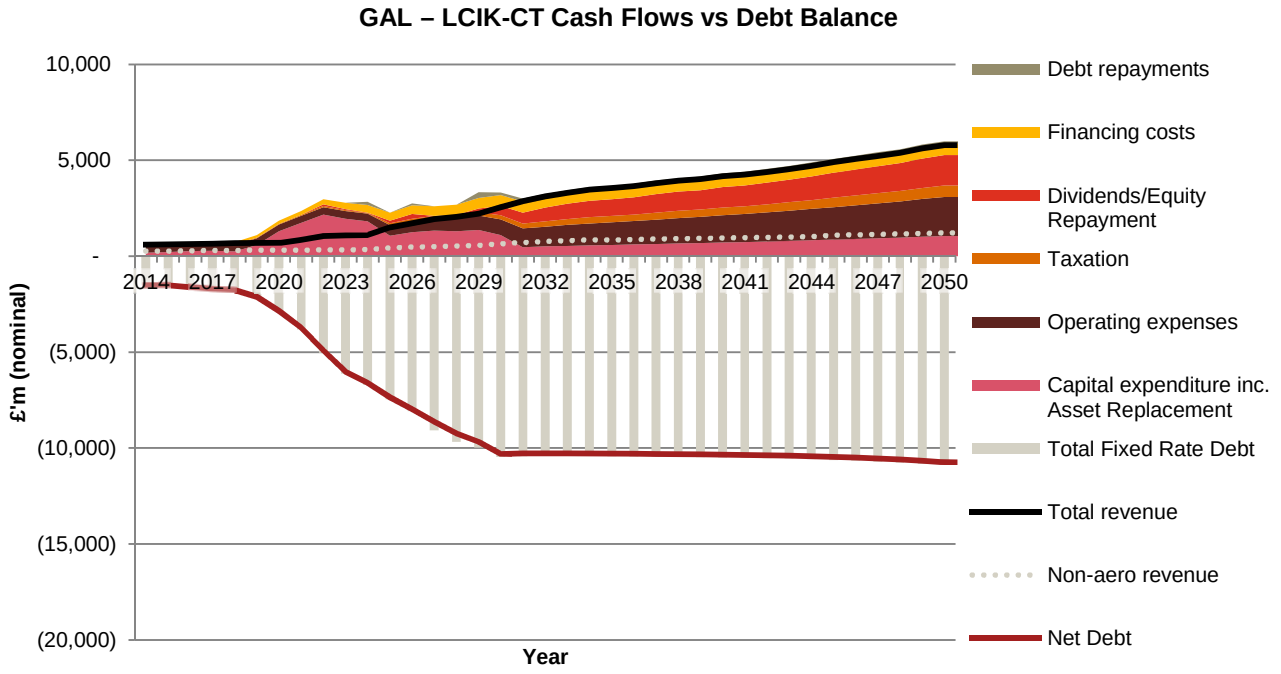
Sources: LeighFisher, Financial models

Chart 13: GAL – AoN-CT Cash Flows vs Debt Balance



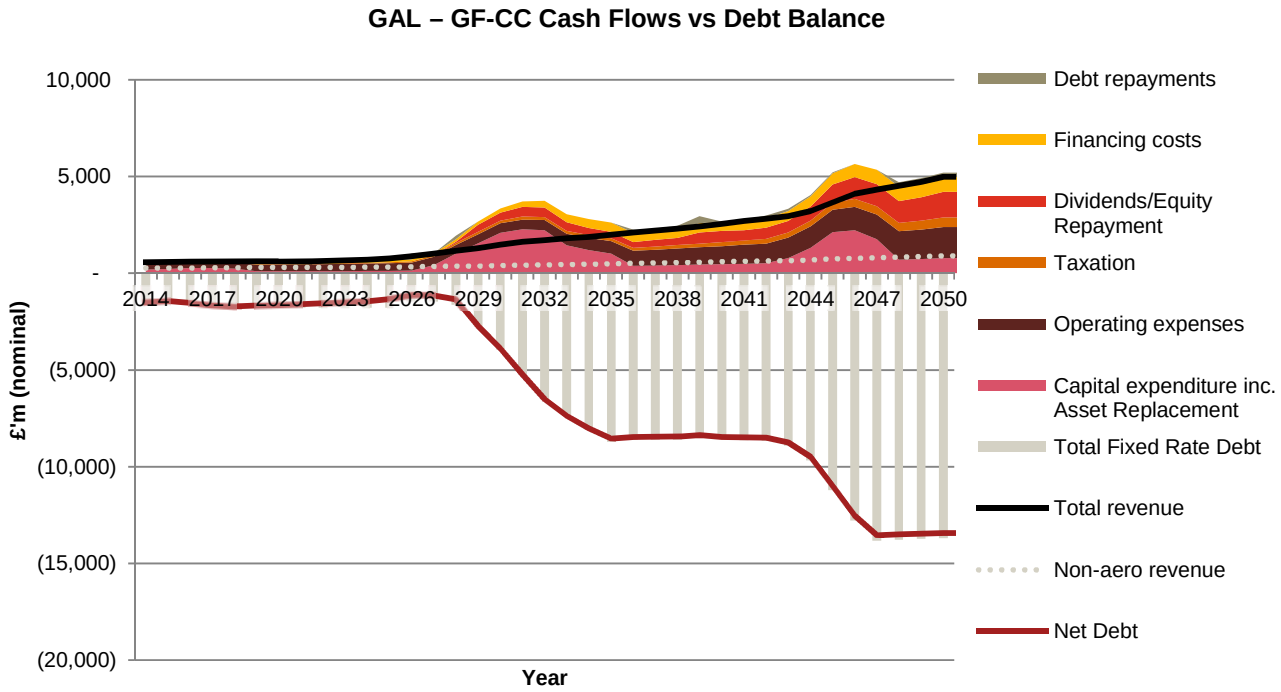
Sources: LeighFisher, Financial models

Chart 14: GAL – LCIK-CT Cash Flows vs Debt Balance



Sources: LeighFisher, Financial models

Chart 15: GAL – GF-CC Cash Flows vs Debt Balance



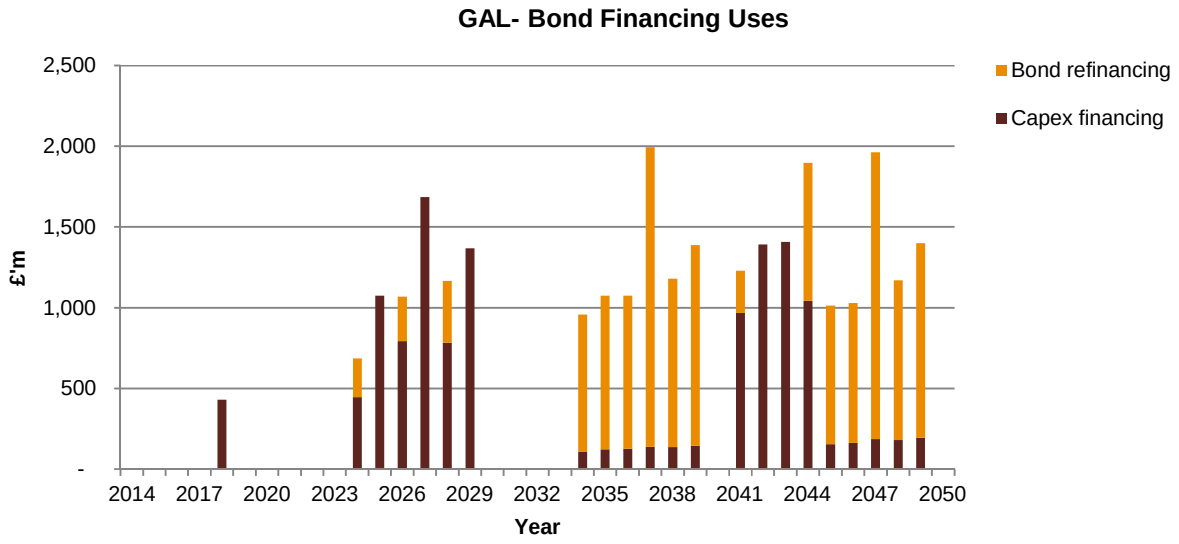
Sources: LeighFisher, Financial models

2.4.7 Financing implications

The LGW 2R scheme could require an increase to the maximum debt and equity outstanding in the order of £14.4bn and £3.7bn respectively. This is a material change from GAL's current position with debt outstanding of £1.6bn (9-fold increase) and equity outstanding of £336m (an 8-fold increase).

Furthermore, in order to refinance bonds as they reach their scheduled maturity, GAL would need to access a significant amount of financing over the assessment period to 2050, as shown in Chart 16. It is unlikely that the GBP bond market alone would have sufficient liquidity to fund this scheme. Therefore, GAL would likely need to issue bonds in a number of different currencies.

Chart 16: GAL – Bond Financing Uses



Sources: Financial models

Including bond refinancing, it is estimated that GAL will need to issue debt of around £7bn from 2024 to 2029, just under £8bn from 2034 to 2039 and around £12.5bn from 2041 to 2049. In any given year this could require debt issuances of up to £2bn. This level of finance is not unprecedented for infrastructure projects and airports. However, it is significantly larger than the company's individual bond issuances to date (around £300m to £350m). To add context to this figure, the biggest individual bond issue by a UK corporate since 2013 was around £3.5bn by Vodafone which has a senior credit rating of A-[8] (a list of all UK corporate bond issuances over £1.5bn since the beginning of 2013 can be found in Appendix 4).

The appetite and capacity of investors (both existing and new), including any concentration restrictions on investment by individual investors, would be an important factor in determining the price at which financing is available.

Equity financing will have to command sufficient returns and be prudently structured to attract investors given the risks the scheme entails. Our estimates have assumed a 10% nominal pre-shareholder tax rate of return to equity, having considered a range of factors. The actual rate required to attract investors may prove to be different, once the risks, regulatory structure, actual costs and likely levels of demand are better understood.

The ability of GAL's existing investors to meet the full equity requirement or their strategy to broaden the shareholder base would need to be considered in the context of capital available to those investors and any applicable concentration restrictions.

The scheme's cost of finance could be lower if it can attract long term equity finance from investors who consider the investment as low risk and that the finance is prudently structured. The precise regulatory and commercial structure will be important in ensuring its appeal to such investors. For instance, the regulator could pre-approve expenditure, removing the risk that it would not be allowable in the RAB, allow some pre-charging of expenditure (adding them to the RAB prior to the airlines benefitting from the expenditure), consider longer regulatory review periods or provide greater certainty that capex will be accepted on to the RAB before expenditure is incurred.

[8] Thomson Reuters EIKON, 10th October 2014.

Even with such a supportive regulatory approach, the capital structure will also need to take account of the implications of the forecast aeronautical charges post completion of the runway and the uncertainty surrounding the aeronautical revenue. The increase in charges at Gatwick from £9 per passenger (real 2014) to a range of weighted average aeronautical charges of £15-£18 per passenger means that there will be increased demand risk to the project and financiers may not assume that any charge allowed by the regulator could in practice be successfully passed to the airlines. The capital structure will need to consider this uncertainty. In particular:

- The level of debt that can be raised consistent with a BBB+ credit rating may be reduced, to give confidence to the credit rating agencies that the risk that debt cannot be serviced as due is kept at an investment grade level;
- As a corollary to lower debt, the level of equity required will increase, which will increase the overall weighted cost of capital; and
- The increased demand risk may mean that the return on equity required will increase, in addition to the lower gearing (debt to equity), again increasing the weighted average cost of capital.

The GAL scheme is within a range of financing previously achieved for infrastructure projects and airports and it is likely that sufficient equity and debt would be available. It does, however, represent a significant increase in debt and equity from the airport's current position which would need to be considered in determining and delivering the appropriate capital structure. Consultation may inform further analysis of the market capacity and appetite for such levels of financing, including debt, equity and any subsequent hedging requirements.

3 Heathrow Airport Northwest Runway

3.1 Introduction

This section considers the funding and financing arrangements for HAL to deliver the LHR NWR scheme as part of the existing corporate entity. Four demand scenarios have been considered in this analysis as well as a number of sensitivities based on one of these scenarios (AoN-CC).

To explain the analysis in this report, a step by step build-up of the AoN-CC scenario is provided:

- Existing airport financing structure;
- Proposed scheme financing; and
- Proposal assessment – used to derive aeronautical revenues, which incorporates:
  - Non-aeronautical revenue assumptions;
  - Cost assumptions; and
  - Financing.

Aeronautical revenues are used to generate an aeronautical charge per passenger profile over the assessment period. The assessment looks at how this profile varies over a range of demand scenarios and sensitivities and considers the financing implications.

Except where noted otherwise, this report therefore details the AoN-CC scenario. The costs and non-aeronautical revenues include risk and mitigated OB. For the avoidance of doubt, this is not considered as a central case.

3.2 Existing airport financing structure

The following table summarises the AC's understanding of HAL's existing financial structure. Further detail on the existing financing arrangements including ownership structure is detailed in '13. Cost and Commercial Viability: Literature Review'.

Table 10: Heathrow Airport's existing financial structure

Feature	Commentary
Financing Structure	• Current debt consists of: - c. £11.7bn made up of multiple bonds consisting of Class A Bonds (rated A-) and Class B bonds (rated BBB). HAL has also indicated that a small amount relates to Class C bonds (rated BB). Bonds are issued in GBP, USD, EUR, CAD, CHF over a range of tenors; fixed-rate, index-linked and zero-coupon bonds. Around 60% maturing by 2024; and - £275m of Class A and Class B revolving credit facilities. • Equity of c. £2.7bn (ordinary share capital). • Senior credit rating: A-. • Financial Gearing of c.80%. • Debt to Asset Base Gearing of c. 80%.
Aeronautical Charges	• Q6 average charge per passenger of c. £20.
Regulatory WACC	• Q6 WACC of 5.35% (pre-tax, real)[9].
Revenues	• Total £2.5bn (year end 31 December 2013)

[9] http://www.caa.co.uk/docs/33/CAP1151.pdf

Feature	Commentary
	- Aeronautical £1.5bn - Non-aeronautical £1.0bn
RAB	• £14,585m as of 31 December 2013.

Sources: Financial accounts, HAL Management

3.3 Proposed scheme financing

Table 11 outlines the financing structure for the LHR NWR scheme assumed in this report.

Table 11: LHR NWR assumed financing

Feature	Assumptions
Financing Structure	• HAL's existing financing strategy extended to cover funding requirements subject to maintaining its current senior credit rating of A-. • Debt funding is the maximum allowable within the credit rating constraint. • Asset replacement costs are funded through operating cash flow. • A £1bn RCF is available to provide liquidity between bond issues. • The RCF is refinanced with periodic senior corporate bonds with an A- credit rating. These bonds: - Have a 9 year tenor; - Are issued in a single currency; - Are priced at 175bps above the underlying 10 year gilt forward curve; and - Have an issuing fee of 0.65%. • Equity requires a blended cash nominal return (pre-shareholder tax) over the assessment period of 9%.
Other	• Public funding available for the full surface access costs. A sensitivity has also been run with no public funding to demonstrate the range of impacts to the SP.

Sources: Financial models

This approach has been informed by the approach identified by HAL within its financing proposal submitted in May 2014 and discussed between the AC and SP. This is outlined in Table 12.

Table 12: HAL's financing proposal

Feature	Commentary
Financing Structure	• HAL proposed scheme to predominantly be financed corporately by Heathrow with some government support. • HAL suggests that this could be predominantly privately financed through an increase of 50% to 100% in HAL's exposure to the sterling bond market – i.e. additional exposure of up to c. £8bn, and further diversification into non-sterling markets. • HAL also suggests infrastructure funds and the EIB as potential sources.
Estimated impact on aeronautical charges	• Increase from £20 per passenger (Q6 average charge) to an average charge of under £24 during the period 2019-48 (with a peak charge of £27.5 between 2034 and 2038). After this period, HAL has said the charges should return to current levels. • A pre-funding approach will be used to raise charges prior to the assets

Feature	Commentary
	delivering the additional revenue.
Other	• HAL proposes to use the current RAB based approach to finance the expansion. However, it has caveated that the following changes will be needed to minimise the overall risk and support the financeability of the option: - A guarantee that all efficiently incurred capex (including development costs) is included in the RAB, with safeguards to prevent write-downs; and - Clarity and necessary assurances that surface access infrastructure outside the airport would be funded by the Government. • HAL has suggested that there needs to be recognition that long term investment in major new airport infrastructure requires greater certainty on the long term return to shareholders, with implications for the structure of the regulatory period: - A mechanism to provide investors with a longer visibility horizon for the WACC; - Adoption of a higher WACC to cover the additional risks of capacity expansion; and - Mitigation of the heightened risk to the airport with additional measures. These could include revenue and cost risk sharing between the airport and the airlines and options for re-opening arrangements. • HAL has assumed a Weighted Average Cost of Capital (WACC) of 6% for modelling purposes but indicated this is not achievable and will need to be higher. • HAL has suggested consideration of some government support measures such as the UK Guarantees Scheme being deployed to wrap (at least in part) bond issuances to help overcome capacity constraints in the Sterling market. • HAL has suggested that surface access infrastructure outside the airport would be funded by the Government. Government funding is assumed for off-airport rail and road access and HAL assumes 50% of M25 re-routing costs in its submission for this purpose.

Sources: HAL Financing Proposal, May 2014

3.4 Proposal assessment

The following section outlines the revenue, cost and financing assumptions underpinning the AC's assessment of the LHR NWR proposal. Four demand scenarios have been considered in this analysis as well as a number of sensitivities based on one of these scenarios (AoN-CC). The detailed cost and non-aeronautical revenues assumptions can be found in '13. Cost and Commercial Viability: Cost and Revenue Identification Heathrow Airport North West Runway'.

3.4.1 Non-aeronautical revenue assumptions

This section provides a summary of the AC's non-aeronautical revenue assumptions for the LHR NWR scheme including HAL's non-aeronautical revenue estimate based on HAL's passenger demand scenario.

Non-aeronautical revenues are revenues from services provided by the airport, such as car parks, retail and property rental, which do not relate to the aeronautical services. The AC has calculated non-aeronautical revenues for the airport to include the additional non-aeronautical revenues which are earned from the implementation of the LHR NWR scheme and the non-aeronautical revenues earned from existing airport operations for years 2014-2050.

A detailed explanation of the AC's methodology and assumptions used in calculating non-aeronautical revenues is available in '13. Cost and Commercial Viability: Cost and Revenue Identification Heathrow Airport North West Runway'.

In summary, the approach used by the AC in calculating non-aeronautical revenues is an elasticity based approach. In applying this approach, the AC first had to establish the non-aeronautical revenue categories for the airport such as retail and property rental. An appropriate 'revenue driver' (e.g. passenger numbers/ Terminal space) was then applied to each category to which a degree of elasticity is assumed.

For instance, the non-aeronautical revenues generated from property rental (e.g. airline lounges) is driven by the size of the terminal where an elasticity of 20% was applied. In this example, it is assumed that the revenues generated from property rental would increase by 20% of the incremental increase in terminal size.

This elasticity based approach was used to calculate the base revenues to which risk and optimism bias is applied. The AC has included risk and optimism bias in their calculation of non-aeronautical revenues to account for the systematic tendency for the actual revenues received to be lower than forecasted. The AC has assumed a reduction in the real compounded growth rate of -0.5% for risk and -0.5% for OB.

In providing another view of non-aeronautical revenues, the AC also presents the scheme promoter's non-aeronautical revenues in this section.

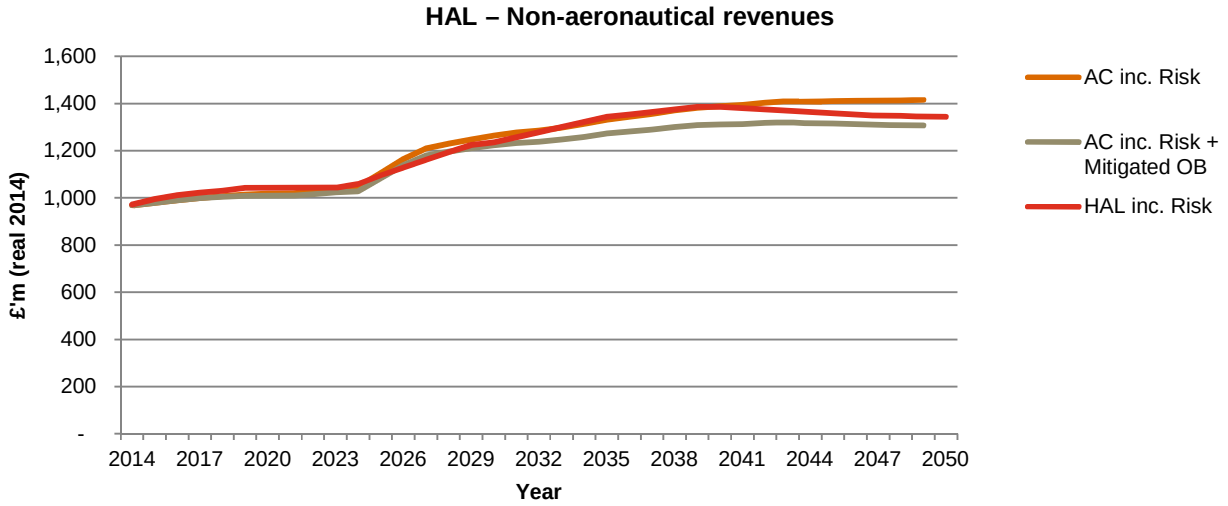
Chart 17 presents two cases of the AC's non-aeronautical revenues as well as HAL's view of non-aeronautical revenues. Note that the AC's revenues are based on the AoN-CC passenger forecast and HAL's revenues are based on their own passenger forecast.

Table 13: HAL - Non-aeronautical revenues

£'m	Real (2014 prices)	Nominal	NPV (2014)
AC assumptions			
Inc. risk	45,314	69,402	24,853
Inc. risk and mitigated OB	43,589	66,478	24,124
HAL assumptions	45,293	68,968	25,026

Sources: LeighFisher, Financial models

Chart 17: HAL – Non-aeronautical revenues



Sources: LeighFisher

The AC's revenue profiles display noticeable increases in 2026. This coincides with the opening of the new third runway which allows for higher passenger capacity in the airport. It is assumed that this higher passenger capacity will drive increased traffic through the airport increasing non-aeronautical revenues.

Because passenger numbers are a significant revenue driver, HAL's profile looks similar to the AC's profile as HAL's passenger forecast is only marginally different to the AoN-CC passenger forecast. However, from 2041, HAL's profile starts to decline due to HAL's application of a 1.1% decrease in revenue growth rate per passenger relative to the AC's 0.8%.

The difference between the AC's forecast of total non-aeronautical revenues, £43,589m when compared to HAL's estimate of £45,293m is due mainly to:

- The difference in elasticity assumptions applied by the AC and HAL;
- The difference in revenue growth rate assumptions applied by the AC and HAL;
- The AC's inclusion of OB (which is not included by HAL in its assessment); and
- The difference in risk assumptions applied by the AC and HAL.

3.4.2 Cost assumptions

This section presents a summary of the assumed costs. Please refer to '13. Cost and Commercial Viability: Financial Modelling Input Costs' for further details.

3.4.2.1 Airport costs

Table 14 summarises the scheme and core capex, asset replacement costs, as well as the operating costs over the assessment period.

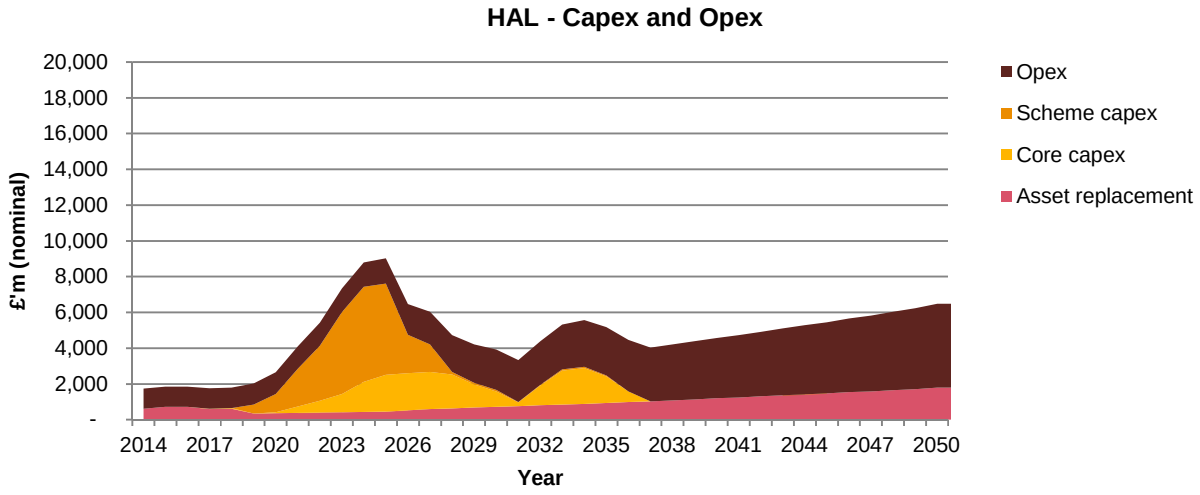
Table 14: HAL airport costs

£'m	Real (2014 prices)	Nominal
Scheme capex	18,583	25,939
Core capex	13,069	21,383
Asset replacement[10]	16,784	34,013
Opex	49,884	93,596

Sources: LeighFisher

[10] Including asset replacement costs for both scheme and core capex.

