

Comments on recent papers by BA and CEPA

Date: 16th August 2013

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Status: Final

This note comments on recent papers commissioned by BA from CEPA during June 2013. We take each paper in turn:

- Heathrow's equity beta;
- The CAA's selection of a point in its WACC range;
- Debt indexation.

1. Heathrow's equity beta

The equity beta assessed in the Q5 determination failed to reflect the actual level of risk faced by Heathrow, and effectively assumed Heathrow had the same level of risk as a regulated utility. The work we have commissioned from NERA clearly shows this to be incorrect.¹

In addition, Heathrow has provided the CAA with empirical evidence that the airport's equity risk has increased since Q5 because of its exposure to systematic asymmetric risk, and also because of a greater dependency on one airline customer (BA). Both these facts are observable, and for the former, the impact on the cost of equity is quantifiable.

CEPA makes no attempt to directly assess Heathrow's risk either in absolute terms, or relative to other regulated companies. Instead, CEPA attempts to argue that Heathrow's risk has reduced since Q5. CEPA cite a number of reasons for this contention, none of which is supported by empirical evidence.

Regulatory risk is not reduced

CEPA's main argument appears to be that regulatory risk will be reduced in Q6. However, CEPA do little to articulate exactly what the mechanism for reduced regulatory risk is, if it is systematic in nature, or how the effect on Heathrow's WACC can be quantified. CEPA cite:

- The possibility of a re-opener in the licence: For the re-opener to materially reduce systematic risk the license would need to specify criteria under which the re-opener would be deployed. These criteria would need to be symmetrically applied in respect to either over or under-performance against the settlement, and CAA discretion would need to be removed (otherwise there is a risk of asymmetric application). As it stands the drafting of the re-opener clause of the licence is too vague, and subject to the CAA's discretion, to give any actual protection;
- Treatment of capex: CEPA do not specify how this would reduce Heathrow's risk. In fact the treatment of capex under the new framework allows for a more flexible deployment of the same overall capex exposure, but does nothing to reduce risk to Heathrow's return on the overall capex quantum. For example, notwithstanding Heathrow's arguments in favour of employing a 'portfolio approach' to assessing capex efficiency for Q5, stakeholders, including the airlines, are advocating to exclude historical expenditures totalling £895m from the opening RAB for Q6.

¹ NERA, 'A Review of the Risk Assessment in the CAA's Initial Proposals for Q6, A Report for London Heathrow', 10 June 2013.

Heathrow's shareholders perceive higher, not lower, regulatory risk compared to Q5, including the following:

- Historical failure to earn the allowed cost of capital: the traffic forecasts for Q4 and Q5 were wrong (consistently overoptimistic) and contributed to the failure of Heathrow to earn its allowed cost of capital during the past nine years. This illustrates both the demand-exposed nature of airports compared to regulated utilities (i.e., energy transmission and distribution networks, and water) and the forecast risk for Heathrow, specifically;
- Mispricing of risk relative to utilities: the failure of the CAA's Initial Proposals to adequately compensate Heathrow for the risks it faces – including a cost of equity that is assumed to be on par with that of less risky utilities, and unrealistic efficiency targets – which increase the likelihood that investors will fail to earn an acceptable return in Q6.
- Shifting regulation which increases risk to the airport: for example the current price review for Heathrow includes substantial change and ambiguity, including treatment of pension expenses.

Beta risk has not reduced

CEPA attempt to produce various pieces of evidence to support a fall in airport asset betas, none of which stand up to scrutiny:

- CEPA claim there has been an increased beta-risk of financial stocks as a category and this, by definition, must lead to a reduced equity beta-risk of non-financial stocks as a category. However, CEPA makes no attempt to analyse (a) the materiality of any effect, (b) whether it is persistent or transitory, and (c) has this change been associated with an elevation of the risk premium;
- CEPA's Figure 1.1 shows a fall in utility betas from January 2008. However, the work we have commissioned from NERA has shown that it is wrong to use utilities to benchmark Heathrow's beta risk. Utilities are largely immune from the revenue risk that is largely responsible for airports higher (and rising) betas. Added to this air transport demand is more volatile than demand for utilities' services (air transport demand, is elastic to income while demand for utilities' services to households is inelastic and therefore less exposed to revenue risk). Finally, we have also argued that Heathrow exhibits other characteristics that are unique to that airport, including asymmetry, other non-systematic risks and exposure to pension costs. In short, we believe strongly that it is wrong to estimate beta for Heathrow exclusively using listed utility companies;
- CEPA claim that, measured over short data windows, betas of most airports have remained stable or fallen. A number of points need to be made here. First, as Heathrow has previously explained the only acceptable comparators are AdP and Fraport. Second, as PwC recommend, point estimates from a 5 year window should be used for beta estimates, otherwise too much reliance will be placed on short runs of volatile data. Based on this proper criterion, PwC's data does not show any substantial fall in asset beta for either Frankfurt or AdP since December 2007 (when the Q5 price determination would have been made). Additionally, both these airports have risk sharing mechanisms and so it would be logical for Heathrow's asset beta to be higher than those for these airports;