Chart 18: HAL – Capex and Opex



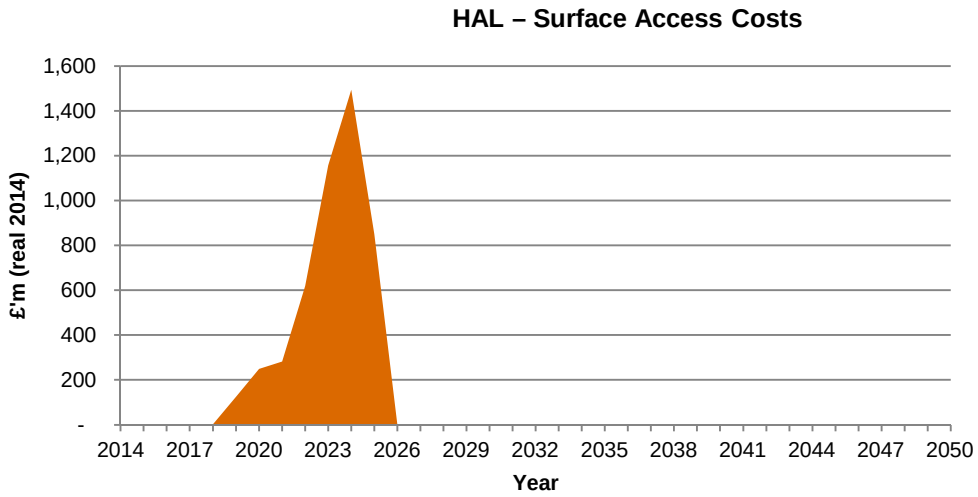
Sources: LeighFisher

Scheme capex occurs from 2019 to 2035, with minimal expenditure from 2028 onwards. Capex relating to the core airport occurs from 2016 to 2036 but peaks towards the latter stages of this period, creating the two humped capex profile illustrated in Chart 18. This core capex relates to expenditure that could be expected to take place regardless of whether new runway capacity is developed at the airport. These costs are separate and distinct from the scheme capex.

3.4.2.2 Surface access costs

The LHR NWR scheme requires surface access expenditure estimated to be £5.7bn (real 2014). Further details on these costs can be found in '13. Cost and Commercial Viability: Financial Modelling Input Costs'.

Chart 19: HAL – Surface Access Costs



Sources: Jacobs

This expenditure could be funded from a combination of public and private sources. It would be customary for an SP to make a contribution to surface access costs. The AC has not taken a view on the level of contribution but has considered a range of possible outcomes in its analysis. A decision on the level and timing of a contribution would ultimately be made following discussions between the airport and the relevant public sector bodies. A sensitivity is included in section 3.4.4.1 to demonstrate what the impact of this would be.

3.4.3 Financing

With the exception of asset replacements costs, all capex is assumed to be funded by debt and equity. Asset replacement costs are funded by operating cash flows.

3.4.3.1 Debt

Debt financing is assumed to be in the form of fixed rate corporate bonds. Assumed pricing has been determined using the implied forward curve for 10 year gilt rates. A corporate spread is then added to this curve to arrive at indicative pricing for each of the schemes. These spreads are based on recent market data for a range of comparable indices and corporates, including HAL's currently trading debt issues[11]. This analysis shows an average spread of approximately 125bps (rounded to the nearest 25bps). Examples of the indices and comparable corporates used for this analysis can be found in Appendix 3.

A premium of 50bps is then added to reflect the additional project risk introduced by the scheme, future market uncertainty and the typical additional cost associated with new bonds issues. HAL's bond pricing is therefore assumed to be 175bps above the forward curve for 10 year gilt rates.

It is assumed that the bond financing will be used to refinance periodic borrowings under a short term Revolving Credit Facility (RCF) which will be used to provide liquidity between bond issues. A similar approach is adopted for determining indicative pricing for HAL's RCF, except that an implied forward curve for 6 month LIBOR is used as the underlying rate.

The average spread for comparable, short-term debt with a credit rating of A- is approximately 100bps. A premium of 25bps is added to reflect projects risks to give indicative RCF pricing of 125bps above 6 month LIBOR.

3.4.3.2 Equity

Where credit rating requirements or financing covenants prevent bonds being issued, it is assumed any shortfalls in funding will be met by raising additional equity. 'Equity' could be provided in a number of different forms, such as subordinated debt and pure equity, and still provide the loss-absorbing capital required by senior lenders.

A key component of the overall cost of finance will be the return on equity required by the new investors. This required rate of return will reflect investors' perception of the construction risk being undertaken by the company, demand volatility and the regulatory environment in which the investment may be made.

In determining the rate of return likely to be required by investors, consideration has been given to a number of competing factors for HAL. In particular:

- Existing rates of return on equity seen in comparable airports and other utility sectors;
- The size of the proposed investment relative to the existing regulated asset base, recognising any phasing of construction, and therefore the level of cost uncertainty for the company;
- The Financial Gearing;
- The perceived level of demand risk;
- Perceived cost risk in the scheme (noting that the cost and non-aeronautical revenue assumptions in this report include risk and mitigated optimism bias);
- The nature of the existing investors in HAL and likely longer-term investors that might be introduced;
- The high level of competition and investor appetite for infrastructure assets. Such strong appetite can either mean that long-term, low-cost investors could be accessed at the outset or that investors with slightly higher return requirements can invest during the construction phase but realise their return

[11] As at 25th September 2014.

through selling their holdings at a later date, with a capital gain, to investors with lower return requirements. This potential capital gain and therefore the consequential rate of return is not included in this report; and

- The regulatory environment within which the airport operates. This reflects the subsequent risks of the scheme, the protection that is afforded by the periodic regulatory reviews and the duty of the regulator to be mindful of the ability of the company to be able to finance its activities.

Given all of these considerations, the analysis assumes a 9% pre-shareholder tax nominal rate of return for equity. This is a target blended return based on cash flows over the assessment period. It is assumed that equity holders would seek an annual cash return. Where there are restrictions on distributions, for example during period of capex, the analysis may include periods of low or no dividend payments.

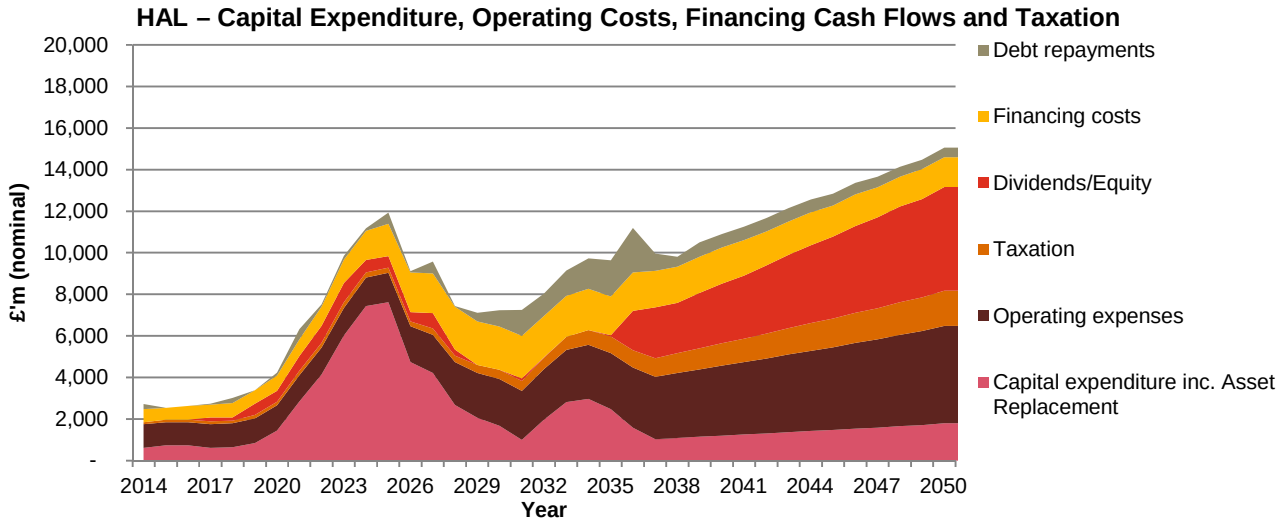
In reality, the return required by investors would only be determined at the point of investment. This return may prove to be different to the assumption in our models, once the project risks, regulatory structure, prevailing cost and revenue forecasts and likely levels of demand are better understood. Depending on the quantum required, a premium may also be required to ensure the equity can be placed in the market.

Alternatively, the scheme's cost of finance may be lower if it can attract long term equity finance from investors who consider the investment as low risk and that the finance is prudently structured. The precise regulatory and commercial structure will be important in ensuring its appeal to such investors. For instance, the regulator could pre-approve expenditure, removing the risk that it would not be allowable in the RAB, allow some pre-charging of expenditure (adding them to the RAB prior to the airlines benefitting from the expenditure), consider longer regulatory review periods or provide greater certainty that capex will be accepted on to the RAB before expenditure is incurred.

A sensitivity has been run to assess the impact of a 100bps movement in the equity return (see section 3.4.4.1).

The inclusion of financing costs, as well as taxation, to Chart 18 gives the profile in Chart 20.

Chart 20: HAL – Capital Expenditure, Operating Costs, Financing Cash Flows and Taxation

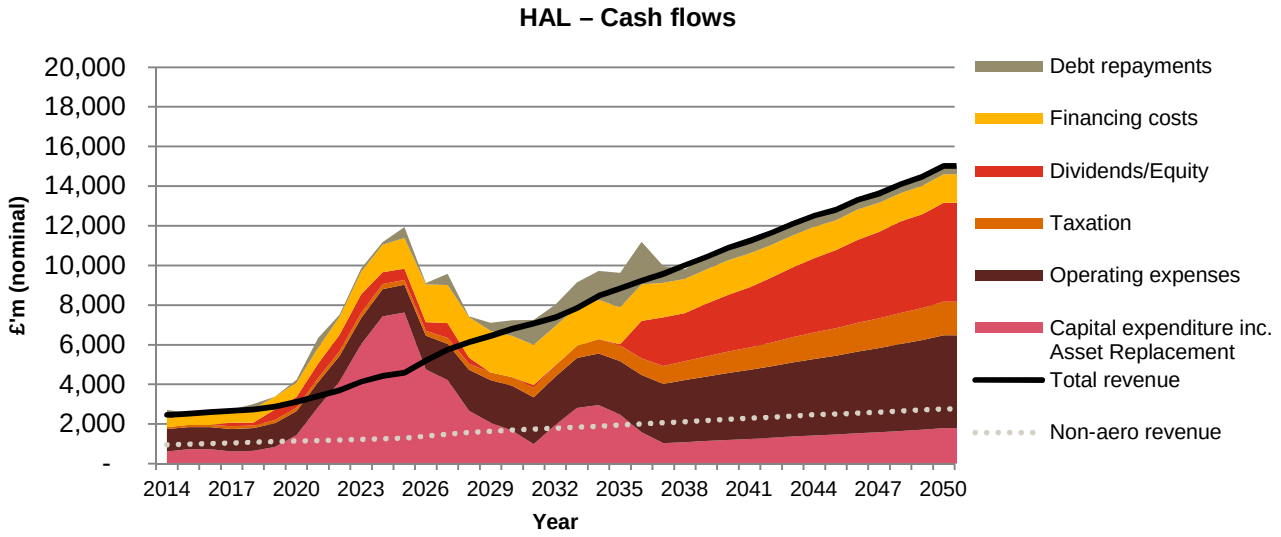


Sources: LeighFisher

3.4.4 Revenue

Total revenue for the airport is a combination of non-aeronautical (£66,478m nominal) and aeronautical revenues. This total revenue is required to meet the operating and financing costs of the airport, as demonstrated in Chart 21.

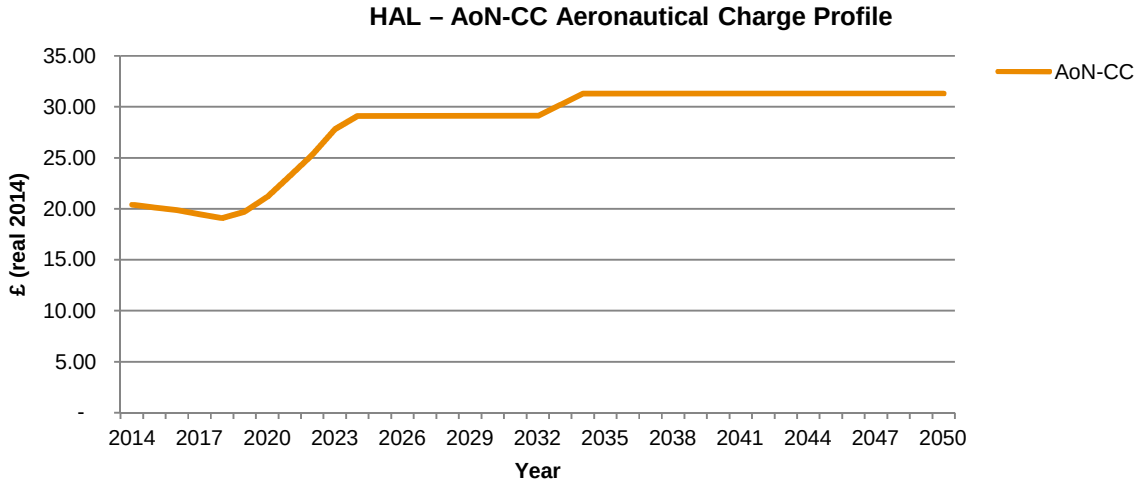
Chart 21: HAL – Cash Flows



Sources: LeighFisher, Financial models

The aeronautical revenues portion of total revenue is £223,161m (nominal) over the assessment period. The real aeronautical charge per passenger, as shown in Chart 22, reaches £31.31 following the second peak in capex in 2034. The average charge per passenger (weighted by number of passengers) is £28.91 from 2014 to 2050.

Chart 22: HAL – AoN-CC Aeronautical Charge Profile

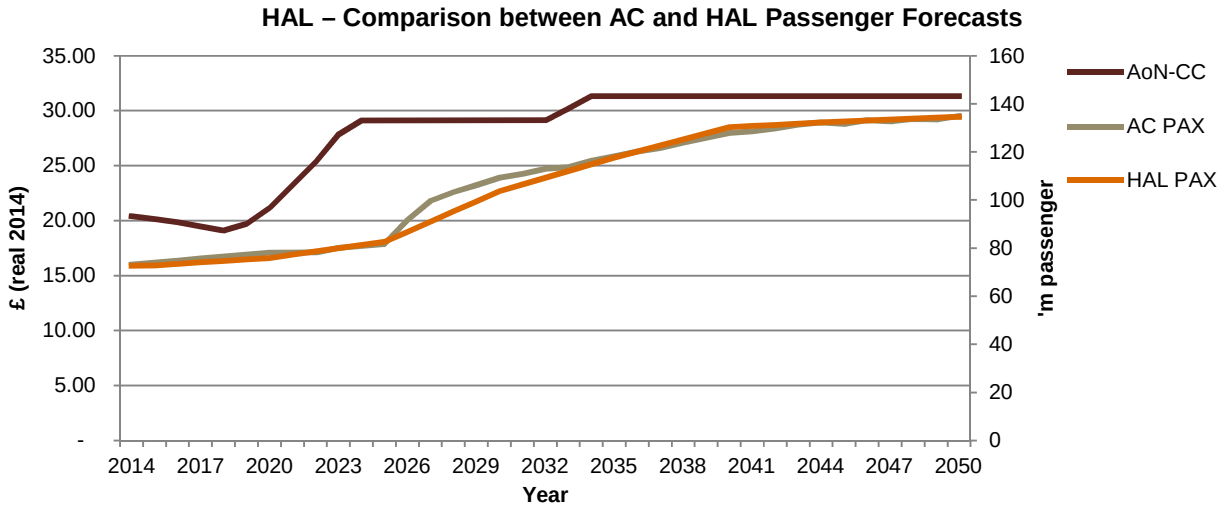


Sources: Financial models

The AC forecast of aeronautical charges per passenger is higher than those made by HAL despite the AC's and HAL's passenger demand forecasts being similar, as shown in Chart 23. This is primarily due to differences in the assessment of cost (see report '13. Cost and Commercial Viability: Financial Modelling Input Costs').

There are two step increases in the aeronautical charges per passenger profile reflecting the two expansion phases of the HAL scheme. The first peak in the charges in 2024 is due to high capex on major terminal and third runaway works whereas the second peak in 2034 is attributed to further development such as car park works, satellite and other items.

Chart 23: HAL – Comparison between AC and HAL Passenger Forecasts



Sources: Financial models

An aeronautical charge profile was not included in the LHR NWR proposal, however it was stated that the peak charge would be around £27.50.

3.4.4.1 Aeronautical charge sensitivities

There is an inherent degree of uncertainty over a number of factors which might impact the actual aeronautical charge, including the precise capital and operating costs, the cost of finance and changes in passenger numbers.

A range of possible outcomes has been considered by running a number of high level sensitivities to show the impact on aeronautical charges of specified assumption changes. These sensitivities assume that those changes are known at the outset and are therefore factored into the forecast aeronautical charges.

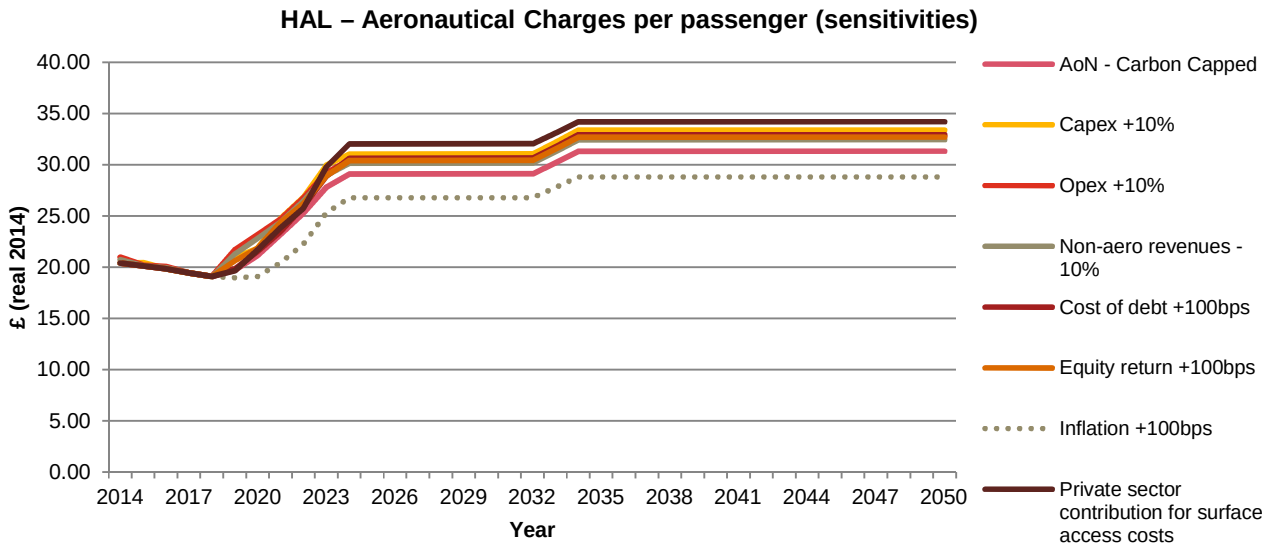
Table 15: HAL – Aeronautical Charge Sensitivities

Sensitivities	Weighted average aeronautical charge (£ real 2014)[12]	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
AoN-CC Scenario	£28.91	£31.31	£25.9bn	£37.6bn	£4.2bn	£6.8bn
Capex +10%	£30.70	£33.39	£28.8bn	£40.5bn	£5.4bn	£8.0bn
Opex +10%	£30.25	£32.78	£26.1bn	£37.8bn	£4.1bn	£6.8bn
Non-aeronautical revenues -10%	£29.95	£32.46	£26.2bn	£38.0bn	£4.2bn	£6.9bn
All-in cost of debt +100bps	£30.25	£32.94	£26.3bn	£38.0bn	£4.4bn	£7.0bn
Equity return +100bps	£30.11	£32.71	£24.9bn	£36.6bn	£3.7bn	£6.4bn
Inflation +100bps	£26.71	£28.81	£29.5bn	£41.2bn	£7.2bn	£9.8bn
Full private sector contribution to surface access costs	£31.32	£34.20	£29.9bn	£41.6bn	£5.9bn	£8.6bn

[12] For the duration of the assessment period (2014 to 2050).

Sources: Financial Models

Chart 24: HAL – Aeronautical Charges per passenger (sensitivities)



Sources: Financial Models

These sensitivity results demonstrate the variability in aeronautical charges per passenger. With the exception of the inflation sensitivity, all of these represent an adverse impact on the schemes and therefore require an increase in aeronautical charges per passenger. Conversely, if capex was reduced or non-aeronautical revenues were increased, for example, the opposite effect would be observed.

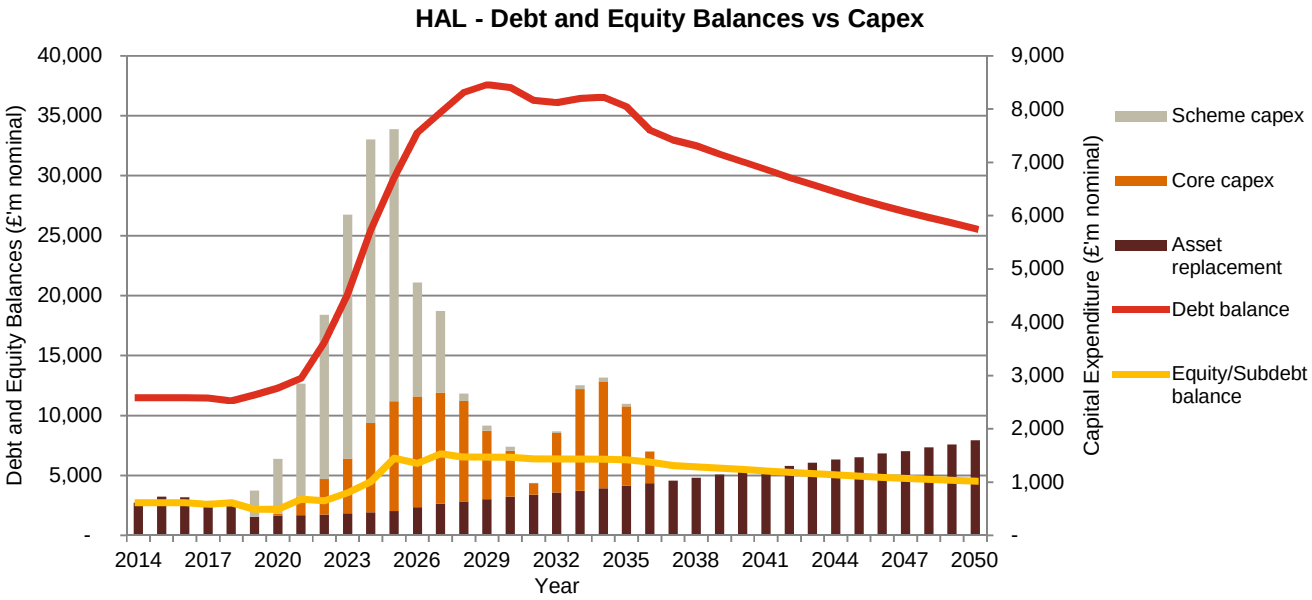
The decrease in aeronautical charges when increasing inflation by 100bps is due to the fact that the assumed debt structures do not include inflation-linked financing. Therefore, while the operating and construction costs change with inflation, the consequential financing costs do not. Aeronautical charges, which are subject to inflation, pay for both operating costs and financing costs and so a lower real charge is required with higher inflation.

Please see the section 5 for further details on the impact aeronautical charges may have on demand.

3.4.5 Funding requirement

Building a new runway at Heathrow will be a major undertaking. Currently, HAL has around £2.7bn in equity and £11.7bn in debt. The AoN-CC scenario suggests HAL may have to increase the debt and equity outstanding by the order of £25.9bn and £4.2bn respectively. Chart 25 shows the increase in debt and equity outstanding compared with HAL's capex requirements.

Chart 25: HAL – Debt and Equity Balances vs Capex



Sources: LeighFisher, Financial models

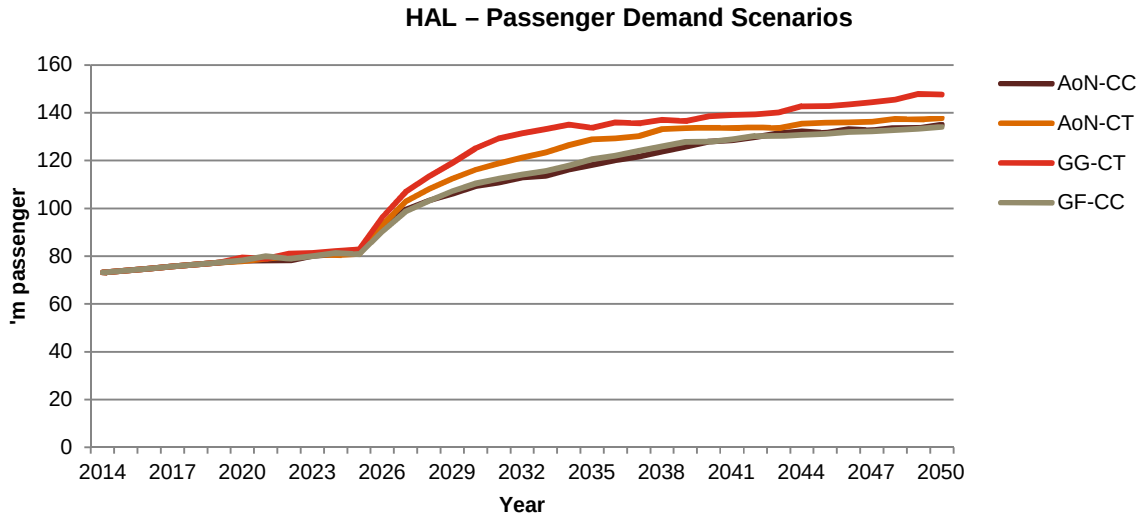
Throughout the assessment period, debt is repaid in line with the scheduled bond maturities. Following the main capex phase (excluding asset replacement), the total debt balance reduces over time.

As shown in Table 15, the required increase in debt and equity could be larger depending on a number of factors. As an example, the sensitivity with the largest increase (full private sector contribution to surface access costs) requires an increase to the maximum debt and equity outstanding balances by approximately £29.9bn (to £41.6bn) and £5.9bn (to £8.6bn) respectively.

3.4.6 Demand Scenarios

As well as considering sensitivities around the AoN-CC demand scenario, a further four demand scenarios have been analysed as part of this report.

Chart 26: HAL – Passenger Demand Scenarios



Sources: LeighFisher

3.4.6.1 Aeronautical Charges

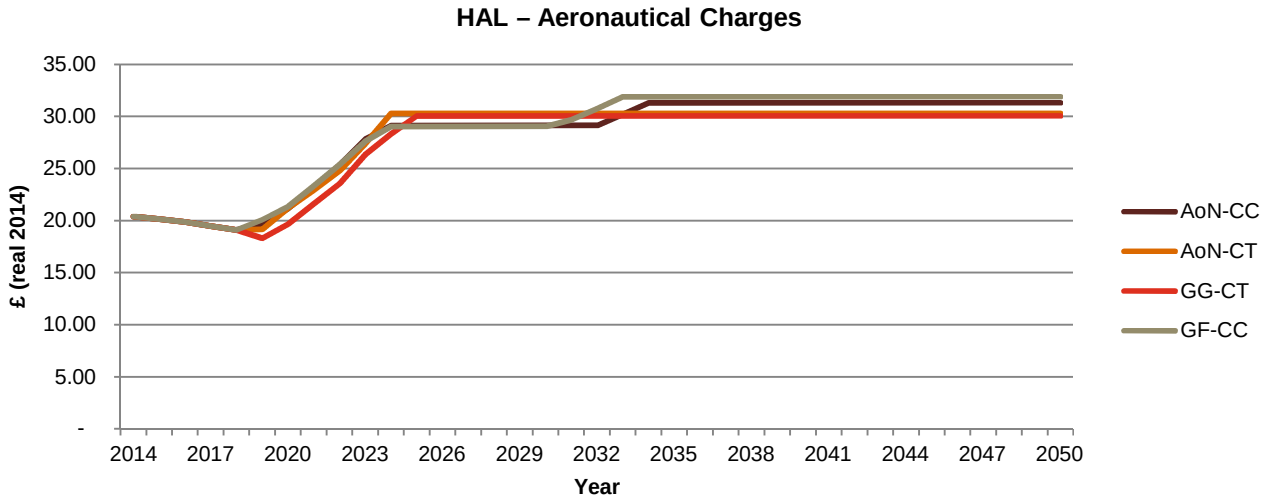
The indicative aeronautical revenues calculated for each of the four demand scenarios result in an estimated aeronautical charge per passenger profile over the assessment period. Table 16 and Chart 27 illustrate these profiles and the average (weighted by passenger volume) passenger charge for each scenario.

Table 16: HAL Demand Scenarios – Aeronautical Charges

£ real (2014)	AoN-CC	AoN-CT	GG-CT	GF-CC
Charge peak	£31.31	£30.29	£30.03	£31.88
Weighted average (2019-2050)	£29.87	£29.53	£29.17	£30.33
Weighted average (2014-2050)	£28.91	£28.64	£28.35	£29.33

Sources: Financial models

Chart 27: HAL – Aeronautical Charges



Sources: Financial models

These profiles demonstrate the impact that differing demand assumptions and timing of expenditure can have on the aeronautical charge profile. As an example, the GG-CT scenario requires the majority of capex to happen earlier and in a single phase. This results in an aeronautical charge profile that increases to a higher amount but does not require a second 'step'.

The estimated aeronautical charge profiles included in this report are dependent on the underlying assumptions and could therefore, in reality, be different for a number of reasons.

3.4.6.2 Debt and Equity

The four demand scenarios require the following quantum of debt and equity financing.

Table 17: HAL debt and equity financing requirements

	AoN-CC	AoN-CT	GG-CT	GF-CC
Additional debt requirement	£25.9bn	£28.8bn	£27.8bn	£26.1bn
Additional equity requirement	£4.2bn	£5.4bn	£8.4bn	£5.3bn

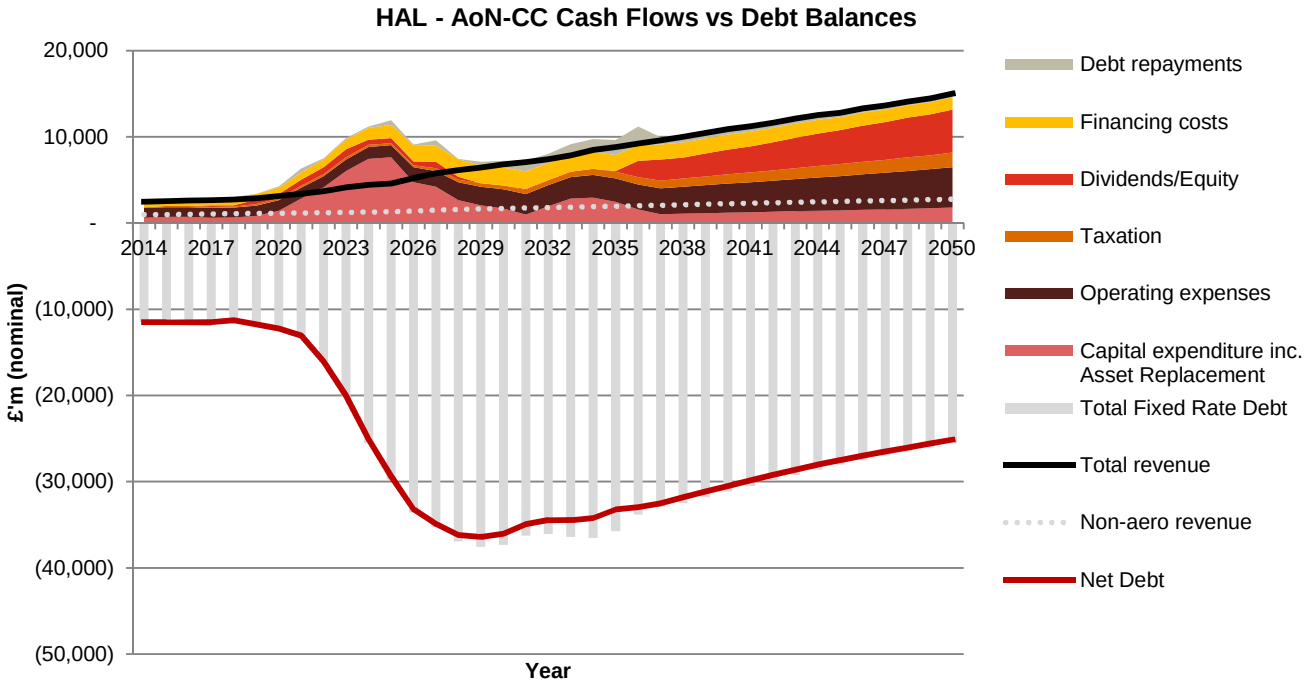
Sources: Financial models

The increase in debt and equity required for each scenario reflects the availability of debt, given the credit rating restrictions, over the assessment period. Debt, to the extent available, is always drawn ahead of equity. In early periods, there is a greater restriction on the quantum of debt that can be drawn.

Demand scenarios with greater capex during the early stages of the assessment period, such as GG-CT, are therefore unable to draw as much debt. In later stages, capex can be funded by a greater proportion of debt.

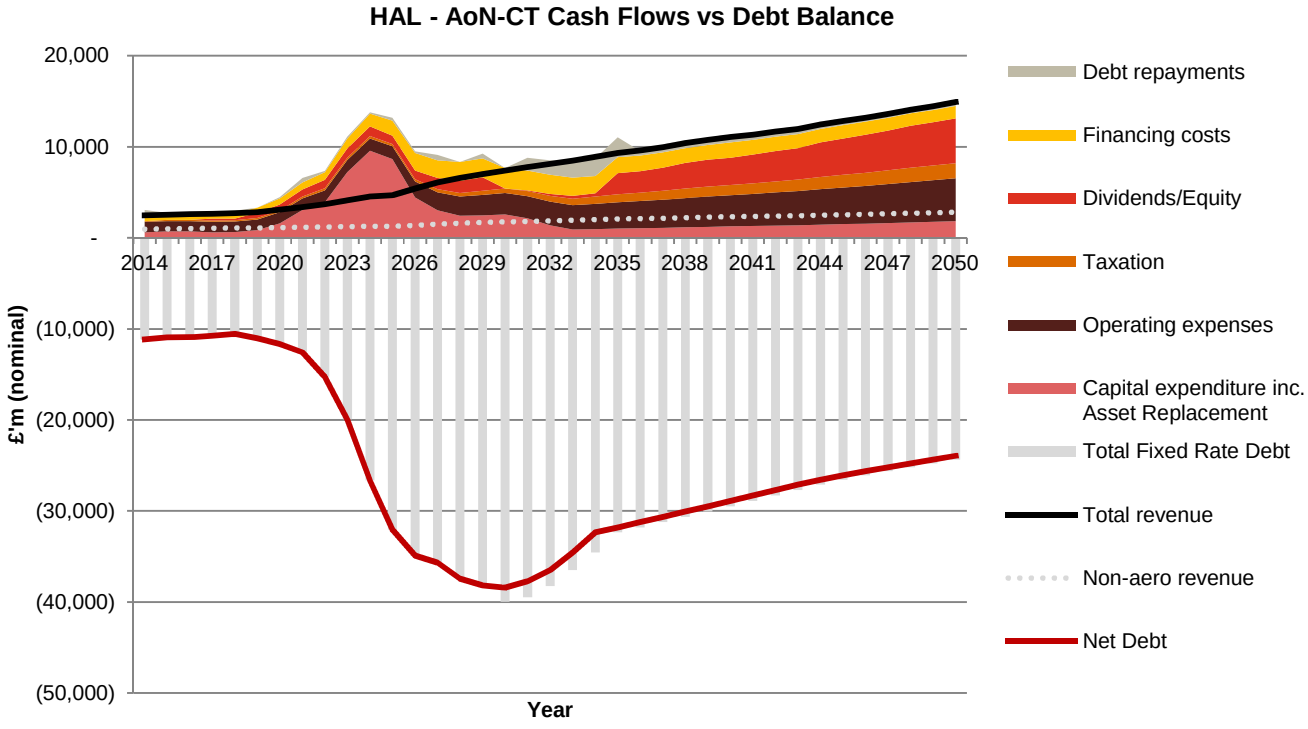
Charts 28 to 31 show the different cash flows and debt requirements for each demand scenario.

Chart 28: HAL – AoN-CC Cash Flows vs Debt Balance



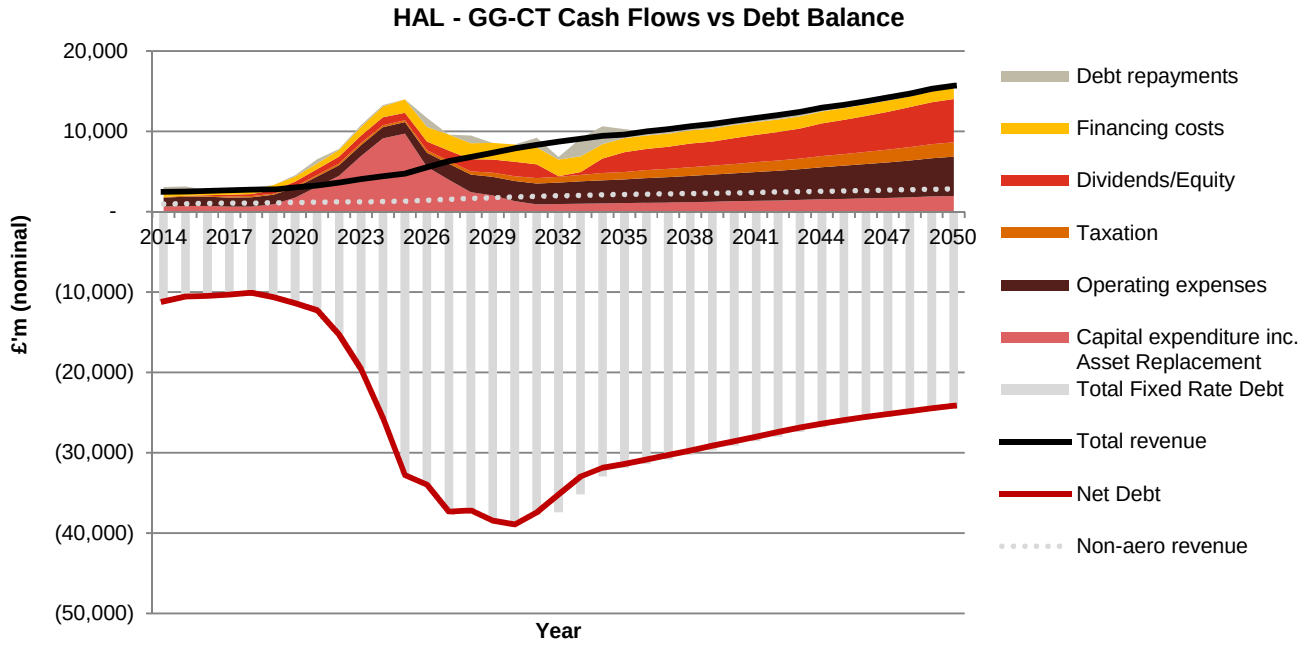
Sources: LeighFisher, Financial models

Chart 29: HAL – AoN-CT Cash Flows vs Debt Balance



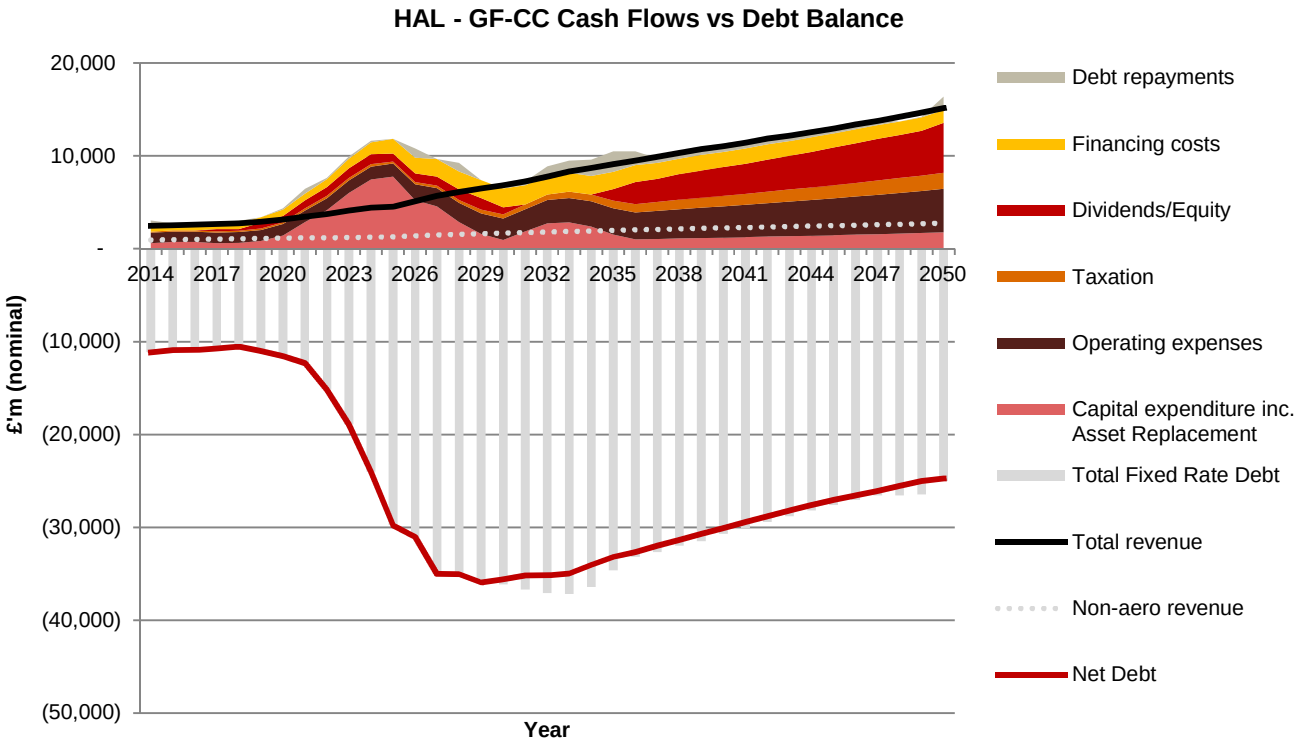
Sources: LeighFisher, Financial models

Chart 30: HAL – GG-CT Cash Flows vs Debt Balance



Sources: LeighFisher, Financial models

Chart 31: HAL – GF-CC Cash Flows vs Debt Balance



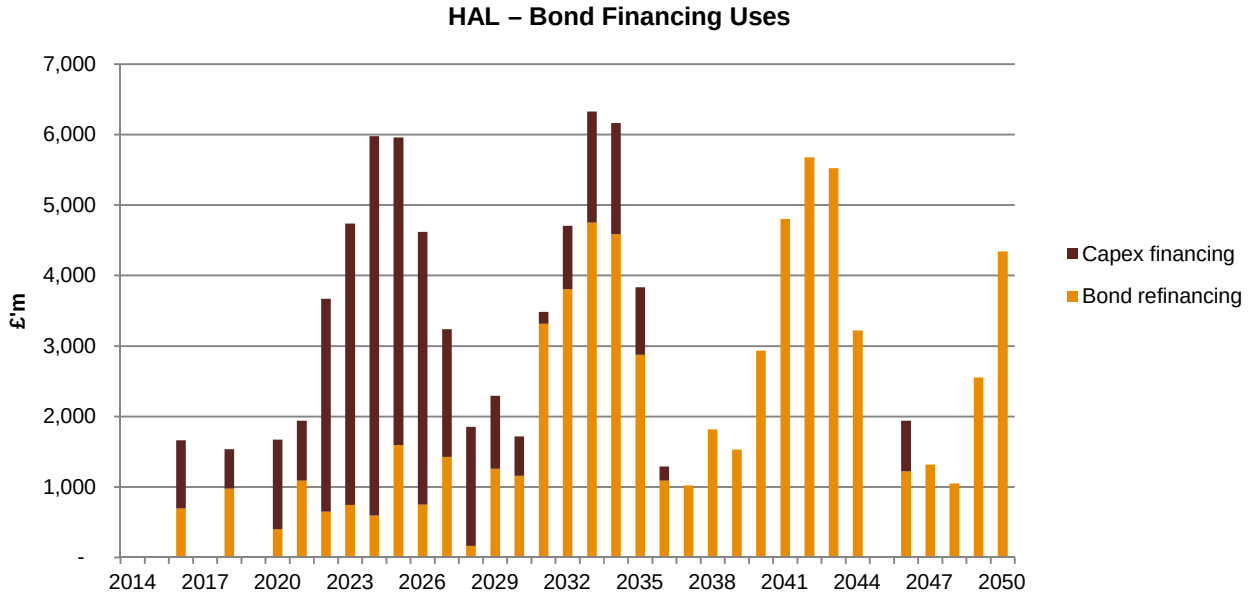
Sources: LeighFisher, Financial models

3.4.7 Financing implications

The LHR NWR scheme could require an increase to the maximum debt and equity outstanding in the order of £29.9bn and £8.4bn respectively. Furthermore, in order to refinance bonds as they reach their scheduled maturity, HAL would need to access a significant amount of financing over the assessment period to 2050, as shown in Chart 32.

It is unlikely that the GBP bond market alone would have sufficient liquidity to fund this scheme. Therefore, HAL would likely need to issue bonds in a number of different currencies to access such liquidity as well as access to foreign exchange hedging instruments. It is noted that HAL's bond programme currently includes GBP, USD, EUR, CAD and CHF bonds.

Chart 32: HAL – Bond Financing Uses



Sources: Financial models

The quantum of debt and equity financing required for the HAL proposal should be considered in the context of the wider debt and equity markets. The scheme could put HAL on a similar scale to Network Rail (with long-term debt of c. £35bn) and beyond that of National Grid (c. £25bn), both of which also operate in regulated environments. It should be noted, however, that the LHR NWR scheme is a single infrastructure project compared with the incremental enhancements made to an already significant network of assets for Network Rail and National Grid. The LHR NWR scheme also increases HAL's debt balance to a similar level of that of BP, which holds the largest debt balance of any UK corporate (excluding financial entities) with c. £40bn in long-term debt[13].

Of these comparable entities, Network Rail's outstanding debt is guaranteed by the UK government. This guarantee made it easier for Network Rail to access a large quantum of financing. From April 2014 Network Rail has borrowed directly from the UK Government rather than issuing debt in its own name. The LHR NWR scheme would also create an asset base that should be considered alongside a number of other regulated markets, including water (c. £60bn[14]) and rail (c. £50bn[15]).

[13] Bureau van Dijk, 13th October 2014
[14] www.ofwat.gov.uk
[15] Network Rail 2013 Regulatory Financial Statements

Furthermore, the total size of investment grade bonds issued by UK corporates in 2013 was c. £46bn (2014, to date: £37bn)[16].

While the financing for the HAL scheme is to be raised over an extended period, this includes around £28bn from 2022 to 2027 and just under £25bn from 2031 to 2035. In any given year the debt funding requirement peaks at around £6bn, or 13% of the 2013 total bond issuances; much larger than the biggest individual bond issue by a UK corporate since 2013 (around £3.5bn issued by Vodafone, which also has an A- credit rating)[16]. A list of all UK corporate bond issuances over £1.5bn since the beginning of 2013 can be found in Appendix 4.

A major challenge for Heathrow relates to the quantum of finance required. The scale of the finance to be raised will mean that the financing will have to command returns sufficient to attract a wide range of investors and be structured in a way to ensure it is of sufficient credit quality.

In order to place the quantum of equity required by the scheme, the actual rate of return may prove to be different to the 9% nominal, pre-shareholder tax rate of return assumed in this report. Similarly, the actual gearing of the company and level of investment grade debt available would only be determined at the time. Both could only be ascertained once the project risks, regulatory structure, prevailing costs and revenue forecasts and likely levels of demand are better understood.

The ability of HAL's existing investors to meet the full equity requirement or their strategy to broaden the shareholder base would need to be considered. The LHR NWR scheme requires dedication of large amounts of both debt and equity capital by individual investors and any concentration restrictions would need to be considered. The appetite and capacity of investors (both existing and new) would be an important factor in determining the price at which financing is available.

The AC's forecast scenarios do not suggest a high level of demand risk. It is important to note, however, that the projected weighted average aeronautical charges range from £27 to £31 per passenger for the assessment period would represent a significant increase from current levels and would be high relative to other global and European comparators.

All of the above puts the LHR NWR scheme at the highest end of the range of financing for infrastructure projects and is unprecedented for privately financed airports. Achieving such levels of financing would likely be challenging and very much dependent on the factors outlined above. Furthermore, accessing such a quantum of capital may have an impact on the pricing of both debt and equity. Consultation may inform further analysis of the market capacity and appetite for such levels of financing, including debt, equity and any subsequent hedging requirements.

[16] Thomson Reuters EIKON, 10th October 2014

4 Heathrow Airport Extended Northern Runway

4.1 Introduction

This section considers the funding and financing arrangements for HAL to deliver the LHR ENR scheme as part of the existing corporate entity. Four demand scenarios have been considered in this analysis as well as a number of sensitivities based on one of these scenarios (AoN-CC).

The HHL proposal assumes the scheme would be sold to, and subsequently financed by, Heathrow Airport Limited. Therefore, the existing funding structure is the same as that for HAL's proposal. The possible cost of HAL purchasing the HHL scheme has not been included in this analysis.

To explain the analysis in this report, a step by step build-up of the AoN-CC scenario is provided:

- Existing airport financing structure;
- Proposed scheme financing;
- Proposal assessment – used to derive aeronautical revenues, which incorporates:
  - Non-aeronautical revenue assumptions;
  - Cost assumptions; and
  - Financing.

Aeronautical revenues are used to generate an aeronautical charge per passenger profile over the assessment period. The assessment looks at how this profile varies over a range of demand scenarios and sensitivities and considers the financing implications.

Except where noted otherwise, this report therefore details the AoN-CC scenario. The costs and non-aeronautical revenues include risk and mitigated OB. For the avoidance of doubt, this is not considered as a central case.

4.2 Existing airport financing structure

The proposal by HHL assumes that HAL would corporately finance the scheme. The following table summarises the AC's understanding of HAL's existing financial structure. Further detail on the existing financing arrangements including ownership structure is detailed in '13. Cost and Commercial Viability: Literature Review'.

Table 18: Heathrow Airport's existing financial structure

Feature	Commentary
Financing Structure	• Current debt consists of: - c. £11.7bn made up of multiple bonds consisting of Class A Bonds (rated A-) and Class B bonds (rated BBB). HAL has also indicated that a small amount relates to Class C bonds (rated BB). Bonds are issued in GBP, USD, EUR, CAD, CHF over a range of tenors; fixed-rate, index-linked and zero-coupon bonds. Around 60% maturing by 2024; and - £275m of Class A and Class B revolving credit facilities. • Equity of c. £2.7bn (ordinary share capital). • Senior credit rating: A-. • Financial Gearing of c.80%. • Debt to Asset Base Gearing of c. 80%
Aeronautical Charges	• Q6 average charge per passenger of c. £20.

Feature	Commentary
Regulatory WACC	• Q6 WACC of 5.35% (pre-tax, real)[17].
Revenues	• Total £2.5bn (year end 31 December 2013) - Aero £1.5bn - Non-aero £1.0bn
RAB	• £14,585m as of 31 December 2013

Sources: Financial accounts, HAL Management

4.3 Proposed scheme financing

Table 19 outlines the financing structure for the LHR ENR scheme assumed in this report.

Table 19: LHR ENR assumed financing

Feature	Assumptions
Financing Structure	• LHR ENR scheme sold to HAL and incorporated within HAL's financial structure. • HAL's existing financing strategy extended to cover funding requirements subject to maintaining its current senior credit rating of A-. • Debt funding is the maximum allowable within the credit rating constraint. • Asset replacement costs are funded through operating cash flow. • A £1bn RCF is available to provide liquidity between bond issues. • The RCF is refinanced with periodic senior corporate bonds with an A- credit rating. These bonds: - Have a 9 year tenor; - Are issued in a single currency; - Are priced at 175bps above the underlying 10 year gilt forward curve; and - Have an issuing fee of 0.65%. • Equity requires a blended cash nominal return (pre-shareholder tax) over the assessment period of 9%.
Other	• Public funding available for the full surface access costs. A sensitivity has also been run with no public funding to demonstrate the range of impacts to the SP.

Sources: Financial models

This approach has been informed by the approach identified by HHL within its financing proposal submitted in May 2014 and discussions between the AC and the SP. This is outlined in Table 20.

Table 20: HHL's financing proposal

Feature	Commentary
Financing Arrangement	• HHL's proposed scheme to be predominantly financed corporately by Heathrow with some government support. However, no discussions have been undertaken with HAL on the financing strategy. • HHL assumes that HAL would finance the construction using a combination of syndicated non-recourse loans and bond finance. HHL indicates engagement

[17] http://www.caa.co.uk/docs/33/CAP1151.pdf

Feature	Commentary
	with the EIB would be a possibility for short term debt finance. • Equity raised through infrastructure, pension and sovereign wealth funds.
Estimated impact on aeronautical charges	• Increase charges from £19.10 per passenger (per end of Q6 settlement in 2018/19) to £22 per passenger (in 2011/12 prices) by 2023.
Other	• HHL proposes to use the current RAB based approach to finance the expansion. • Assumes core airport infrastructure (excluding HHL interchange and wider rail infrastructure improvements) will be financed by HAL using the existing RAB model. • HHL has assumed a Weighted Average Cost of Capital (WACC) of 5.4%. • HHL notes that the Q6 settlement provides benchmarks for the WACC and average cost of debt but consideration will be needed as to what extent these benchmarks will remain valid for the proposed scheme. • The Hub station element could be fully/partially incorporated into the airport RAB or fully/partially developed and operated by HHL. • Government funding is assumed to fund at least part of the wider rail infrastructure improvements but they note that they have identified areas of committed expenditure for future rail enhancements, which would no longer be required under their proposals, thereby offsetting the overall costs.

Sources: HHL Financing Proposal, May 2014

4.4 Proposal assessment

The following section outlines the revenue, cost and financing assumptions underpinning the AC's assessment of the LHR ENR proposal. Four demand scenarios have been considered in this analysis as well as a number of sensitivities based on one of these scenarios (AoN-CC). The detailed cost and non-aeronautical revenues assumptions can be found in '13. Cost and Commercial Viability: Cost and Revenue Identification Heathrow Airport Extended Northern Runway'.

4.4.1 Non-aeronautical revenue assumptions

This section provides a summary of the AC's non-aeronautical revenue assumptions for the LHR ENR scheme including HHL's non-aeronautical revenue estimate based on HHL's passenger demand scenario.

Non-aeronautical revenues are revenues from services provided by the airport, such as car parks, retail and property rental, which do not relate to the aeronautical services. The AC has calculated non-aeronautical revenues for the airport to include the additional non-aeronautical revenues which are earned from the implementation of the LHR ENR scheme and the non-aeronautical revenues earned from existing airport operations for years 2014-2050.

A detailed explanation of the AC's methodology and assumptions used in calculating non-aeronautical revenues is available in '13. Cost and Commercial Viability: Cost and Revenue Identification Heathrow Airport Extended Northern Runway'.

In summary, the approach used by the AC in calculating non-aeronautical revenues is an elasticity based approach. In applying this approach, the AC first had to establish the non-aeronautical revenue categories for the airport such as retail and property rental. An appropriate 'revenue driver' (e.g. passenger numbers/ Terminal space) was then applied to each category to which a degree of elasticity is assumed.

For instance, the non-aeronautical revenues generated from property rental (e.g. airline lounges) is driven by the size of the terminal where an elasticity of 20% was applied. In this example, it is assumed that the revenues generated from property rental would increase by 20% for a given increase in terminal size.

This elasticity based approach was used to calculate the base revenues to which risk and optimism bias is applied. The AC has included risk and optimism bias in their calculation of non-aeronautical revenues to account for the systematic tendency for the actual revenues received to be lower than forecasted. The AC has assumed a reduction in the real compounded growth rate of -0.5% for risk and -0.5% for OB.

In providing another view of non-aeronautical revenues, the AC also presents the scheme promoter's non-aeronautical revenues in this section.

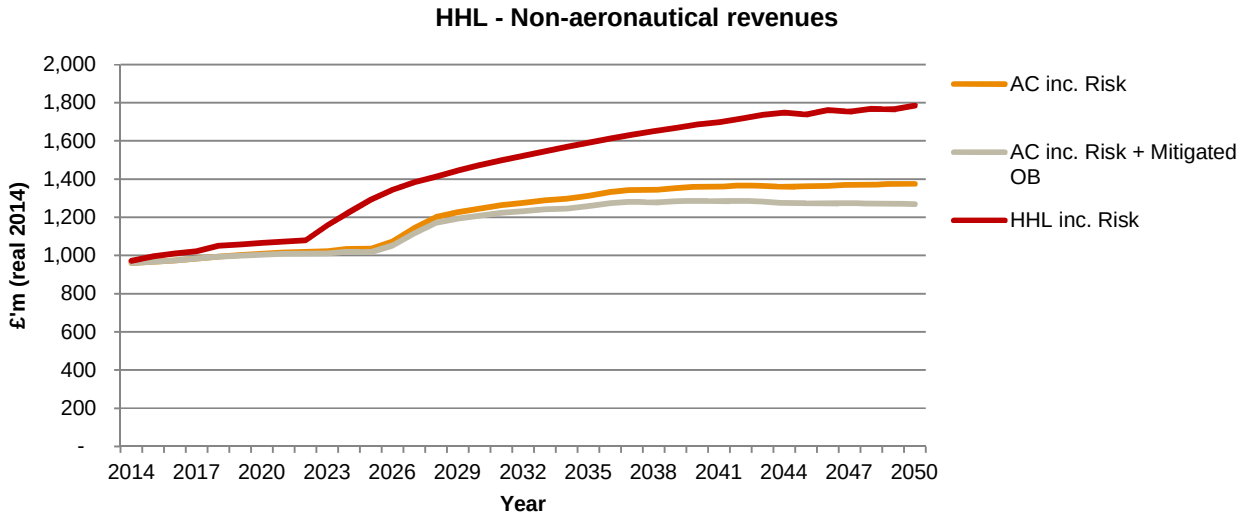
Chart 33 presents two cases of the AC's non-aeronautical revenues as well as HHL's view of non-aeronautical revenues. Note that the AC's revenues are based on the AoN-CC passenger forecast and HHL's revenues are based on their own passenger forecast.

Table 21: HHL – Non-aeronautical revenues

£'m	Real (2014 prices)	Nominal	NPV (2014)
AC assumptions			
Inc. risk	44,742	68,420	24,609
Inc. risk and mitigated OB	43,049	65,554	23,891
HHL assumptions	53,506	83,351	28,720

Sources: LeighFisher, Financial models

Chart 33: HHL – Non-aeronautical revenues



Sources: LeighFisher

The AC's revenue profiles display noticeable increases in 2026. This coincides with the opening of the new third runway which allows for higher passenger capacity in the airport. It is assumed that this higher passenger capacity will drive increased traffic through the airport increasing non-aeronautical revenues.

As seen in Chart 33, the large increase in HHL's non-aeronautical revenues occurs in 2023 to coincide with start of operation of HHL's runway extension by HHL's estimates.

The difference between the AC's forecast of total non-aeronautical revenues, £43,049m when compared to HHL's estimate of £53,506m is due mainly to:

- The difference in elasticity assumptions applied by the AC and HHL;
- The difference in revenue growth rate assumptions applied by the AC and HHL;
- The AC's inclusion of OB (HHL does not include OB in its assessment); and
- The difference in risk assumptions applied by the AC and HHL.

4.4.2 Cost assumptions

This section presents a summary of the assumed costs. Please refer to '13. Cost and Commercial Viability: Financial Modelling Input Costs' for further details.

4.4.2.1 Airport costs

The 'Heathrow Hub', the multi-modal and passenger terminal, which was previously parts of the LHR ENR scheme will now be reviewed separately, as a detachable element of the scheme and hence is not considered in this report.

Since HHL has assumed that the scheme will be taken on by HAL if selected, the AC has assumed that all core capex considered in this section will be identical to the core capex assumed for the HAL submission.

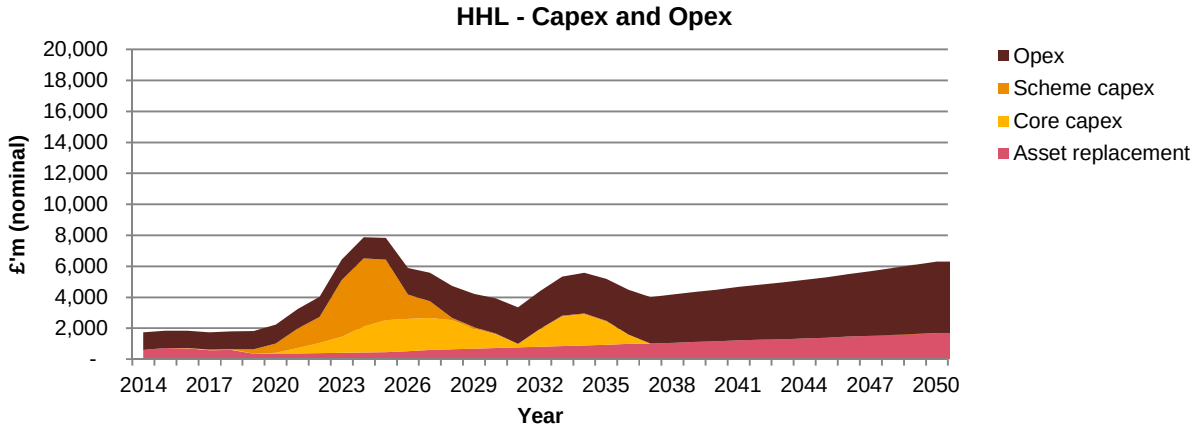
Table 22 summarises the scheme and core capex, asset replacement costs, as well as the operating costs over the assessment period.

Table 22: HHL airport costs

	Real (2014 prices)	Nominal
Scheme capex	13,539	19,025
Core capex	13,069	21,383
Asset replacement	16,535	33,274
Opex	49,631	92,943

Sources: LeighFisher

Chart 34: HHL – Capex and Opex



Sources: LeighFisher

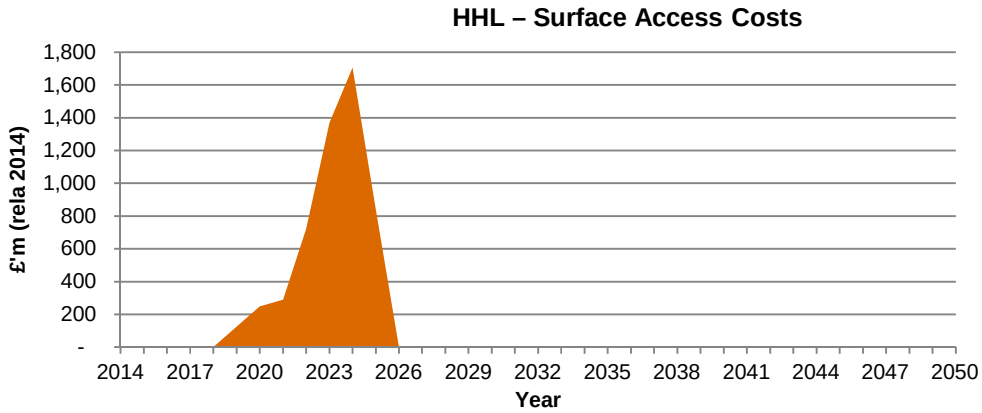
Scheme capex occurs from 2019 to 2035, with only minimal expenditure from 2028 onwards. Capex relating to the core airport occurs from 2016 to 2036 but peaks towards the latter stages of this period, creating the two

humped capex profile illustrated in Chart 34. This core capex relates to expenditure that could be expected to take place regardless of whether new runway capacity is developed at the airport. These costs are separate and distinct from the scheme capex.

4.4.2.2 Surface access costs

The LHR ENR scheme requires surface access expenditure estimated to be £6.3bn (real 2014). Further details on these costs can be found in '13. Cost and Commercial Viability: Financial Modelling Input Costs'.

Chart 35: HHL – Surface Access Costs



Sources: Jacobs

This expenditure could be funded from a combination of public and private sources. It would be customary for an SP to make a contribution to surface access costs. The AC has not taken a view on the level of contribution but has considered a range of possible outcomes in its analysis. A decision on the level and timing of a contribution would ultimately be made following discussions between the airport and the relevant public sector bodies. A sensitivity is included in section 4.4.4.1 to demonstrate what the impact of this would be.

4.4.3 Financing

With the exception of asset replacements costs, all capex is assumed to be funded by debt and equity. Asset replacement costs are funded by operating cash flows.

4.4.3.1 Debt

Debt financing is assumed to be in the form of fixed rate corporate bonds. Assumed pricing has been determined using the implied forward curve for 10 year gilt rates. A corporate spread is then added to this curve to arrive at indicative pricing for each of the schemes. These spreads are based on recent market data for a range of comparable indices and corporates, including HAL's currently trading debt issues[18]. This analysis shows an average spread of approximately 125bps (rounded to the nearest 25bps). Examples of the indices and comparable corporates used for this analysis can be found in Appendix 3.

A premium of 50bps is then added to reflect the additional project risk introduced by the scheme, future market uncertainty and the typical additional cost associated with new bonds issues. HAL's bond pricing is therefore assumed to be 175bps above the forward curve for 10 year gilt rates.

It is assumed that the bond financing will be used to refinance periodic borrowings under a short term Revolving Credit Facility (RCF) which will be used to provide liquidity between bond issues. A similar approach is adopted for determining indicative pricing for HAL's RCF, except that an implied forward curve for 6 month LIBOR is used as the underlying rate.

[18] As at 25th September 2014.

The average spread for comparable, short-term debt with a credit rating of A- is approximately 100bps. A premium of 25bps is added to reflect projects risks to give indicative RCF pricing of 125bps above 6 month LIBOR.

4.4.3.2 Equity

Where credit rating requirements or financing covenants prevent bonds being issued, it is assumed any shortfalls in funding will be met by raising additional equity. 'Equity' could be provided in a number of different forms, such as subordinated debt and pure equity, and still provide the loss-absorbing capital required by senior lenders.

A key component of the overall cost of finance will be the return on equity required by the new investors. This required rate of return will reflect investors' perception of the construction risk being undertaken by the company, demand volatility and the regulatory environment in which the investment may be made.

In determining the rate of return likely to be required by investors, consideration has been given to a number of competing factors for HAL. In particular:

- Existing rates of return on equity seen in comparable airports and other utility sectors;
- The size of the proposed investment relative to the existing regulated asset base, recognising any phasing of construction, and therefore the level of cost uncertainty for the company;
- The Financial Gearing;
- The perceived level of demand risk;
- Perceived cost risk in the scheme (noting that the cost and non-aeronautical revenue assumptions in this report include risk and mitigated optimism bias);
- The nature of the existing investors in HAL and likely longer-term investors that might be introduced;
- The high level of competition and investor appetite for infrastructure assets. Such strong appetite can either mean that long-term, low-cost investors could be accessed at the outset or that investors with slightly higher return requirements can invest during the construction phase but realise their return through selling their holdings at a later date, with a capital gain, to investors with lower return requirements. This potential capital gain and therefore the consequential rate of return is not included in this report; and
- The regulatory environment within which the airport operates. This reflects the subsequent risks of the scheme, the protection that is afforded by the periodic regulatory reviews and the duty of the regulator to be mindful of the ability of the company to be able to finance its activities.

Given all of these considerations, the analysis assumes a 9% pre-shareholder tax nominal rate of return for equity. This is a target blended return based on cash flows over the assessment period. It is assumed that equity holders would seek an annual cash return. Where there are restrictions on distributions, for example during period of capex, the analysis may include periods of low or no dividend payments.

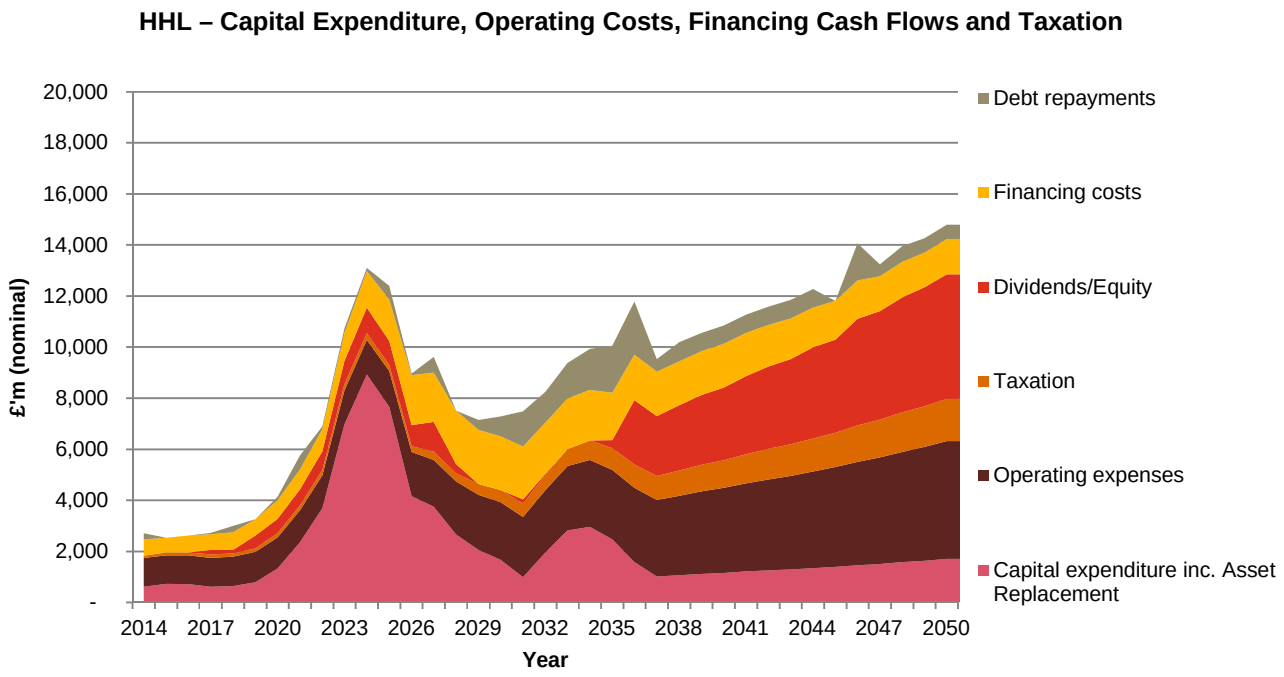
In reality, the return required by investors would only be determined at the point of investment. This return may prove to be different to the assumption in our models, once the project risks, regulatory structure, prevailing cost and revenue forecasts and likely levels of demand are better understood. Depending on the quantum required, a premium may also be required to ensure the equity can be placed in the market.

Alternatively, the scheme's cost of finance may be lower if it can attract long term equity finance from investors who consider the investment as low risk and that the finance is prudently structured. The precise regulatory and commercial structure will be important in ensuring its appeal to such investors. For instance, the regulator could pre-approve expenditure, removing the risk that it would not be allowable in the RAB, allow some pre-charging of expenditure (adding them to the RAB prior to the airlines benefitting from the expenditure), consider longer regulatory review periods or provide greater certainty that capex will be accepted on to the RAB before expenditure is incurred.

A sensitivity has been run to assess the impact of a 100bps movement in the equity return. Please see section 4.4.4.1 below.

The inclusion of financing costs, as well as taxation, to Chart 34 gives the profile in Chart 36.

Chart 36: HHL – Capital Expenditure, Operating Costs, Financing Cash Flows, and Taxation

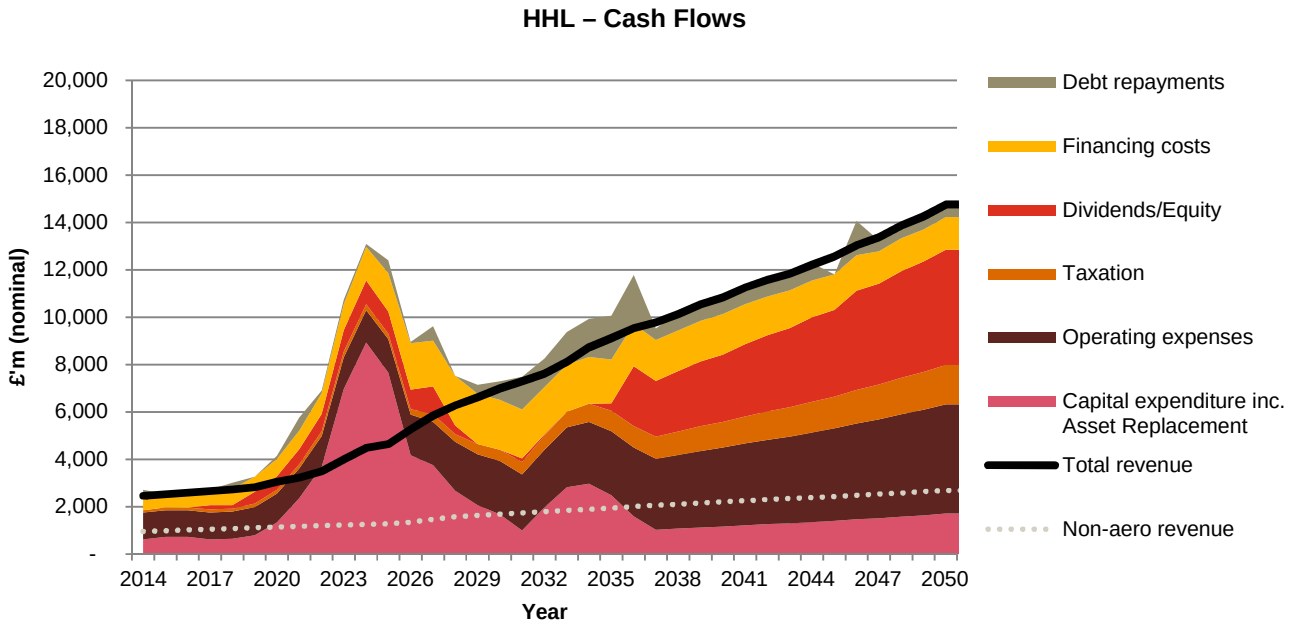


Sources: LeighFisher

4.4.4 Revenue

Total revenue for the airport is a combination of non-aeronautical (£65,554m nominal) and aeronautical revenues. This total revenue is required to meet the operating and financing costs of the airport, as demonstrated in Chart 37.

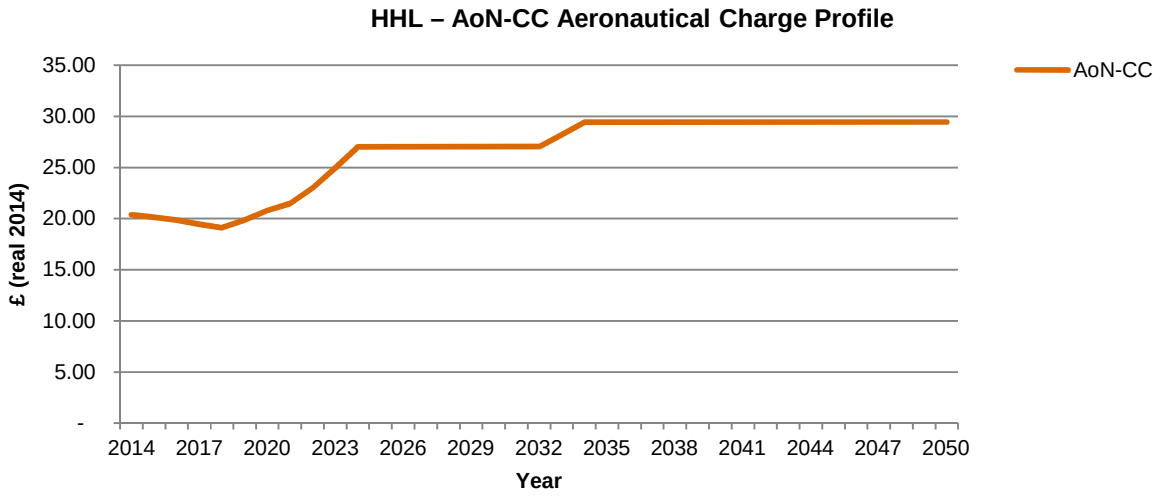
Chart 37: HHL – Cash Flows



Sources: LeighFisher, Financial models

The aeronautical revenues portion of total revenue is £204,848m (nominal) over the assessment period. The real aeronautical charge per passenger, as shown in Chart 38, reaches £29.43 following the second peak in capex in 2034. The average charge per passenger (weighted by number of passengers) is £27.17 from 2014 to 2050.

Chart 38: HHL – AoN-CC Aeronautical Charge Profile

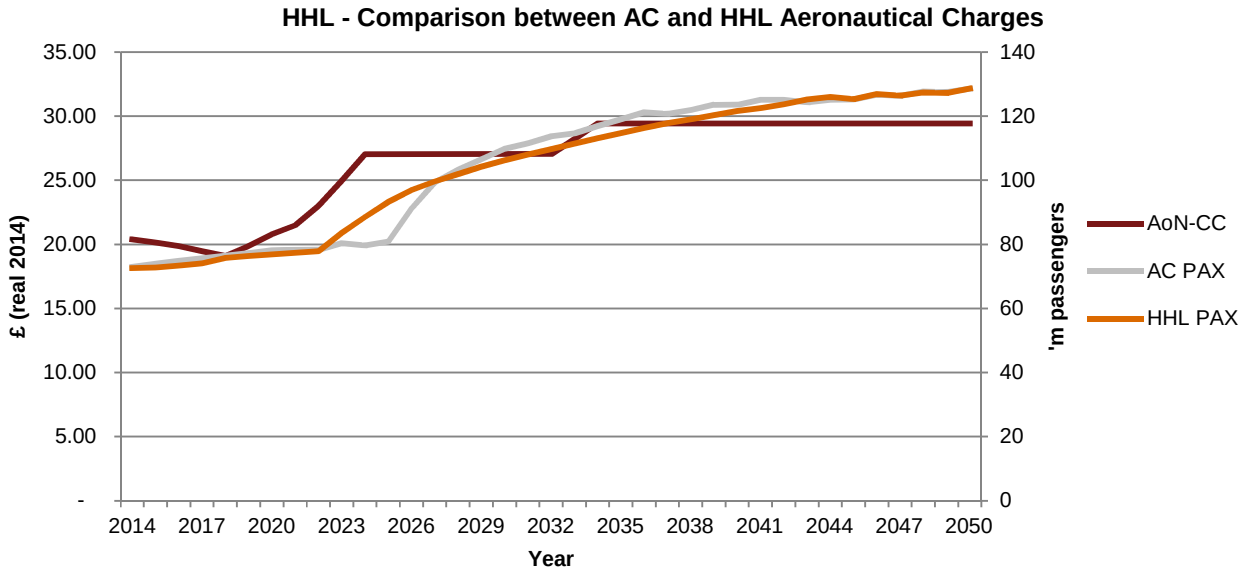


Sources: Financial models

The AC forecast of aeronautical charges per passenger is higher than those made by HHL despite the AC's and HHL's passenger demand forecasts are very similar, as shown in Chart 39. This is primarily due to differences in the assessment of cost (see report '13. Cost and Commercial Viability: Financial Modelling Input Costs').

There are two step increases in the aeronautical charges per passenger profile reflecting the two expansion phases of the LGR ENR. The first peak in the charges in 2024 is due to high capex on major terminal and third runaway works whereas the second peak in 2034 is attributed to further development such as car park works, satellite and other items.

Chart 39: HHL – Comparison between AC and HHL Aeronautical Charges



Sources: Financial models

An aeronautical charge profile was not included in the LHR ENR proposal, however it was stated that the peak charge would be around £22.00.

4.4.4.1 Aeronautical charge sensitivities

There is an inherent degree of uncertainty over a number of factors which might impact the actual aeronautical charge, including the precise capital and operating costs, the cost of finance and changes in passenger numbers.

A range of possible outcomes has been considered by running a number of high level sensitivities to show the impact on aeronautical charges of specified assumption changes. These sensitivities assume that those changes are known at the outset and are therefore factored into the forecast aeronautical charges.

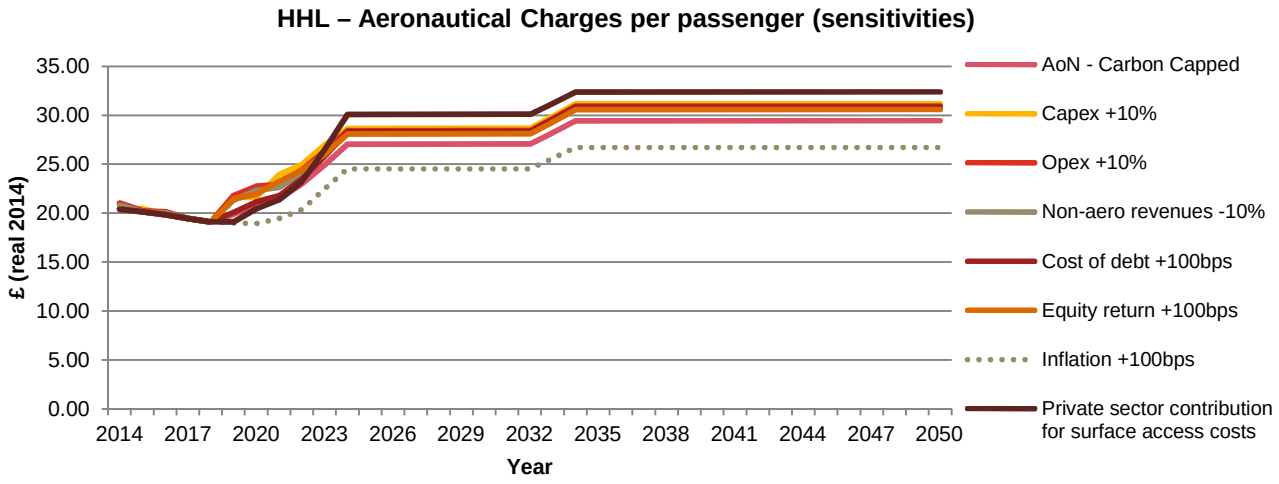
Table 23: HHL – Aeronautical Charge Sensitivities

Sensitivities	Weighted average aeronautical charge (£ real 2014)[19]	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
AoN-CC Scenario	£27.17	£29.43	£20.5bn	£32.2bn	£3.5bn	£6.1bn
Capex +10%	£28.72	£31.17	£22.4bn	£34.1bn	£4.7bn	£7.3bn
Opex +10%	£28.53	£30.93	£20.6bn	£32.3bn	£3.5bn	£6.1bn
Non-aeronautical revenues -10%	£28.24	£30.63	£20.6bn	£32.3bn	£3.6bn	£6.3bn
All-in cost of debt +100bps	£28.32	£30.84	£20.6bn	£32.3bn	£3.7bn	£6.4bn
Equity return +100bps	£28.20	£30.57	£19.4bn	£31.1bn	£3.0bn	£5.7bn
Inflation +100bps	£24.84	£26.71	£25.5bn	£37.2bn	£4.3bn	£6.9bn
Full private sector contribution to surface access costs	£29.57	£32.37	£26.4bn	£38.1bn	£4.3bn	£7.0bn

Sources: Financial Models

[19] For the duration of the assessment period (2014 to 2050).

Chart 40: HHL – Aeronautical Charges per passenger (Sensitivities)



Sources: Financial models

These sensitivity results demonstrate the variability in aeronautical charges per passenger. With the exception of the inflation sensitivity, all of these represent an adverse impact on the schemes and therefore require an increase in aeronautical charges per passenger. Conversely, if capex was reduced or non-aeronautical revenues were increased, for example, the opposite effect would be observed.

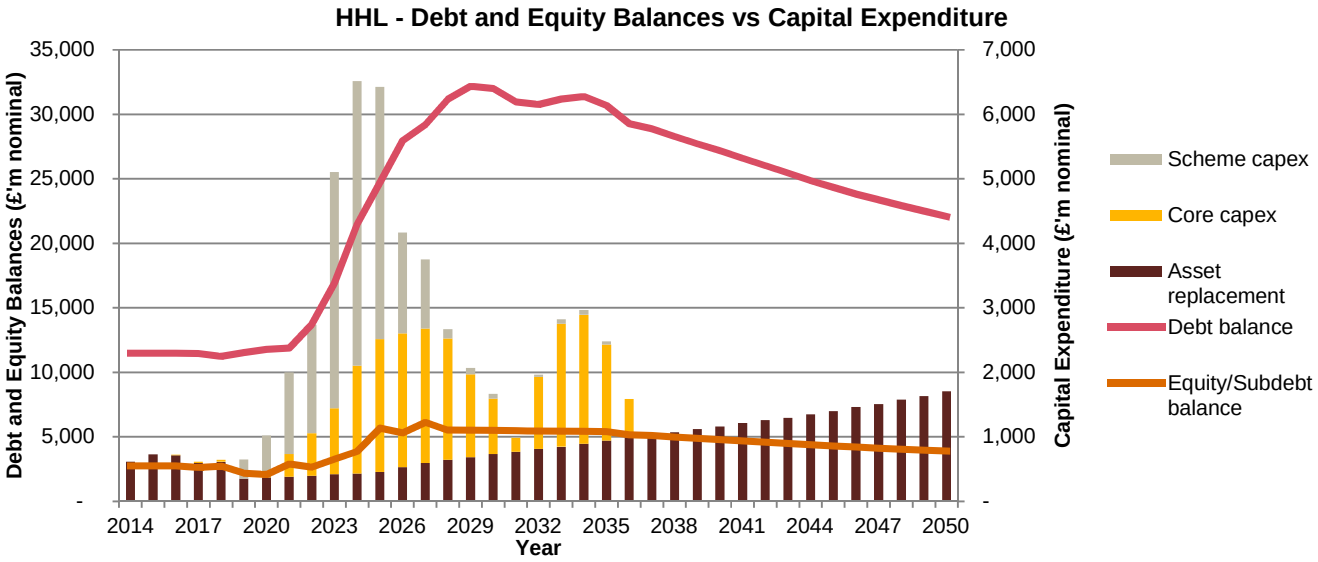
The decrease in aeronautical charges when increasing inflation by 100bps is due to the fact that the assumed debt structures do not include inflation-linked financing. Therefore, while the operating and construction costs change with inflation, the consequential financing costs do not. Aeronautical charges, which are subject to inflation, pay for both operating costs and financing costs and so a lower real charge is required with higher inflation.

Please see the section 5 for further details on the impact aeronautical charges may have on demand.

4.4.5 Funding requirement

Building a new runway at Heathrow will be a major undertaking. Currently, HAL has around £2.7bn in equity and £11.7bn in debt. The AoN-CC scenario suggests these may need to be increased by around £20.5bn for debt and £3.5bn for equity. Chart 41 shows the increase in debt and equity outstanding compared with the LHR ENR scheme's capex requirements.

Chart 41: HHL – Debt and Equity Balances vs Capital Expenditure



Sources: LeighFisher, Financial models

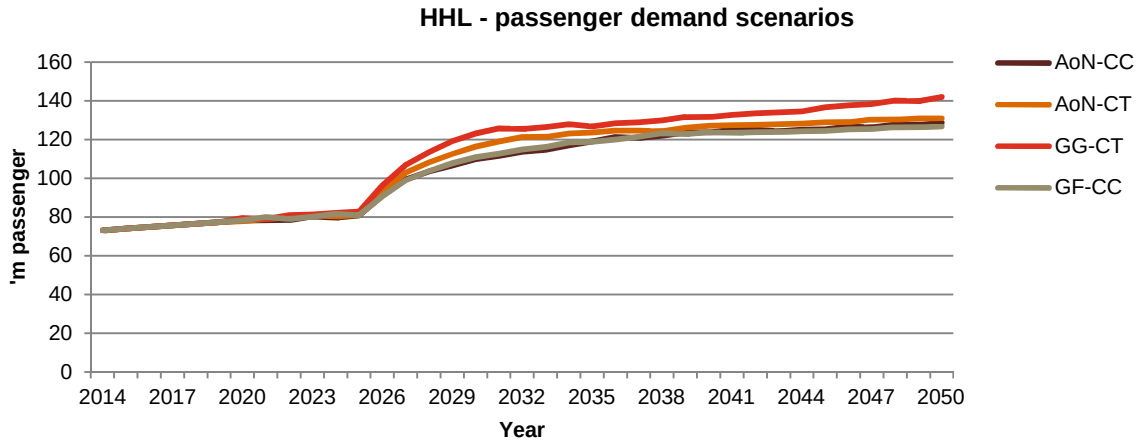
Throughout the assessment period, debt is repaid in line with the scheduled bond maturities. Following the main capex phase (excluding asset replacement), the total debt balance reduces over time.

As shown in Table 23, the required increase in debt and equity could be larger depending on a number of factors. As an example, the sensitivity with the largest increase (full private sector contribution to surface access costs) requires an increase to the maximum debt and equity outstanding balances by approximately £26.4bn (to £38.1bn) and £4.3bn (to £7.0bn) respectively.

4.4.6 Demand Scenarios

As well as considering sensitivities around the AoN-CC demand scenario, a further four demand scenarios have been analysed as part of this report.

Chart 42: HHL – passenger demand scenarios



Sources: LeighFisher

4.4.6.1 Aeronautical Charges

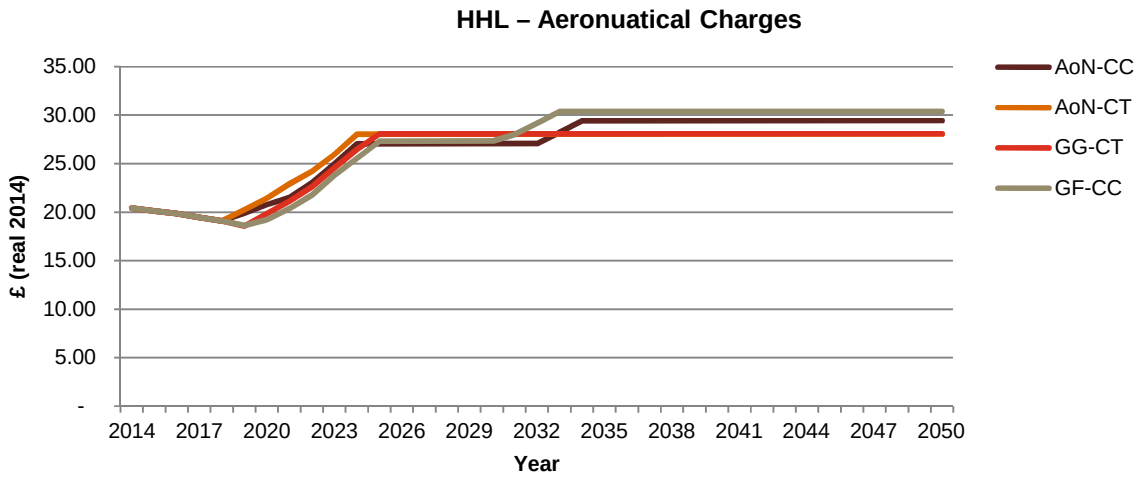
The indicative aeronautical revenues calculated for each of the four demand scenarios result in an estimated aeronautical charge per passenger profile over the assessment period. Table 24 and Chart 43 illustrate these profiles and the average (weighted by passenger volume) passenger charge for each scenario.

Table 24: HHL Demand Scenarios – Aeronautical Charges

£ real (2014)	AoN-CC	AoN-CT	GG-CT	GF-CC
Charge peak	£29.43	£28.04	£28.05	£30.38
Weighted average (2019-2050)	£27.95	£27.49	£27.32	£28.55
Weighted average (2014-2050)	£27.17	£26.76	£26.64	£27.70

Sources: Financial models

Chart 43: HHL – Aeronautical Charges



Sources: Financial models

These profiles demonstrate the impact that differing demand assumptions and timing of expenditure can have on the aeronautical charge profile. As an example, the GG-CT scenario requires the majority of capex to happen earlier and in a single phase. This results in an aeronautical charge profile that increases to a higher amount but does not require a second 'step'.

The estimated aeronautical charge profiles included in this report are dependent on the underlying assumptions and could therefore, in reality, be different for a number of reasons.

4.4.6.2 Debt and Equity

The four demand scenarios require the following quantum of debt and equity financing.

Table 25: HHL debt and equity financing requirement

	AoN-CC	AoN-CT	GG-CT	GF-CC
Debt requirement	£20.5bn	£23.4bn	£24.9bn	£21.3bn
Equity requirement	£3.5bn	£3.7bn	£5.1bn	£4.6bn

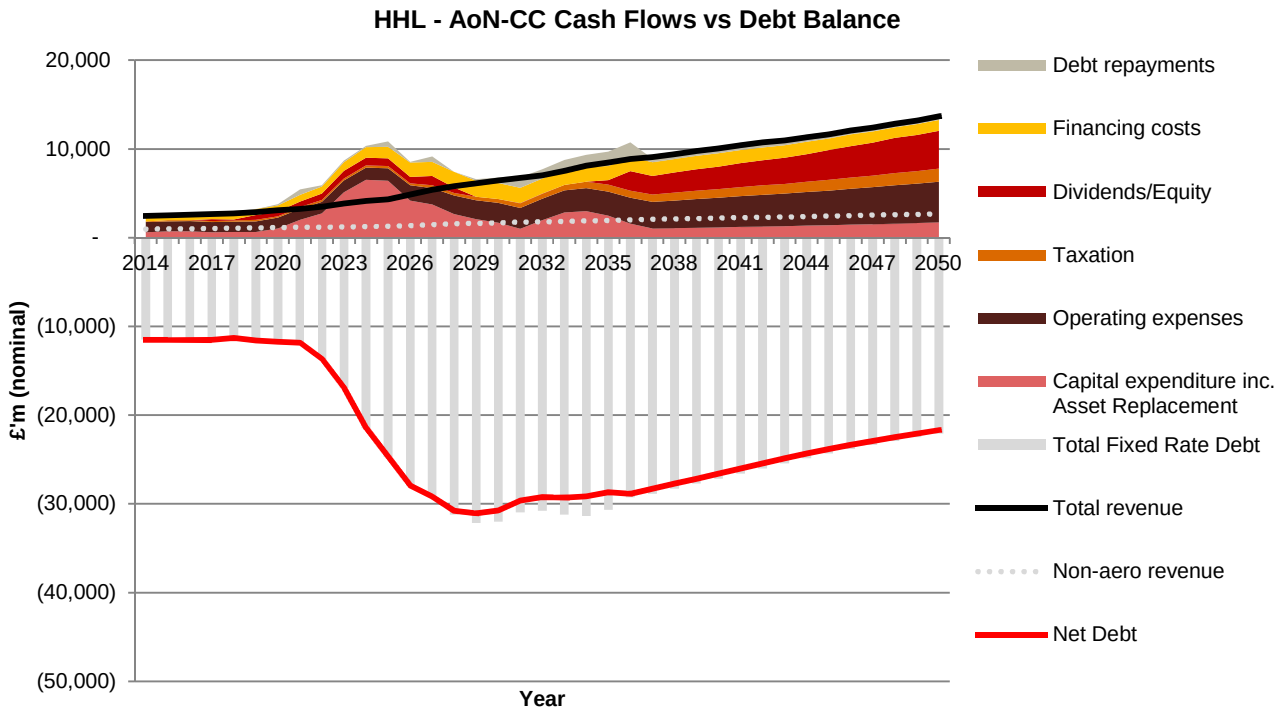
Sources: Financial models

The increase in debt and equity required for each scenario reflects the availability of debt, given the credit rating restrictions, over the assessment period. Debt, to the extent available, is always drawn ahead of equity. In early periods, there is a greater restriction on the quantum of debt that can be drawn.

Demand scenarios with greater capex during the early stages of the assessment period, such as GG-CT, are therefore unable to draw as much debt. In later stages, capex can be funded by a greater proportion of debt.

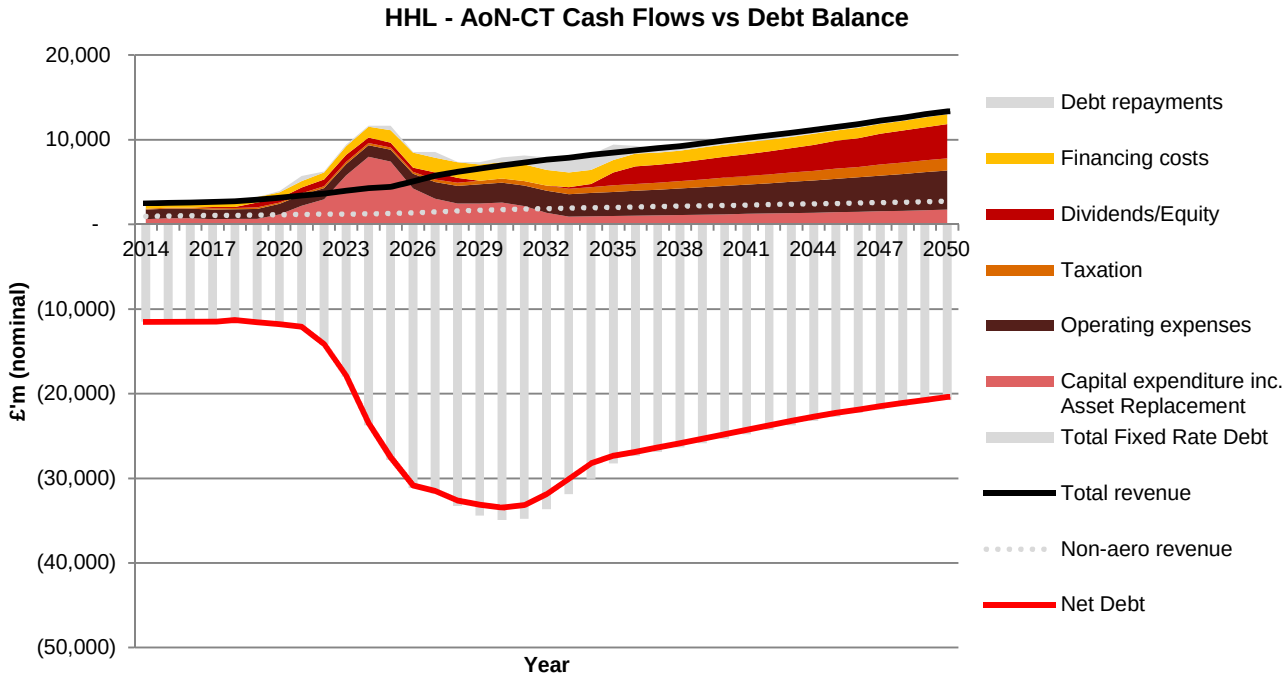
Charts 44 to 47 show the different cash flows and debt requirements for each demand scenario.

Chart 44: HHL – AoN-CC Cash Flows vs Debt Balance



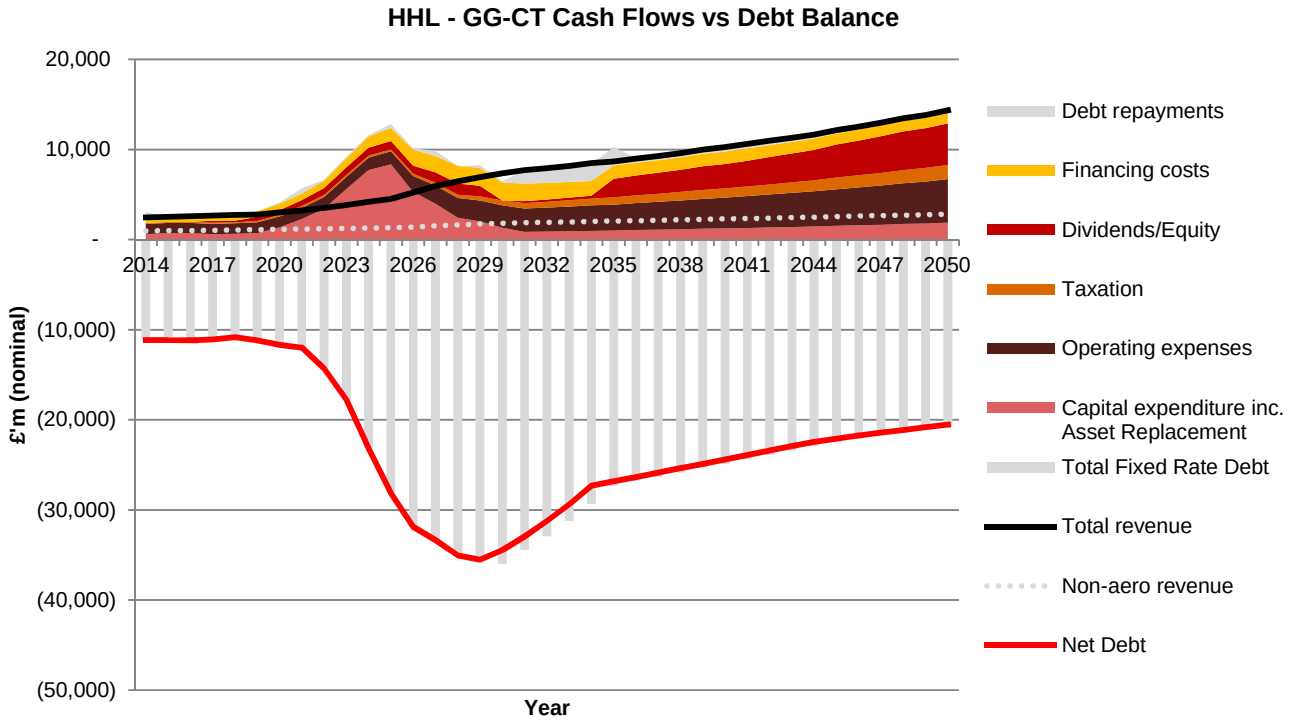
Sources: LeighFisher, Financial models

Chart 45: HHL – AoN-CT Cash Flows vs Debt Balance



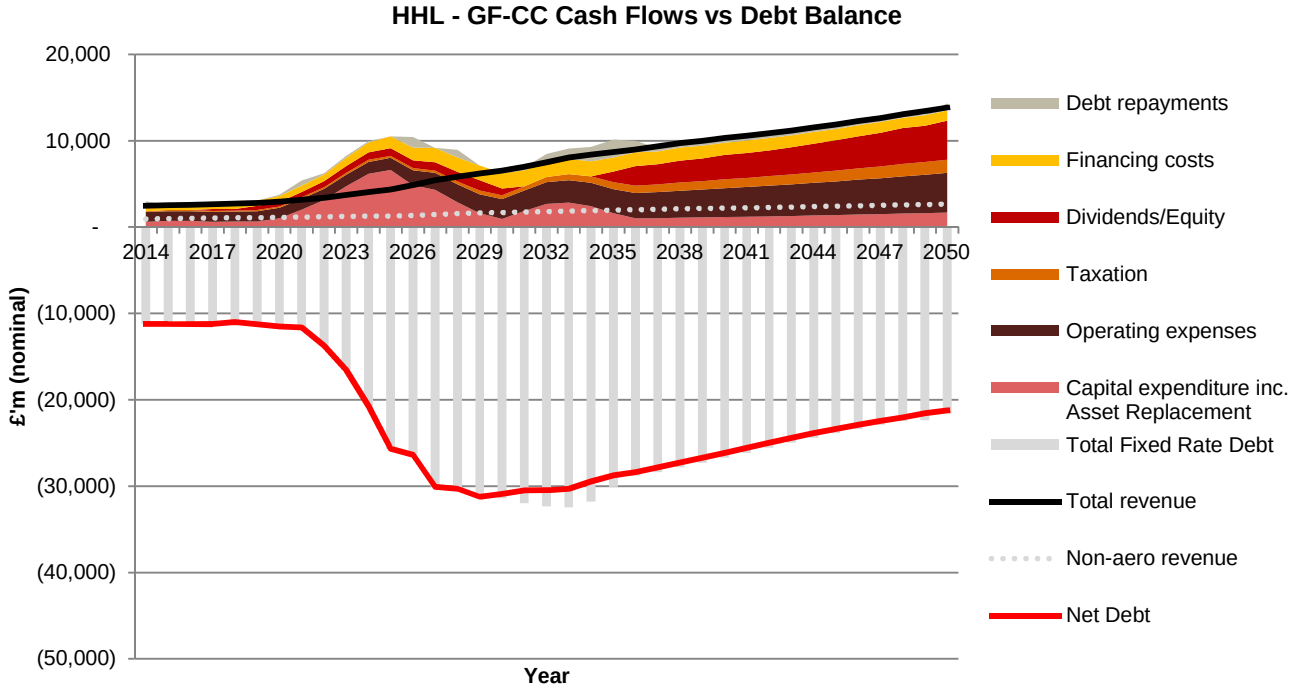
Sources: LeighFisher, Financial models

Chart 46: HHL – GG-CT Cash Flows vs Debt Balance



Sources: LeighFisher, Financial models

Chart 47: HHL – GF-CC Cash Flows vs Debt Balance



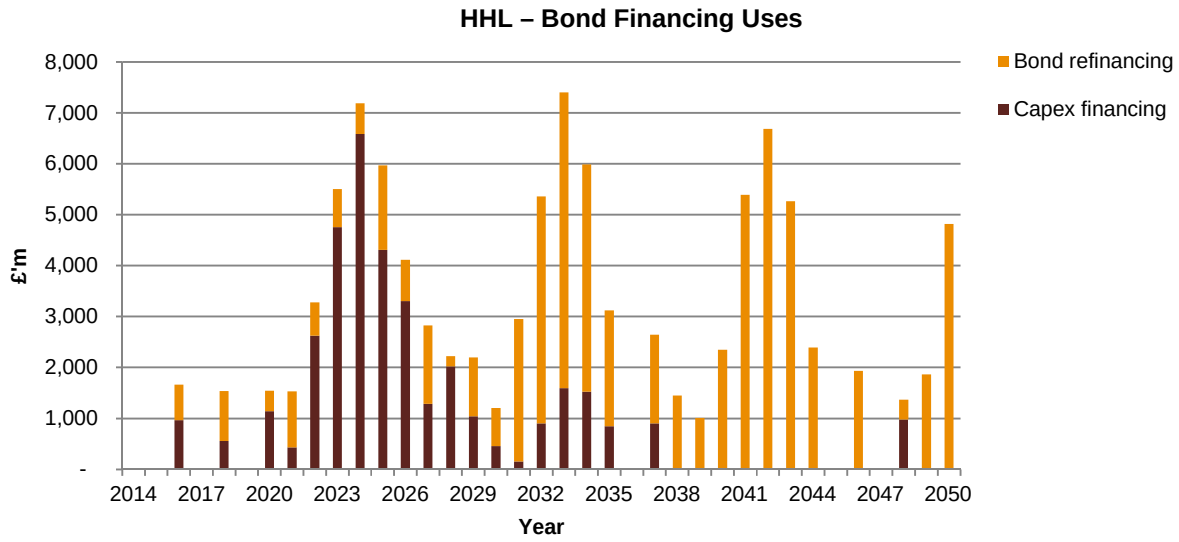
Sources: LeighFisher, Financial models

4.4.7 Financing implications

The LHR ENR scheme could require an increase to the maximum debt and equity outstanding in the order of £26.4bn and £5.1bn respectively. Furthermore, in order to refinance bonds as they reach their scheduled maturity, HAL would need to access a significant amount of financing over the assessment period to 2050, as shown in Chart 48.

It is unlikely that the GBP bond market alone would have sufficient liquidity to fund this scheme. Therefore, HAL would likely need to issue bonds in a number of different currencies to access such liquidity. HAL's bond programme currently includes GBP, USD, EUR, CAD and CHF bonds.

Chart 48: HHL – Bond Financing Uses



Sources: Financial models

This should be considered in the context of the wider debt and equity markets. The scheme could put HAL on a similar scale to Network Rail (with long-term debt of c. £35bn) and beyond that of National Grid (c. £25bn), both of which also operate in regulated environments. It should be noted, however, that the LHR ENR scheme is a single infrastructure project compared with the incremental enhancements made to an already significant network of assets for Network Rail and National Grid. The LHR ENR scheme also increases HAL's debt balance to a similar level of that of BP, which holds the largest debt balance of any UK corporate (excluding financial entities) with c. £40bn in long-term debt[20].

Of these comparable entities, Network Rail's outstanding debt is guaranteed by the UK government. This guarantee made it easier for Network Rail to access a large quantum of financing. From April 2014 Network Rail has borrowed directly from the UK Government rather than issuing debt in its own name. The LHR ENR scheme would also create an asset base than should be considered alongside a number of other regulated markets, including water (c. £60bn[21]) and rail (c. £50bn[22]).

Furthermore, the total size of investment grade bonds issued by UK corporates in 2013 was c. £46bn (2014, to date: £37bn)[23].

While the financing for the LHR ENR scheme is to be raised over an extended period, this includes around £28bn from 2022 to 2029 and over £20bn from 2031 to 2035. The debt funding requirement in any given year peaks at around £7bn. This is around 15% of the 2013 total bond issuances and larger than the biggest

[20] Bureau van Dijk, 13th October 2014
[21] www.ofwat.gov.uk
[22] Network Rail 2013 Regulatory Financial Statements
[23] Thomson Reuters EIKON, 10th October 2014

individual bond issue by a UK corporate since 2013 with a value of around £3.5bn (Vodafone: which also has an A- credit rating)[23] (a list of all UK corporate bond issuances over £1.5bn since the beginning of 2013 can be found in Appendix 4).

A major challenge for Heathrow relates to the quantum of finance required. The scale of the finance to be raised will mean that the financing will have to command returns sufficient to attract a wide range of investors and be structured in a way to ensure it is of sufficient credit quality.

In order to place the quantum of equity required by the scheme, the actual rate of return may prove to be different to the 9% nominal, pre-shareholder tax rate of return assumed in this report. Similarly, the actual gearing of the company and level of investment grade debt available would only be determined at the time. Both could only be ascertained once the project risks, regulatory structure, prevailing costs and revenue forecasts and likely levels of demand are better understood.

The ability of HAL's existing investors to meet the full equity requirement or their strategy to broaden the shareholder base would need to be considered. The LHR ENR scheme requires dedication of large amounts of both debt and equity capital by individual investors and any concentration restrictions would need to be considered. The appetite and capacity of investors (both existing and new) would be an important factor in determining the price at which financing is available.

The AC's forecast scenarios do not suggest a high level of demand risk. It is important to note, however, that the projected weighted average aeronautical charges range from £25 to £30 per passenger for the assessment period would represent a significant increase from current levels and would be high relative to other global and European comparators.

All of the above puts the LHR ENR scheme at the highest end of the range of financing for infrastructure projects and is unprecedented for privately financed airports. Achieving such levels of financing would likely be challenging and very much dependent on the factors outlined above. Furthermore, accessing such a quantum of capital may have an impact on the pricing of both debt and equity. Consultation may inform further analysis of the market capacity and appetite for such levels of financing, including debt, equity and any subsequent hedging requirements.

5 The aeronautical charge context

5.1 Introduction and Summary

This section is a high level analysis of whether forecast aero charges are likely to influence network decisions by airlines and therefore expose each option to demand risk. It is preliminary in nature and intended to provide context to the calculation of aero charges under different scenarios/sensitivities considered earlier in this report, which may lead to further discussion through the consultation process. Limitations with the analysis undertaken are in part due to restrictions on data available.

The high-level analysis suggests that:

1. The increase in aero charges from the Heathrow Airport Northwest Runway (LHR NWR) or Heathrow Airport Extended Northern Runway (LHR ENR) schemes could further entrench Heathrow's position as one of, and possibly the, most expensive airports (at least in terms of aero charges). The increase in aero charges from the Gatwick Airport Second Runway (LGW 2R) scheme would move it from being comparable to other European gateways towards something approaching Heathrow's current aero charges. It is important to note that this analysis:

    i. Is based on Airports Commission's calculation of aero charges (rather than those provided by the Scheme Promoters);

    ii. Should be viewed in the context that Heathrow is currently capacity constrained and while Gatwick has slightly lower levels of utilisation at present, the Commission's Interim Report also identifies that this would be similarly constrained by the mid-2020s; and

    iii. Assumes that aero charges at other airports remain constant in real terms, although whether this will occur in practice depends on a range of factors such as the employment and investment programmes of these other airports, their own competitive situations, and their own regulatory environments.

2. The Gatwick Airport Second Runway (LGW 2R) scheme could result in aero charges rising from 6.8% of average one-way fare (including APD) in 2013/14 to between 11.7% and 13.6% during the period of our analysis (assuming that the increase in cost is not passed through in the form of higher fares and that real fares remain constant). The Heathrow Airport Northwest Runway (LHR NWR) scheme could result in aero charges rising from 5.1% of average fare revenue in 2013/14 to between 6.7% and 7.8% during the period of our analysis (assuming that the increase in cost is not passed through in the form of higher fares and that real fares remain constant). The Heathrow Airport Extended Northern Runway (LHR ENR) scheme could result in aero charges rising from 5.1% of average fare revenue in 2013/14 to between 6.2% and 7.4% during the period of our analysis (again assuming that the increase in cost is not passed through in the form of higher fares and that real fares remain constant). It should be noted that in all cases, these increases in aero charges are larger than those suggested by the Scheme Promoters.

3. The impact of increased aero charges could be significant when considered in the context of operating margins of the airlines which use the airports. The schemes (LGW 2R, LHR NWR and LHR ENR, respectively) are likely to require aero charge funding in their first full year of operation that is equivalent to £270m, £1,180m and £970m (in 2014 prices) greater than is generated in 2014. The way in which this will be funded is likely to depend on a number of factors such as: the price elasticity of demand of passengers; the underlying efficiency of airlines; the commercial flexibility of the airports; government policy; and the operating models of different airlines. The analysis also suggests that aero charges as a proportion of fare revenue is larger for airlines which operate shorter average sector lengths.

4. Evidence from the case studies that we considered (in the Netherlands and Spain), as well as historic difficulties that Manchester and Stansted had in the past in pricing up to their then regulated price caps, suggest that the impact on demand of changes in aero charges can be significant. It should, however, be noted for the market conditions faced by the airports in the case studies will likely have been different those at Heathrow or Gatwick (now and during the period of our analysis).

5. The position on demand risk is finely balanced. On the one hand, current pricing is a relatively small component of overall fares, and the current demand levels might be expected to prompt a very limited demand response. On the other hand (e.g. based on the size of these charges compared to low margins

and evidence from case studies), demand risk may be more significant. This could be particularly important at Gatwick which currently caters for more low cost traffic (which might be assumed to be relatively price sensitive) and is currently in less of a state of excess demand than is Heathrow.

5.2 Comparison with current aero charges at UK and international airports

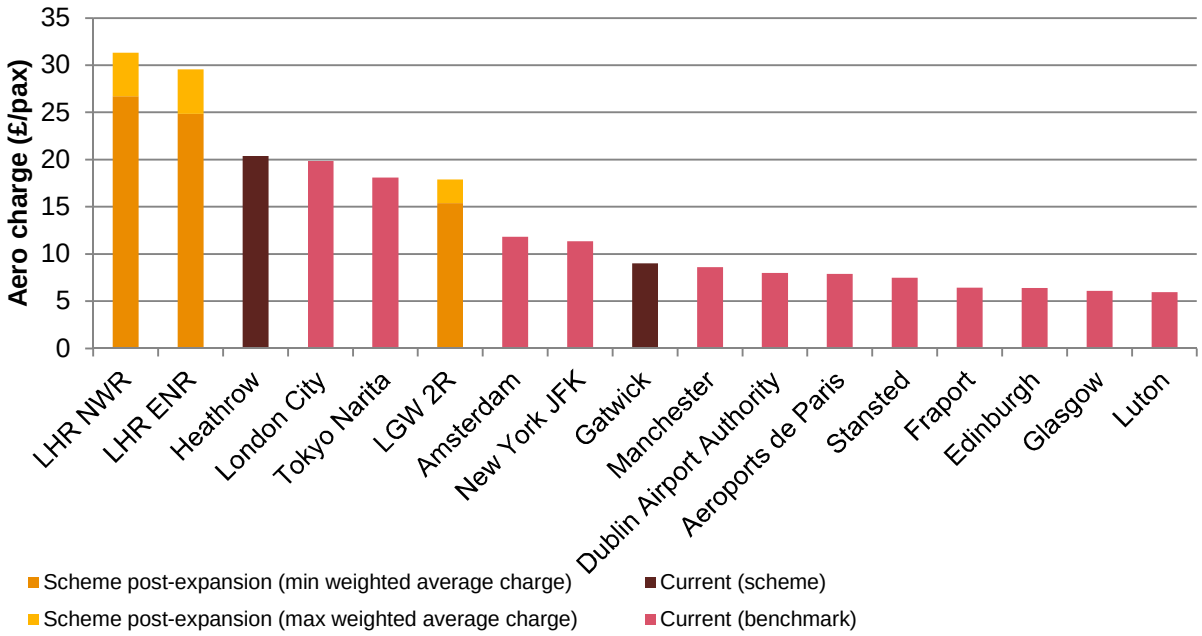
Chart 49 shows where aero charges at Gatwick and Heathrow lie relative to other comparable airports, with and without the relevant capacity expansion. The analysis is based on the range of weighted average aero charges for the assessment period (2014-2050) calculated by the Airports Commission (i.e. the weighted average charge calculated for each of the scenarios and sensitivities) rather than those provided by the SPs.

The analysis shows that:

1. Heathrow is already one, and arguably the, most expensive airport in terms of aero charges at airports within our sample. This position would be reinforced if the expansion were to be at Heathrow.
2. Gatwick is currently comparable to other European gateways but it moves toward the top if expansion were there.

It is important to note that this analysis assumes that other airports' charges remain constant in real terms, although whether this will occur in practice will depend on a range of factors such as whether or not these other airports also find it necessary to make investments, future passenger levels at these airports and how they are regulated and/or compete with other airports.

Chart 49 – Average aero charge[24] per passenger per airport (based on most recent data available)[25]



Source: Airport annual reports (2013), Airport Statutory Accounts, Leigh Fisher UK airport Indicators 2012/13, Airports Commission estimates.

5.3 The relative importance of aero charges to airlines

The impact of aero charges on airlines can be analysed in a number of ways.

For example, current aero charges at each airport are £9.01 for Gatwick and £20.40 for Heathrow. Based on ticketing data from Milanamos Planet Optim Future, the current estimated average one-way fare in 2013/14 (including Air Passenger Duty[26]) for passengers at Gatwick and Heathrow are £132 and £401[27], respectively. This implies that aero charges are currently up to 6.8% and 5.1% of the average fare at Gatwick and Heathrow, respectively.

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[24] Average aeronautical revenue per passenger has been calculated using airport regulatory accounts and annual reports. Only group level financial accounts were available for Aeroports de Paris and Fraport, so individual benchmarks for Paris Charles De Gaulle and Frankfurt were not available. Dubai was excluded from this analysis as financial statements are not published.

[25] For the purposes of consistency the current aero charges for Heathrow and Gatwick are those taken from the Airports Commission model. These are based on the CAA Q6 settlement report and have been uplifted to 2014 prices. Charges from the most recent annual reports for Gatwick and Heathrow (i.e. quoted revenue from charges by quoted number of passengers) are £8.85 and £21.07 respectively.

- LGW 2R min weighted average is LCIK – CT scenario. Max weighted average is AoN-CC capex scenario, +10% sensitivity
- LHR NWR min weighted average is AON – CC scenario, inflation +100bps sensitivity. Max weighted average is AON-CC scenario, full private sector contribution to surface access costs sensitivity
- LHR ENR min weighted average is AON – CC scenario, inflation +100bps sensitivity. Max weighted average is AON-CC scenario, full private sector contribution to surface access costs sensitivity.

[26] Air Passenger Duty (APD) has been estimated based on the mix of destinations and fare classes for Origin-Destination (OD) passengers originating from LHR and LGW for FY13 and the relevant rates for APD during this period. APD is only imposed on departing passengers, therefore only half the rate is included in the one-way fare.

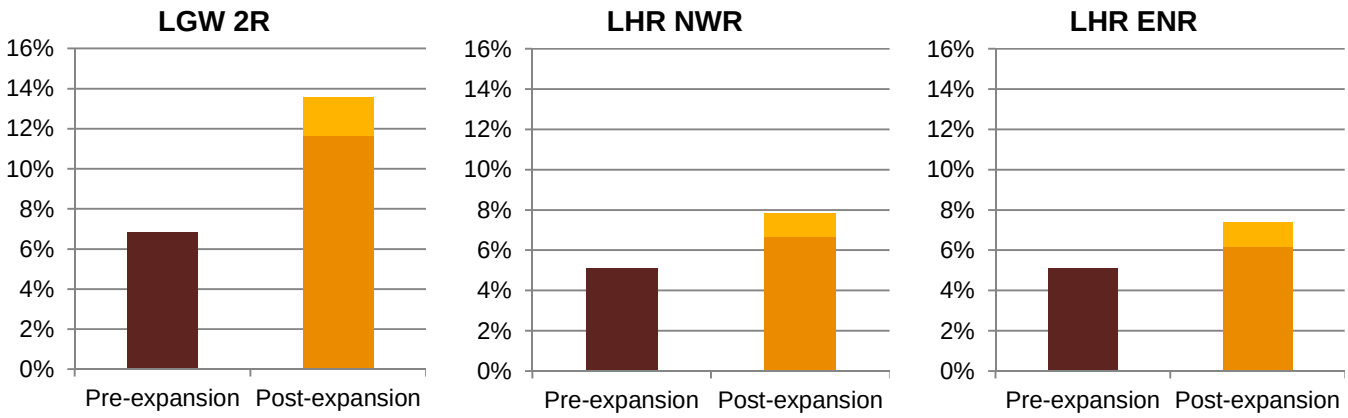
[27] Note that these fares are average one-way fares to ensure comparability with the level of charges on a per airport passenger basis.

Post expansion, if it were assumed that increases in aeronautical charges presented in Chart 49 cannot be passed on to passengers, aeronautical charges as a proportion of fare (assuming that fares remain constant in real terms) could increase from:

- 6.8% to between 11.7% and 13.6% for LGW 2R;
- 5.1% to between 6.7% and 7.8% for LHR NWR; and
- 5.1% to between 6.2% and 7.4% for LHR ENR (see Chart 50).

These ranges are presented graphically in Chart 50.

Chart 50 - Aero charges as a proportion of average fare



It is difficult to draw strong inferences solely from analysis at the fare level but it is worth noting that the annual funding requirement brought about by the schemes in terms of additional aeronautical revenues is significant. For example, the increase in aeronautical revenues required in the first full year of operation of each scheme[28] (as compared with aeronautical revenues that are generated in 2014) is approximately:

- £270m (real 2014) LGW 2R;
- £1,180m (real 2014) LHR NWR; and
- £970m (real 2014) at LHR ENR.

Ultimately it seems likely that the increase would need to be funded through a combination of sources:

- Passengers (e.g. through increased fares);
- Airlines (e.g. through reduced costs or margins);
- Airports (e.g. by generating higher commercial or non-aeronautical revenues, or by greater cost efficiency); or
- Government policy – it would be a matter for the Government of the day to consider whether any public sector involvement was appropriate and, if so, what form it might take.

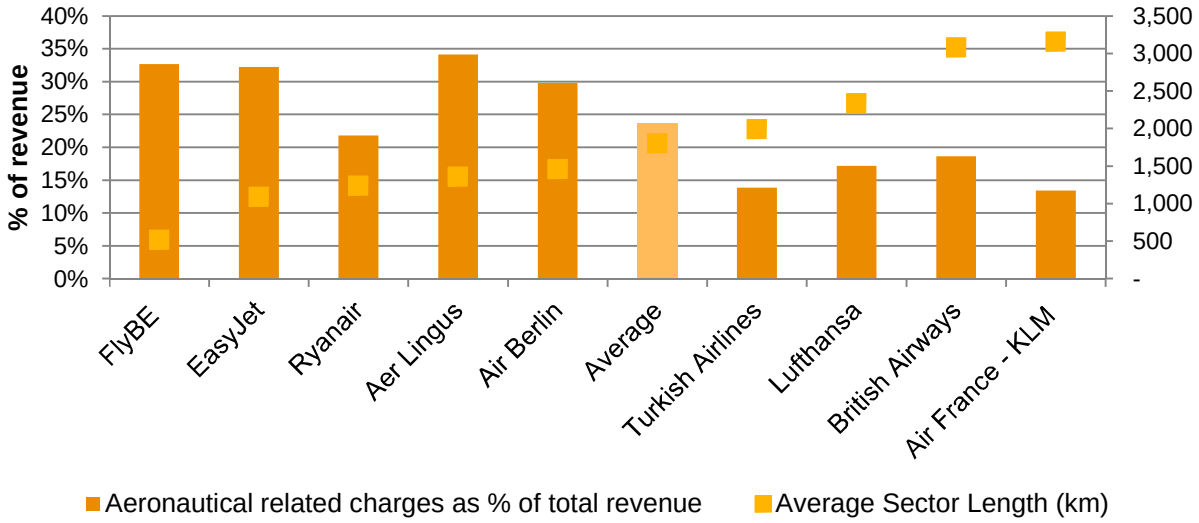
The precise manner in which the increase in aeronautical charges will ultimately be funded will therefore likely depend on factors such as:

- The price elasticity of demand of passengers;
- The underlying efficiency of airlines;
- The commercial flexibility of the airports;
- Government policy; and
- The operating models of different airlines.

[28] 2025 for LGW 2R and 2026 for LHR ENR and LHR NWR.

Chart 51 shows the proportion of average seat revenue which is accounted for by aeronautical related charges[29]. This shows that the aeronautical related charges are proportionally almost twice the cost impact for the low cost carriers operating with shorter average sector lengths and would imply that these carriers could be more sensitive to changes in aero charges.

Chart 51 - Aeronautical related charges as a proportion of total seat revenue and average sector length



Source: Airline annual reports, airline schedules

5.4 Case studies

While no conclusions are drawn, a number of case-studies are considered in order to understand how demand may respond to aero charges, although it is very difficult to disentangle the impact of the change in aero charges from other factors.

Stansted Airport increased its charges per passenger by 74% between 2006/07 and 2007/08 following the regulatory review which brought their permissible charges more in line with Gatwick and put Stansted above Luton. Between 2006/07 and 2013/14, Stansted's share of the London air passenger market declined from 17.4% to 12.9%. Ryanair, Stansted's key customer, reduced available seat capacity from Stansted by 8% while simultaneously growing its total network by 101%. In the media, Ryanair have often cited increases in aeronautical charges as the reason for reductions in capacity at Stansted[30].

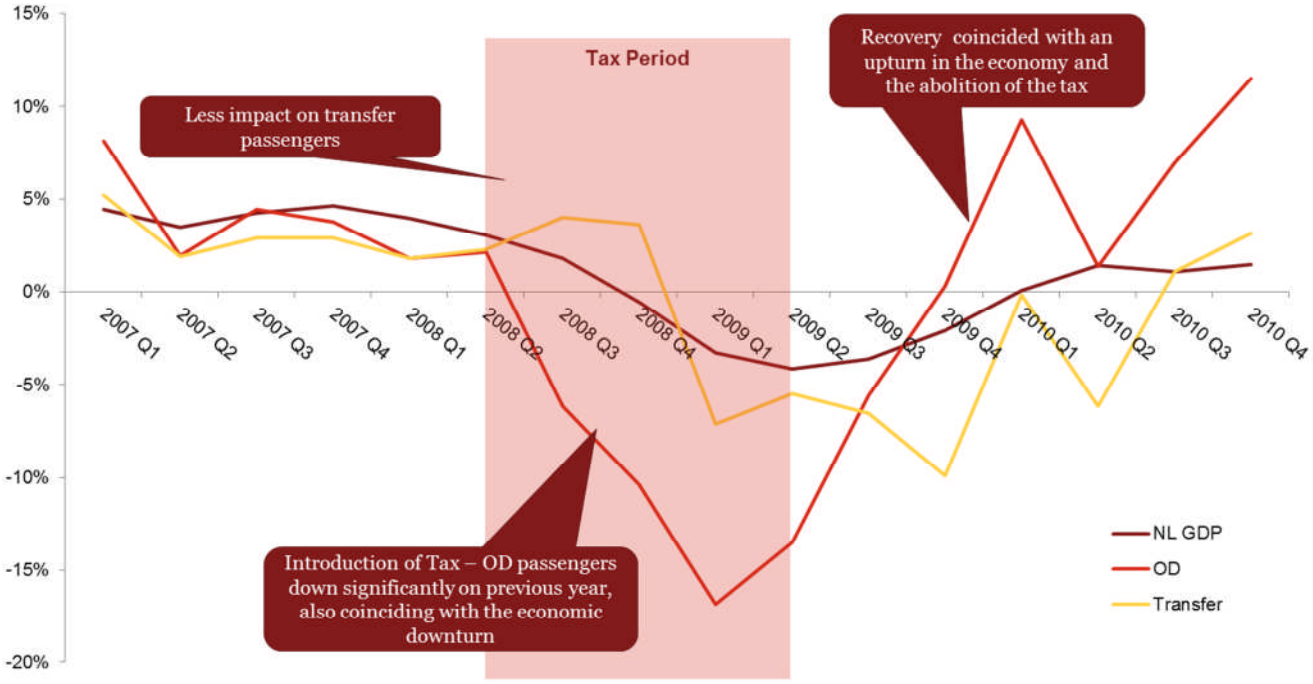
The **Netherlands Air Passenger Tax** was introduced in July 2008 and imposed on departing passengers (transfer passengers are exempt). The tax was levied at the rate of €11.25 for traffic within the EU and for destinations less than 2,500km away and €45 for all other traffic (apart from transfer passengers and freight which were exempt). From the point of view of the airline, a tax can be seen as largely equivalent to an increase in aero charges. Although the impact was clouded by the downturn in the economy, there was a substantial reduction in terminating (origin-destination) passengers around the same time (i.e. by 8-10% more than the downturn in transfer passengers (see Chart 52). After 12 months the tax was withdrawn, suggesting that the

[29] Many airlines in the industry report costs at a level which we describe as "aeronautical related charges". As well as the aero charges imposed on the airline by the airport (landing, passenger and handling), this definition also includes en-route navigation charges and government imposed air passenger taxes. While this is a significantly different definition of charges to the aero charges discussed throughout this report, its use enables reasonable comparisons to be made between different airlines. Based on Ryanair and Air Berlin (who do separate out aero charges from aeronautical related charges), the aero charges component is around 56-68% of the total aeronautical related charges.

[30] See for example: http://www.telegraph.co.uk/finance/newsbysector/transport/9904233/Ryanair-to-cut-down-flights-from-Stansted-over-landing-fee-row.html

Dutch government considered that the demand reduction was caused – at least in part – by the tax and appears to have recovered since. It is important to put this example in the context of the UK market however, where the levels of Air Passenger Duty, which are well above those that were imposed by the Netherlands, has not stopped demand rising.

Chart 52 - Quarterly change in Passengers at Amsterdam Schiphol Airport and Netherlands Real GDP Growth (compared to same quarter previous year)



Source: Schiphol Group, OECD

In 2012, charges at **AENA**'s airports in Spain were increased, with the key airports of Madrid seeing an increase of 60% and Barcelona of 50%. While Barcelona's traffic has proven to be relatively resilient (largely as a result of the growth of Barcelona based carrier Vueling), demand at Madrid has declined significantly over the last 2 years (likely due, in part, to restructuring activity at Iberia). This suggests that demand responses to aero charge changes may be different across different airports, but also highlights the difficulty in assessing precisely what is caused by the impact of changes in aero charges rather than other factors

It is also worth noting that **Manchester** and **Stansted** airports have, at various points in their history, been unable to price up to their regulated cap[31]. On the face of it, this suggests that aero charges can be an important factor for airlines when considering where to fly.

[31] See, for example, page 11 and 12 of the following link:
http://webarchive.nationalarchives.gov.uk/20081231144027/http:/www.dft.gov.uk/consultations/archive/2007/consulstatusstansted/decisionstanstedairport.pdf
Another example is given on page 6 of the following link:
http://webarchive.nationalarchives.gov.uk/+/http:/www.dft.gov.uk/consultations/archive/2007/consulstatusmanchester/decisionmanchesterairport.pdf

Appendices

Appendix 1 – References

Footnote reference	Reference	Link
1	"Economic regulation of new runway capacity – a draft policy"	http://www.caa.co.uk/docs/2888/CAP1221.pdf
2	"Economic regulation at Gatwick from April 2014: Notice granting the licence"	http://www.caa.co.uk/docs/33/CAP1152LGW.pdf
8, 16, 23	Thomson Reuters EIKON, 10th October 2014	
9, 17	"Economic regulation at Heathrow from April 2014: Notice granting the licence"	http://www.caa.co.uk/docs/33/CAP1151.pdf
13, 20	Bureau van Dijk, 13th October 2014	
14, 21	Ofwat	www.ofwat.gov.uk
15, 22	Network Rail 2013 Regulatory Financial Statements	
25	Gatwick Financial Statements 31 March 2014	http://www.gatwickairport.com/Documents/business_and_community/investor_relations/Year_End_2014/Gatwick_Airport_Limited_Financial_Statements_31March2014.pdf
	Heathrow Financial Statements 31 December 2013	http://www.heathrowairport.com/static/HeathrowAboutUs/Downloads/PDF/Heathrow_Airport_Holdings_Limited_-_31_December_2013.pdf
30	The Telegraph newspaper 2 March 2013	http://www.telegraph.co.uk/finance/newsbysector/transport/9904233/Ryanair-to-cut-down-flights-from-Stansted-over-landing-fee-row.html
31	Decision on the regulatory status of Stansted Airport	http://webarchive.nationalarchives.gov.uk/20081231144027/http:/www.dft.gov.uk/consultations/archive/2007/consulstatusstansted/decisionstanstedairport.pdf
	Decision on the regulatory status of Manchester Airport	http://webarchive.nationalarchives.gov.uk/+/http:/www.dft.gov.uk/consultations/archive/2007/consulstatusmanchester/decisionmanchesterairport.pdf

Appendix 2 – Data references

The inputs for each scheme and scenario have been sourced from the following files. LeighFisher has confirmed that these are the correct files in an email dated 20th October 2014.

	GAL	**HAL**	**HHL**
AC scenario name	AoN Carbon Capped (AoN-CC)	AoN Carbon Capped (AoN-CC)	AoN Carbon Capped (AoN-CC)
Capex & Asset Replacement	20141014 – Gatwick Airport v1.xlsx	20141006 – Heathrow Airport v1 – Issued to PwC	20141006 – Heathrow Hub v1
Opex	141016 LF Airport Schemes Opex v18 – AoN Carbon Capped.xlsx	141014 LF Airport Schemes Opex v17 – AoN Carbon Capped.xlsx	141014 LF Airport Schemes Opex v17 – AoN Carbon Capped.xlsx
Non-aero revenues	141016 LF Non-aeronautical Revenue Forecast HAL GAL HHub v11_AoN Traffic Carbon Capped.xlsx	140930 LF Non-aeronautical Revenue Forecast HAL GAL HHub v10_AoN Traffic Carbon Capped.xlsx	140930 LF Non-aeronautical Revenue Forecast HAL GAL HHub v10_AoN Traffic Carbon Capped.xlsx
AC scenario name	AoN Carbon Traded (AoN-CT)	AoN Carbon Traded (AoN-CT)	AoN Carbon Traded (AoN-CT)
Capex & Asset Replacement	20141014 – Gatwick Airport v1.xlsx	20141006 – Heathrow Airport v1 – Issued to PwC	20141006 – Heathrow Hub v1
Opex	141016 LF Airport Schemes Opex v17 AoN Carbon Traded.xlsx	141014 LF Airport Schemes Opex v16 AoN Carbon Traded.xlsx	141014 LF Airport Schemes Opex v16 AoN Carbon Traded.xlsx
Non-aero revenues	141016 LF Non-aeronautical Revenue Forecast HAL GAL HHub v11_AoN Traffic Carbon Traded.xlsx	140930 LF Non-aeronautical Revenue Forecast HAL GAL HHub v10_AoN Traffic Carbon Traded.xlsx	140930 LF Non-aeronautical Revenue Forecast HAL GAL HHub v10_AoN Traffic Carbon Traded.xlsx
AC scenario name	Scenario 3 – Carbon Traded (LCIK-CT)	Scenario 1 – Carbon Traded (GG-CT)	Scenario 1 – Carbon Traded (GG-CT)
Capex & Asset Replacement	20141014 – Gatwick Airport v1.xlsx	20141006 – Heathrow Airport v1 – Issued to PwC	20141006 – Heathrow Hub v1
Opex	140929 LF Airport Schemes Opex v13, SCEN-3 Carbon Traded.xlsx	140929 LF Airport Schemes Opex v13, SCEN-1 Carbon Traded.xlsx	140929 LF Airport Schemes Opex v13, SCEN-1 Carbon Traded.xlsx
Non-aero revenues	141007 LF Non-aeronautical Revenue Forecast HAL GAL HHub v12_High Cases Carbon Traded.xlsx	141007 LF Non-aeronautical Revenue Forecast HAL GAL HHub v12_High Cases Carbon Traded.xlsx	141007 LF Non-aeronautical Revenue Forecast HAL GAL HHub v12_High Cases Carbon Traded.xlsx
AC scenario name	Scenario 4 – Carbon Capped (GF-CC)	Scenario 4 – Carbon Capped (GF-CC)	Scenario 4 – Carbon Capped (GF-CC)
Capex & Asset Replacement	20141014 – Gatwick Airport v1.xlsx	20141006 – Heathrow Airport v1 – Issued to PwC	20141006 – Heathrow Hub v1
Opex	141016 LF Airport Schemes Opex v15, SCEN-4 Carbon Capped.xlsx	141014 LF Airport Schemes Opex v14, SCEN-4 Carbon Capped.xlsx	141014 LF Airport Schemes Opex v14, SCEN-4 Carbon Capped.xlsx
Non-aero revenues	141016 LF Non-aeronautical Revenue Forecast HAL GAL HHub v11_Low Cases Carbon Capped.xlsx	140930 LF Non-aeronautical Revenue Forecast HAL GAL HHub v10_Low Cases Carbon Capped.xlsx	140930 LF Non-aeronautical Revenue Forecast HAL GAL HHub v10_Low Cases Carbon Capped.xlsx

Appendix 3 - Market Data

The following tables provide non-exhaustive examples of comparable indices and corporate entities used to estimate indicative debt pricing for each of the three schemes. This data was sourced from Thomson Reuters EIKON on 25th September 2014.

Short-term debt

Index/Entity	Spread over benchmark rate
iBOXX GBP non-financials A 1-3y	76bps
iBOXX GBP non-financials A 3-5y	74bps
iBOXX GBP utilities 1-3	123bps
iBOXX GBP utilities 3-5	153bps
iBOXX GBP non-financials BBB 1-3y	109bps
iBOXX GBP non-financials BBB 3-5y	141bps

A-

Index/Entity	Spread over benchmark rate
Heathrow's current 2025 A- debt	120bps
iBOXX GBP non-financials A 7-10y	105bps
iBOXX GBP non-financials A 10-15y	136bps
iBOXX GBP utilities 7-10y spread	123bps
iBOXX GBP utilities 10-15y spread	151bps
Thames Water (A-) current 2027 senior debt	130bps
Southern Water (A-/Baa1) current 2025 senior debt	124bps
National Grid (A-) current 2024 senior debt	100bps

BBB+

Index/Entity	Spread over benchmark rate
Gatwick's current 2025 (BBB+) debt	125bps
iBOXX GBP non-financials BBB 7-10y	150bps
iBOXX GBP non-financials 10-15y	159bps
UK Power Networks (BBB+) current 2024 debt	126bps

Appendix 4 – Bond issues

The following table provides a list of investment grade bond issues by UK Corporates since 1 January 2013 with a deal value greater than £1.5bn.

Entity	S&P Credit Rating	Date[32]	Deal Value[33]
SABMiller Holdings Inc	BBB+	Jan 2012	£4.3bn
Vodafone Group Plc	A-	Feb 2013	£3.5bn
GlaxoSmithKline Capital Plc	A+	May 2012	£3.0bn
Vodafone Group Plc	A-	Sep 2014	£2.1bn
BP Capital Markets Plc	A	Feb 2012	£2.0bn
British Sky Broadcasting Group Plc	BBB+	Sep 2014	£2.0bn
Diageo Capital Plc	A-	Apr 2013	£1.9bn
Rio Tinto Finance (USA) Ltd	A-	Aug 2012	£1.9bn
NGG Finance plc	BBB	Mar 2013	£1.9bn
BP Capital Markets plc	A	Nov 2012	£1.8bn
GlaxoSmithKline Capital Inc	A+	Mar 2013	£1.8bn
BP Capital Markets plc	A	May 2013	£1.8bn
BP Capital Markets plc	A	May 2012	£1.8bn
Imperial Tobacco Finance plc	BBB	Feb 2014	£1.8bn
Rio Tinto Finance (USA) Ltd	A-	Jun 2013	£1.8bn
BP Capital Markets plc	A	Feb 2014	£1.6bn
BP Capital Markets plc	A	Sep 2014	£1.6bn
Tesco Corporate Treasury Services plc	BBB+	Jun 2014	£1.6bn
Diageo Capital plc	A-	May 2012	£1.5bn

Sources: Dealogic, 6th October 2014

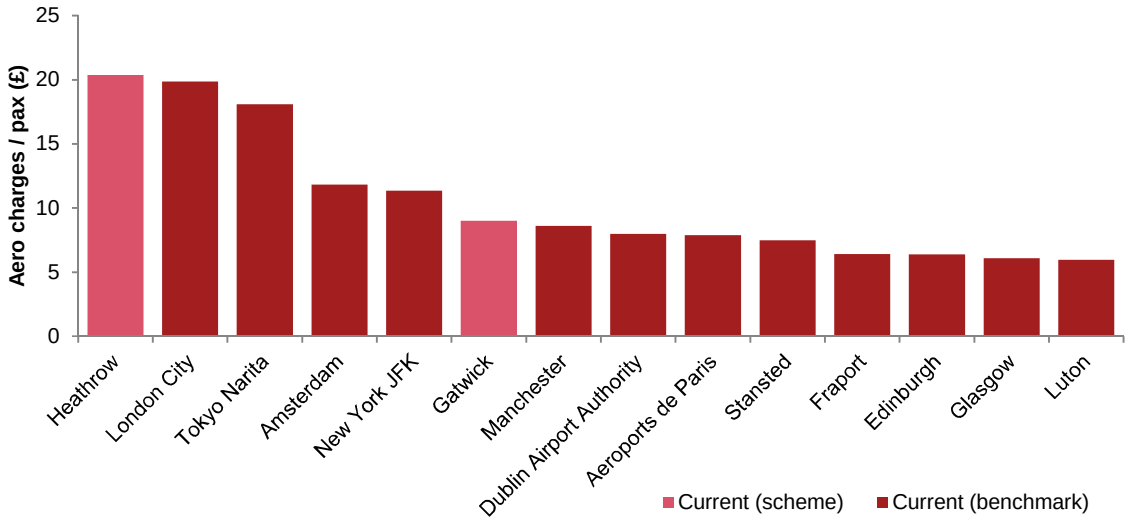
[32] Deal pricing date

[33] Dealogic provides a EUR deal value. This has been converted to GBP using a rate of 0.785 EUR:GBP. If multiple tranches were issued as part of the same deal, this is the total deal value.

Appendix 5 – Aero charges benchmarks

Chart 53 shows aeronautical revenues on a per passenger basis based on the most recent publicly available financial data for airports (or groups) which report aeronautical revenue. It shows that Heathrow is the airport with the highest charges in our sample, while Gatwick is toward the middle and comparable to other European gateways.

Chart 53– Aeronautical revenue per passenger at benchmark airports[34]



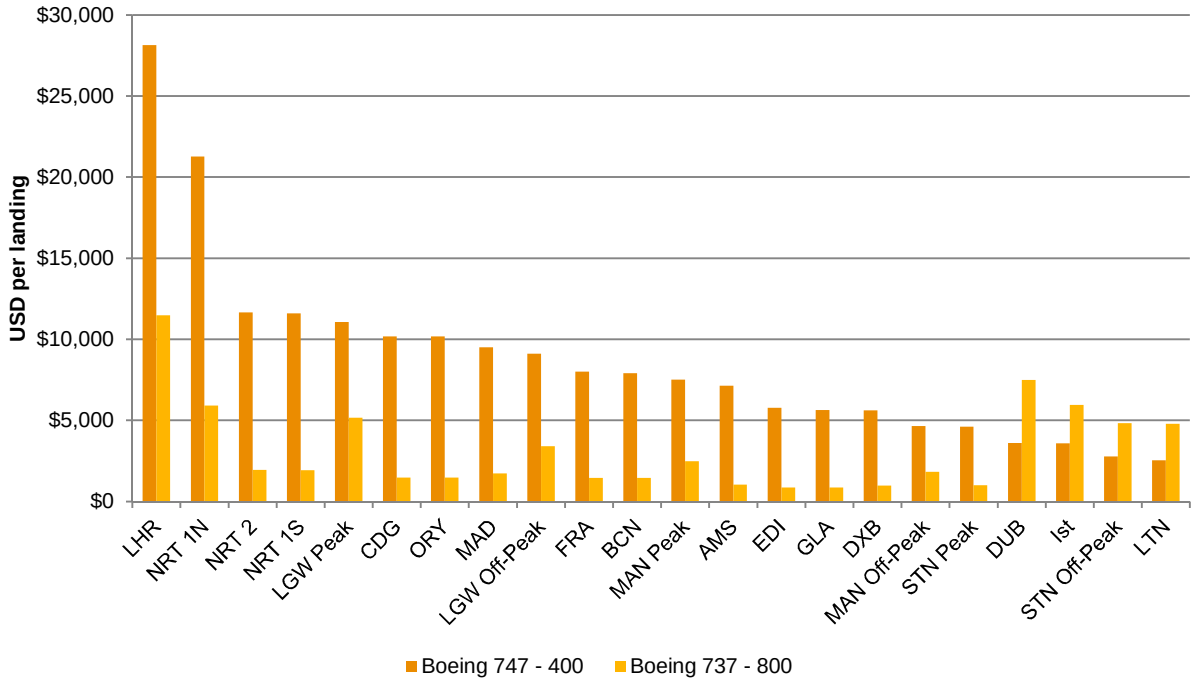
Sources: Airport annual reports 2013, Leigh Fisher UK Airport indicators 2012/13

As not all airports publish information on aeronautical revenues, the analysis below shows comparisons based on published charges for particular aircraft. The benchmarks[35] are built up based on the published unit charges for airfield and terminal usage combined with assumptions on aircraft maximum take-off weight, seat capacity and passenger load factors to calculate the level of charge per aircraft turnaround. Based on a Boeing 747-400 (Chart 54 -), Heathrow is still the most expensive airport. This remains the case when the analysis is based on a 737-800 (with airports sorted in the same order), although there are significant variations in price.

[34] Based on most recent data available. Only group level financial accounts were available for Aeroports de Paris and Fraport therefore individual airport benchmarks for Charles de Gaulle and Frankfurt were not available. Dubai was excluded from this analysis as financial statements are not published. For the purposes of consistency the current aero charges for Heathrow and Gatwick are those taken from the Airports Commission model. These are based on the CAA Q6 settlement report and have been uplifted to 2014 prices. Charges from the most recent annual reports for Gatwick and Heathrow (i.e. quoted revenue from charges by quoted number of passengers) are £8.85 and £21.07 respectively.

[35] Source: Air Transport Research Society.

Chart 54 - Published charges for Boeing 747-400 and 737-800 (combined landing and terminal charges with baggage and check-in) per landing[36]



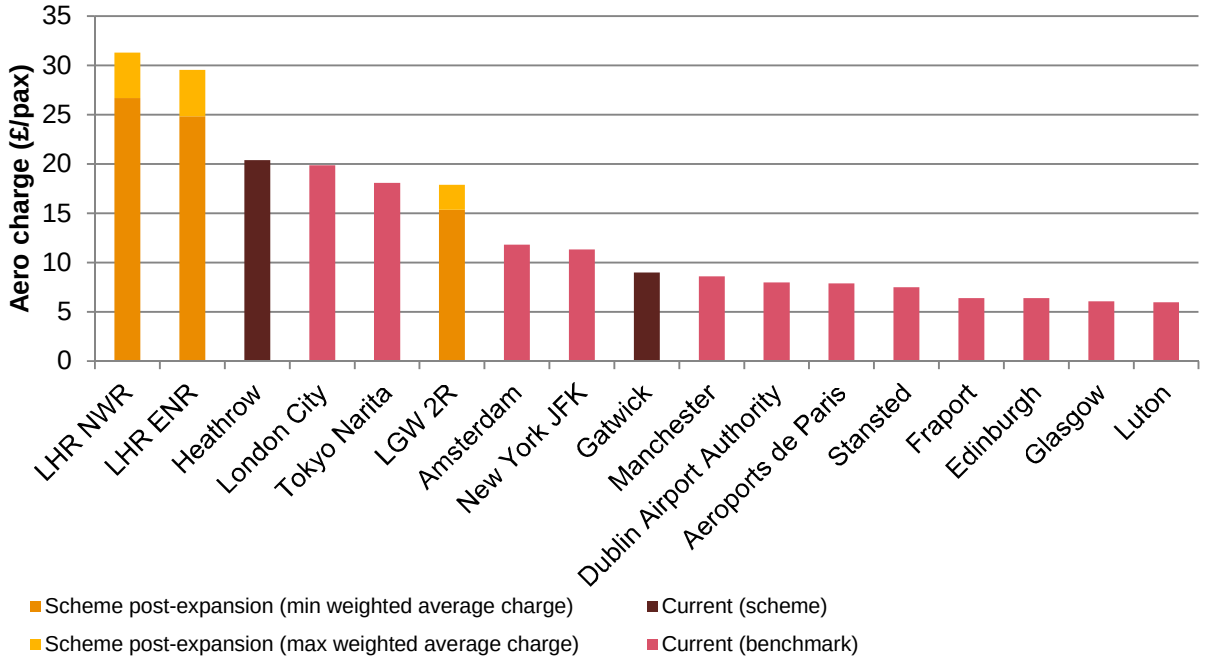
Sources: Air Transport Research Society, 2013[37].

Chart 55 – Average aero charge per passenger per airport (based on most recent data available)

Chart 55 transposes the estimate of future aeronautical charges per passenger calculated by the Airports Commission onto the analysis in Chart 53. Note that this analysis does not take into account changes at other airports which may result in increases or reductions in charges at these airports.

[36] Excludes government imposed air passenger taxes.
[37] Coding is as follows: LHR (Heathrow); LCY (London City); NRT (Narita; coding distinguishes between Terminal 1 North, Terminal 1 South and Terminal 2); AMS (Schiphol); JFK (John F Kennedy); LGW (London Gatwick); MAN (Manchester); DUB (Dublin Airport; ORY (Paris Orly); CDG (Charles de Gaulle); STN (Stansted); EDI (Edinburgh); GLA (Glasgow); LTN (Luton); DXB (Dubai); FRA (Frankfurt); BCN (Barcelona); MAD (Madrid)

Chart 55 – Average aero charge[38] per passenger per airport (based on most recent data available)[39]



Source: Airport annual reports (2013), Airport Statutory Accounts, Leigh Fisher UK airport Indicators 2012/13, Airports Commission estimates.

It is important to note that:

- The data used in Chart 55 has been taken from a variety of sources. Where possible we have used data from annual reports; where this has not been possible for UK airports we have used data from the 2012 LeighFisher report[40]. The projected (post-expansion) charges for Heathrow and Gatwick have been taken from the analysis of aeronautical charges set out in previous sections of this report;
- The analysis in Chart 53 is based on data from the Air Transport Research Society; and
- The analysis does not take account of the mix of carriers or fleet at any given airport.

[38] Average aeronautical revenue per passenger has been calculated using airport regulatory accounts and annual reports. Only group level financial accounts were available for Aeroports de Paris and Fraport, so individual benchmarks for Paris Charles De Gaulle and Frankfurt were not available. Dubai was excluded from this analysis as financial statements are not published.

[39] For the purposes of consistency the current aero charges for Heathrow and Gatwick are those taken from the Airports Commission model. These are based on the CAA Q6 settlement report and have been uplifted to 2014 prices. Charges from the most recent annual reports for Gatwick and Heathrow (i.e. quoted revenue from charges by quoted number of passengers) are £8.85 and £21.07 respectively.

- LGW 2R min weighted average is LCIK – CT scenario. Max weighted average is AoN-CC capex scenario, +10% sensitivity
- LHR NWR min weighted average is AON – CC scenario, inflation +100bps sensitivity. Max weighted average is AON-CC scenario, full private sector contribution to surface access costs sensitivity
- LHR ENR min weighted average is AON – CC scenario, inflation +100bps sensitivity. Max weighted average is AON-CC scenario, full private sector contribution to surface access costs sensitivity.

[40] Leigh Fisher, 'UK Airports Performance Indicators', 2012-13

Appendix 6 – Case studies on changes in aeronautical charges

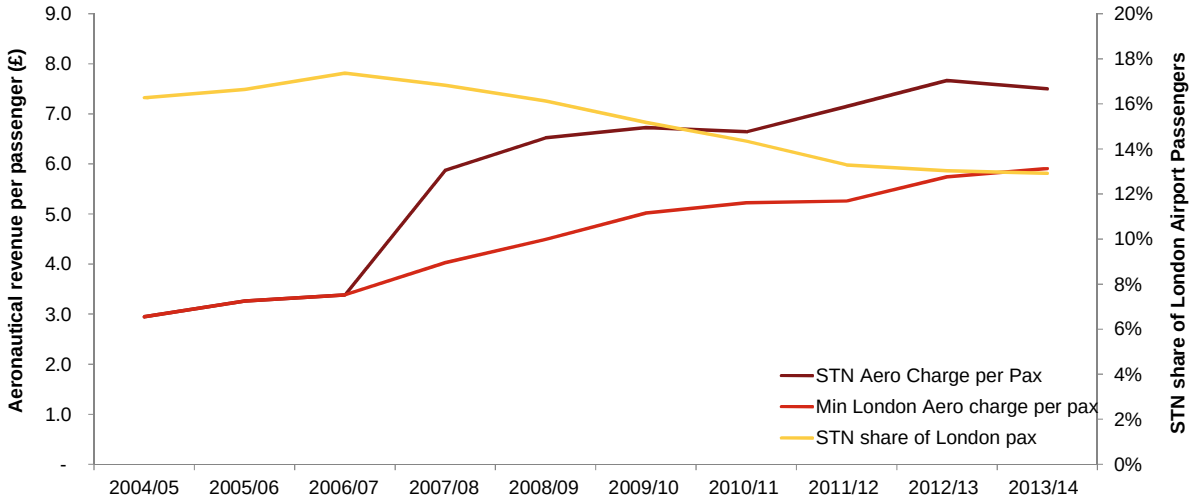
While no conclusions are drawn, there are a number of recent examples where a step increase in aeronautical charges has been associated with a downward shift in demand. It is, however, difficult to disentangle the impact of changes in the level of aeronautical charges at an airport from the impact of the wide range of other factors that influence demand.

Stansted Airport

A step increase in aeronautical revenue per passenger earned by Stansted Airport between 2006/07 and 2007/08 of 74% followed the increased cap as a result of the Q5 regulatory review and coincided with the onset of a loss of market share of London airport passenger traffic for the airport.

Chart 56 shows Stansted's aeronautical revenue per passenger compared with the lowest aeronautical revenue per passenger across the London airports (i.e. Luton) along with Stansted's share of total London terminal passengers[41]. Since the step increase in charges, Stansted's share of London airport passengers has been declining. This may be driven by a variety of factors, one of which is the cost to operate from the airport and competition from other airports.

Chart 56 – Aero revenue per passenger and Stansted's share of London passenger traffic[42]



Source: Regulatory Accounts for Heathrow, Gatwick and Stansted (until 2012/13), Leigh Fisher UK Airport Indicator reports, Airport annual reports and financial accounts, CAA passenger statistics.

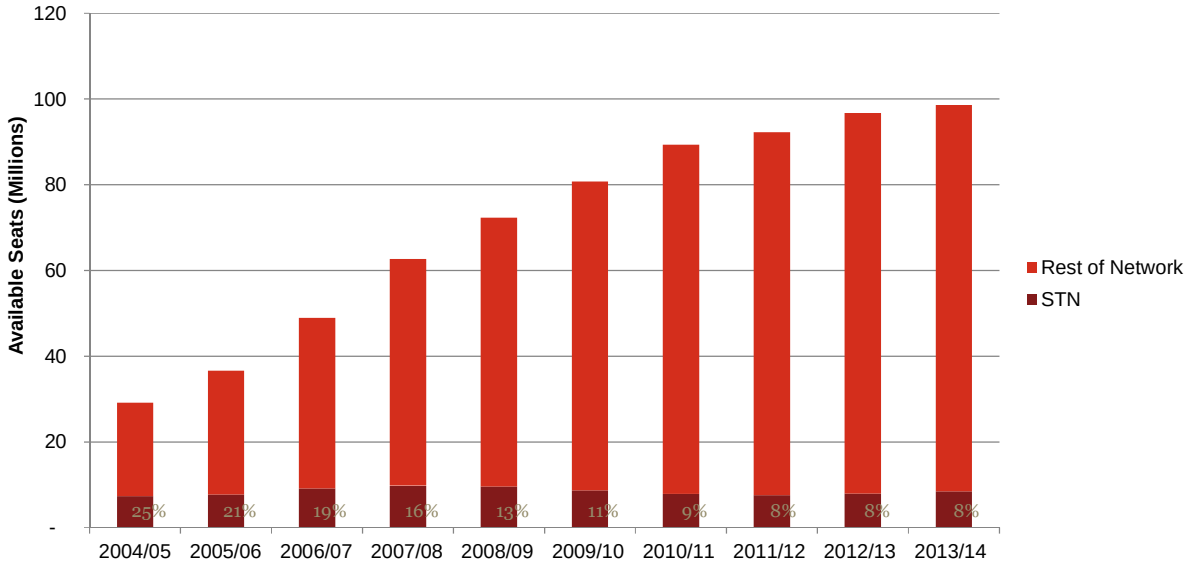
Ryanair is Stansted's key airline customer, making up almost 80% of scheduled capacity in 2013/14. Low cost carriers and point-to-point airlines, such as Ryanair and easyJet, can reasonably be assumed to place more emphasis on airport charges than network carriers (e.g. because they operate a generally low cost business model and sink less investment at the airports which they use). Such carriers therefore tend to have a relatively lower tipping point than other carriers in terms of how increased costs affect their decision to operate from an airport (although this is also driven by the price sensitive nature of leisure passengers, the demographic LCCs predominantly serve). This is highlighted by the frequent clashes between Stansted Airport and Ryanair over landing charges, with the low cost carrier repeatedly threatening to remove aircraft and deploy them to competing airports if planned increases in landing charges went ahead[43].

The growth of Ryanair's network compared with its growth at Stansted indicates that the airline no longer focuses their growth at the airport. Ryanair has been growing seat capacity substantially over the last decade

[41] Airports included are London Heathrow, Gatwick, Luton, Stansted and London City. Southend has been excluded from the analysis given that commercial operations have only recently commenced and the scale of operation is much lower compared with the other five airports.
[42] Year ending 31 March. Numbers are nominal figures.
[43] http://www.theguardian.com/business/2007/aug/01/theairlineindustry.travel

with an increase in total seat capacity of 238.7% between 2004/05 to 2013/14 across its entire network but only 15.5% over the same period at Stansted. In absolute terms, Ryanair's seat capacity at Stansted peaked in 2007/08 at 9.8m and has since declined to 8.5m in 2013/14.

Chart 57 – Ryanair's seat capacity at Stansted compared with the rest of its network



Source: PlanetOptim Future

Netherlands Air Passenger Tax

The Netherlands Government introduced an air passenger tax on 1 July 2008 as part of the 2008 national tax plan aimed at 'greening' the tax system. The tax was applied to departing passengers at a rate of €11.25 for EU and destinations up to 2,500km and €45 for all other destinations (transfer passenger and freight shipments were exempt from the tax). Such a tax is equivalent, from the point of view of passengers/airlines to an increase in charges. The tax was seen to have a detrimental impact on the industry and, as part of the Dutch Government's "Economic Crisis and Recovery Plan", the tax was set to zero as at 1 July 2009, and abolished as of 1 January 2010.

A study undertaken by KiM Netherlands Institute of Transport Policy Analysis in February 2011 concluded that *"the air passenger tax has had a decidedly negative effect on the number of Dutch passengers departing from airports in the Netherlands; specifically, from Amsterdam Airport Schiphol. Passengers have instead opted to primarily use Düsseldorf, Weeze and Brussels airports. The air passenger tax served to reinforce two developments that were already occurring: passengers, especially those from the Netherlands' eastern and southern regions, increasingly depart from foreign airports, and passengers increasingly use low-cost airlines, such as Ryanair and easyJet. The expectation is that not all Dutch passengers who use foreign airports will 'return' to Dutch airports, although this could change owing to the implementation of a 'ticket tax' in Germany, as well as by measures taken by Amsterdam Airport Schiphol to help lower costs[44]."*

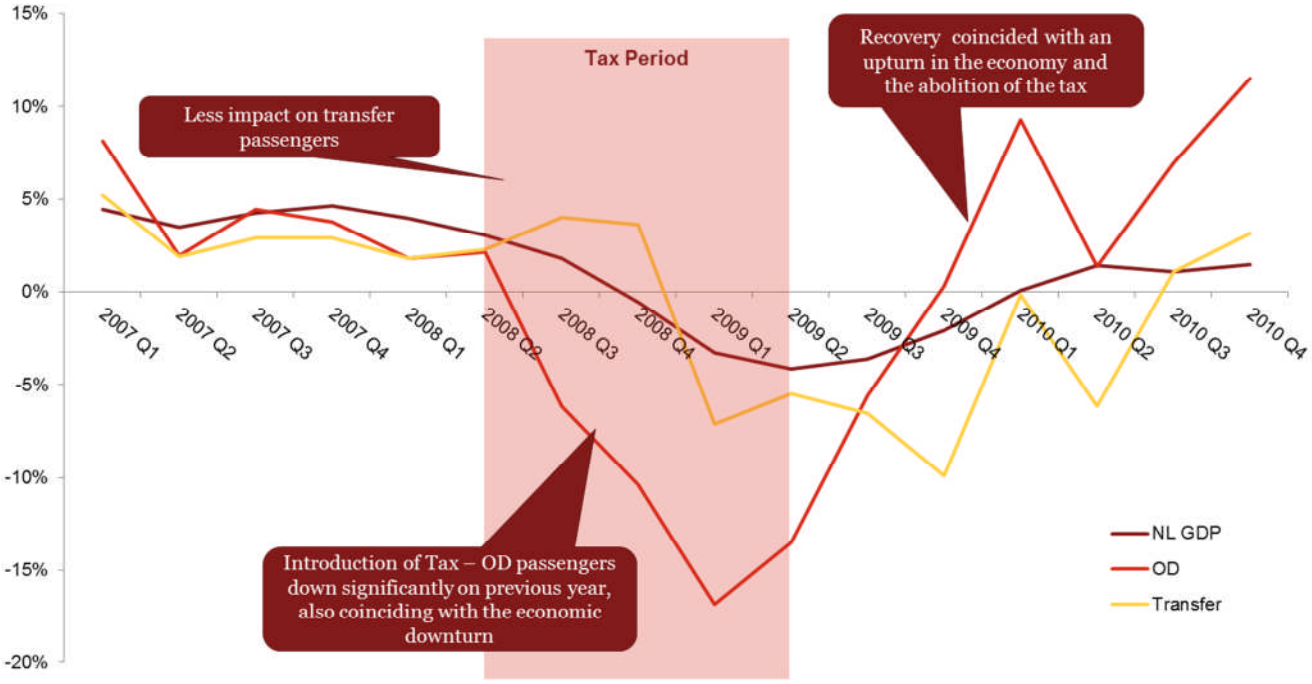
Prior to the tax being introduced, the impacts were estimated by KiM. For Amsterdam Schiphol airport, the tax was estimated to dampen passenger demand by 8-10% and flight movements by 7-8%. For regional airports, the impact of the tax on passengers was estimated to be 11-13%.

There were, of course, a number of factors influencing air passenger traffic following the introduction of the tax on 1 July 2008, namely the economic downturn, the increased prevalence of low cost carriers and increased use

[44] KiM Netherlands Institute of Transport Policy Analysis (an independent Institute within the Dutch Ministry of Infrastructure and the Environment), "Effects of the Air Passenger Tax. Behavioural responses of passengers, airlines and airports", February 2011.

of regional airports as well as foreign exchange rate and oil price fluctuations – and it is difficult disentangle the impact of the tax from these other factors.

Chart 58- Quarterly Passenger Growth at Amsterdam Schiphol Airport and Netherlands Real GDP Growth (compared to same quarter previous year)



Source: Schiphol Group, OECD

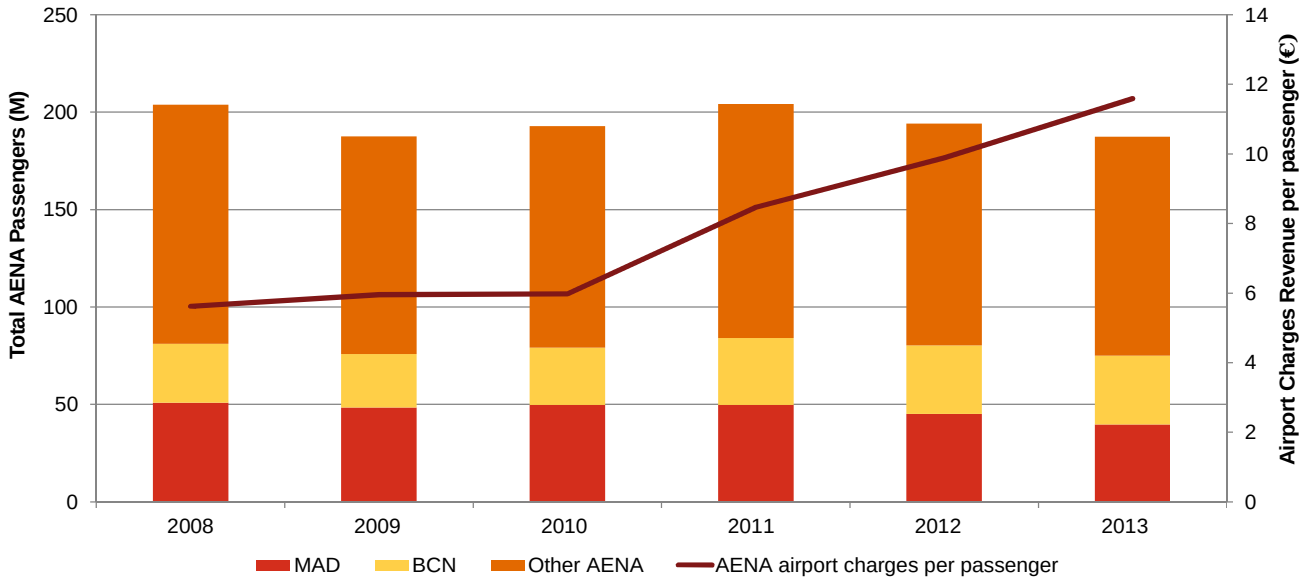
Aeropuertos Españoles y Navegación Aérea (AENA)

Spain's airport operator AENA has seen an overall decline in passengers across their airports between 2011 and 2013 which has coincided with a number of events including:

- A struggling national economy (particularly the construction and property sectors);
- Consolidation and reduction in capacity of the country's flag carrier, Iberia, since the merger of British Airways and Iberia to form IAG in January 2011;
- The collapse of former Spanish airline, Spanair in January 2012;
- The introduction of a new departure tax in July 2012; and
- An increase in AENA's airport charges in 2012.

Chart 59 shows the evolution of AENA's airport passengers and air traffic revenue per passenger between 2008 and 2013. AENA's annual accounts show that its average air traffic revenue per passenger increased by 36.9% between 2011 and 2013 to reach €11.59. Over the same period, passenger traffic fell by 8.3% (20% at Madrid) and GDP fell by 2.8% in real terms.

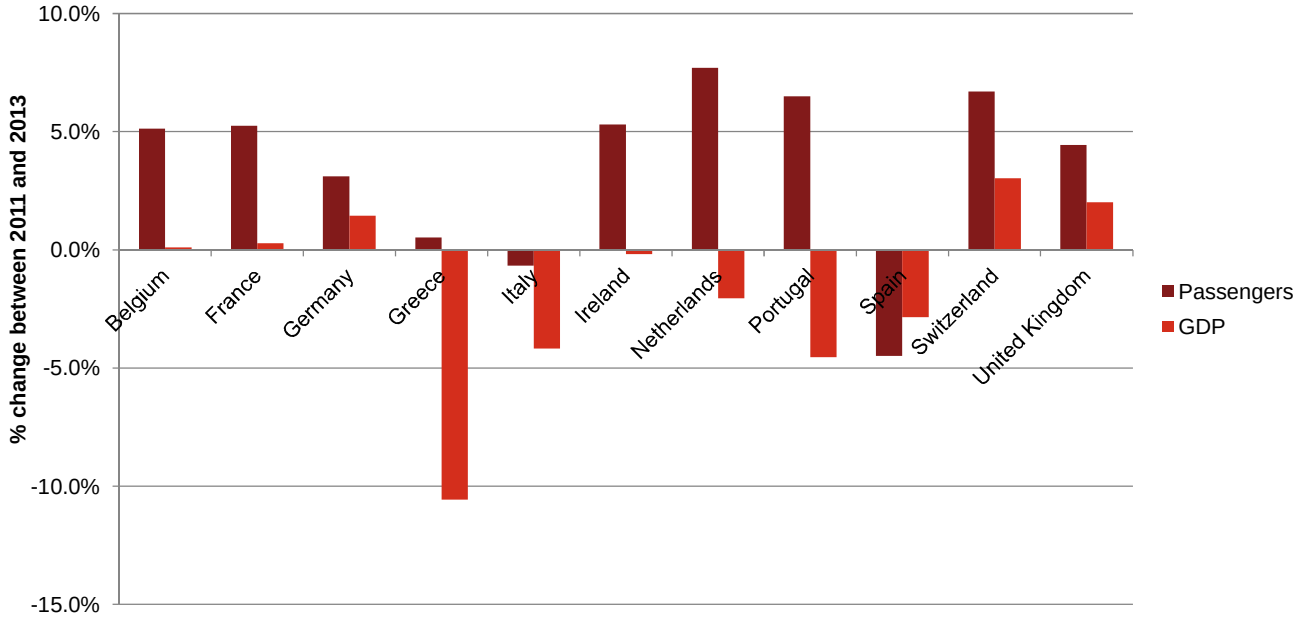
Chart 59– AENA passengers and airport charges revenue



Source: AENA, PwC analysis.

Chart 60 shows that Spain's traffic has declined relative to other major EU aviation markets, even compared with those where the economy has contracted in real terms between 2011 and 2013. Italy was the only other Western European country observing a drop in passenger numbers over the period.

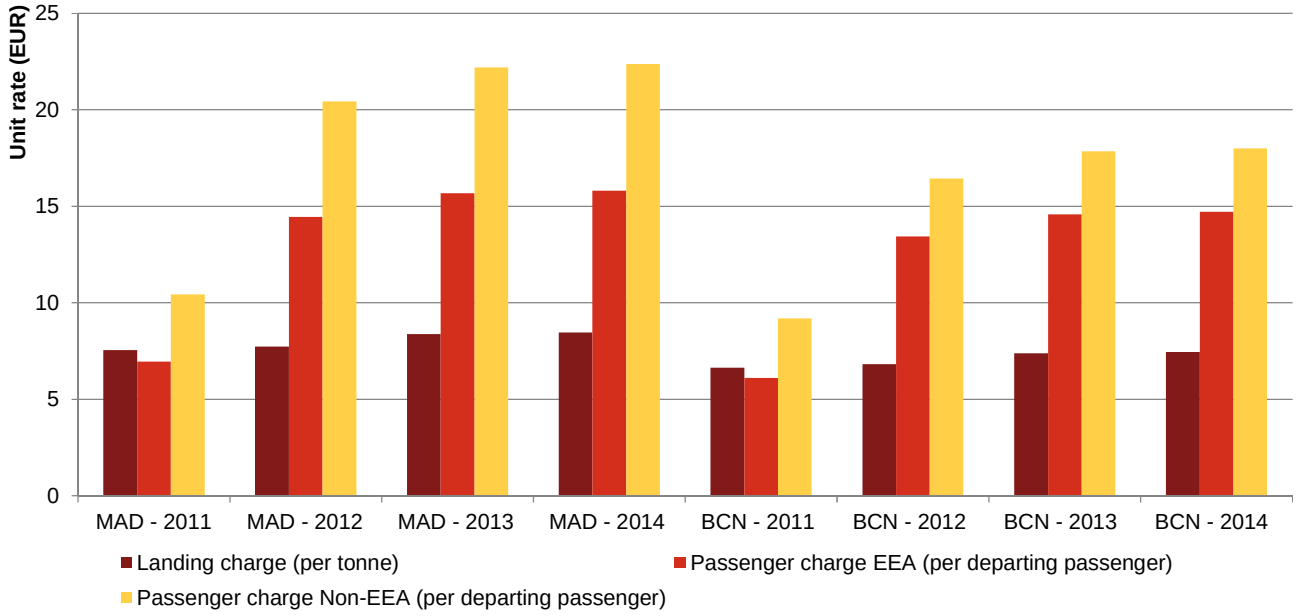
Chart 60- Percentage change in total air passengers and real GDP between 2011 and 2013 for Western European Countries



Source: Eurostat, IMF, PwC analysis.

Published charges at the country's two largest airports of Madrid Barajas and Barcelona El Prat increased by around 60% and 50% respectively in 2012 – with per passenger charges nearly doubling between 2011 and 2012. Chart 61 provides information on the changes in published charges from 2011 to 2014 for Madrid and Barcelona airports for the two key components of aeronautical charges – the landing charge and terminal passenger charge.

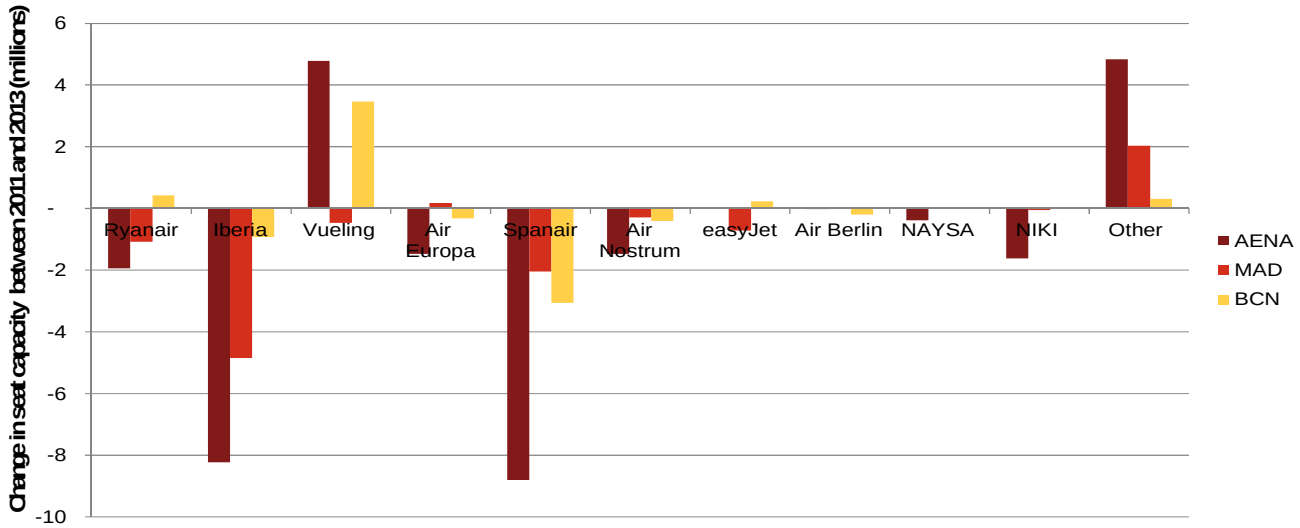
Chart 61– Published Landing and Passenger Charges for Madrid and Barcelona[45]



Source: IATA charges monitor.

Chart 62 shows the change in scheduled seat capacity from Madrid, Barcelona and total AENA airports between 2011 and 2013. It shows the reduction in capacity by Iberia of around 8 million seats, which is due to a restructuring of their network following the merger with British Airways and the growth of Iberia Express and Vueling, which are both part of the parent group IAG. There was a significant decline in capacity attributed to the collapse of Spanair – reducing available capacity in the market by around 8 million seats between 2011 and 2013. Ryanair has been openly critical about the introduction of the airport tax and increases in charges at Spanish airports and appears to have reacted by reducing capacity by around 1.9 million seats between 2011 and 2013, 1.1 million of which were at Madrid Airport.

Chart 62– Change in available seat capacity from Spanish airports between 2011 and 2013[46]



Source: Milanamos PlanetOptim Future Capacity Report.

[45] This includes only key components of the aeronautical charges schedule of landing charges and passenger charges. Note that this excludes security, PRM, boarding bridge and check-in charges.
[46] Based on top 10 airlines by seat capacity at AENA airports in 2011. Domestic seats are double counted in total AENA.

Following the decline in passengers observed in 2012 and 2013, AENA has decided to introduce an airport charge discounting scheme to incentivise airlines to grow traffic.

While it is difficult to draw conclusions on the impact of the increase in airport charges, there is a correlation between the increase in charges and the decline in traffic. Moreover, the fact that AENA has since introduced an incentive scheme suggests that it considers that airlines do indeed respond to aero charges.

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