- CEPA claim that Heathrow's risk has fallen since its operating leverage has fallen since Q5. But Investment in airports is long term with average asset lives of 20-30 years and a similarly long term return on investment. Together with Heathrow's debt providers, the airport's shareholders funded the capital programme during Q5 because they believed there would be stability of regulation over the long term, including the WACC and return on equity. But more generally operating leverage is only one of a broader set of internal financial and operating criteria that are associated with beta, and Europe Economics' fundamental beta analysis considered these to produce an overall estimate;
- CEPA claim that Heathrow's capacity constraint reduces risk. In making this claim CEPA appear to have accepted the existence of systematic asymmetry. However, as Heathrow showed in its response to the CAA's Initial Proposals, despite the capacity constraint, Heathrow's passengers did fall significantly during the Global Financial Crisis. Between 2008 Q1 and 2009 Q3, UK GDP declined by 7.2% (peak to trough of recession). Over same period LHR seasonally adjusted passenger numbers declined by 2.8%. The implied elasticity of 0.39 shows that although Heathrow is resilient to the economy, it's revenues are still substantially exposed to recession. Furthermore, with a total cost base that is substantially fixed² any small variation in revenue will translate into a much bigger variation in profitability, cash flow and dividends. Just by way of illustration, the 2.8% loss of passenger (and consequently revenues) translated into an 8% loss of operating profit and free cash flow.

A downward revision to the beta of Heathrow allowed by regulation will deny investors compensation for historical risk and create an impression of regulatory capriciousness (i.e., "changing the rules of the game"). With the substantial decrease in beta and WACC for Q5 compared to Q4 and the subsequent failure of Heathrow to earn its return during the first five years of the current quinquennium, CEPAs arguments in favour of further reducing beta seem unreasonable. This is even truer when the CAA's Initial Proposals for beta and return on equity are compared to other recent price reviews.

The essential point is that not only has CEPA failed to provide any evidence that Heathrow's beta has fallen, but the best available empirical evidence, including very detailed reports by Europe Economics and NERA, shows that Heathrow's beta is substantially higher than that assumed in the Q5 settlement – both because the Q5 value was set too low given the actual experience of Q5, and also because investors' perceptions of airport riskiness have risen, particularly following the effect on the industry of the global economic crisis. If CEPA continues to pursue its line of reasoning we strongly believe that they should address the analyses produced by Europe Economics and NERA in their entirety rather than by anecdote and selective use of facts.

Beta evidence from comparator airports

Even apart from the unequivocal evidence on the coskewness of Heathrow's returns since its capacity constraint became effective (already demonstrated by Europe Economics and PwC³),

² Heathrow's operational costs are approximately 80% fixed in the short to medium term, and total costs are over 90% fixed when depreciation and the return on the RAB are included.

³ We note that although PwC found no evidence of coskewness in the period 1987-2006, they did find evidence in precisely the period where Heathrow was capacity constrained: 2001-2006 (PwC, 'Cost of capital for UK designated airport, paper on the split cost of capital and skewed returns – prepared to the Civil Aviation Authority', April 2013, see page 38). Heathrow's own analysis came to exactly the same conclusion – asymmetry, and more specifically coskewness, is empirically evident from 2001 – when Heathrow became capacity constrained. The

a proper analysis of the asset betas of Heathrow's two closest comparators points to a substantially higher asset beta than the Q5 settlement.

We have now been able to conduct a closer analysis of PwC's estimates and found fault with the way that its analysts de-levered the estimated equity to asset betas of AdP and Fraport (and other airports). PwC under-estimated asset betas by using gross debt to calculate the equity beta, because PwC assumed that cash balances were a working capital requirement (page 67 of the PwC report). However, like Heathrow, other airports also have liquidity credit facilities available. Fraport, for example, has an undrawn liquidity facility of around €500 million,⁴ and AdP around €400 million.⁵ This is in addition to substantial cash balances of €821.9 million for Fraport,⁶ and €797.1 million for AdP.⁷ Furthermore, in addition to cash balances Fraport records €841.1m of investments in debt instruments which the company subtracts to derive its 'net debt' figure.⁸

Therefore, Fraport and AdP, respectively, have access to €2,200 million and €1,200 million of liquid funding. These amounts exceed levels necessary for working capital, and are more likely to be reserves for corporate acquisition opportunities. Both Fraport and AdP are active in this arena, bidding in most of the recent airport privatization offerings. It is clear that PwC should have used net debt figures (i.e. less cash balances) – in any case a more conventional practice – leading to lower gearing and higher asset betas for other airports.

The table below shows a recalculation of PwC's asset betas. Under the columns 'Spot β_e ' and 'Spot β_u ' we show the levered and unlevered betas reported by PwC in Table 7.11 from its April 2013 report. This information allows us to use the Harris-Pringle formula (as does PwC) and a debt beta assumption of 0.1 (as does PwC) to calculate the leverage that PwC must have used. We show this in the column 'Implied leverage'. In the final two columns we then recalculate leverage using net debt (for reasons discussed above), but otherwise using the exact same methodology employed by PwC (5 years data on monthly returns, Bayesian adjustment to the raw equity betas and a debt beta of 0.1). A spreadsheet with all calculations is available on request.

hypothesis that the CAA should be testing is whether coskewness exists in the capacity constrained period of 2001-2006 – not the period 1987-2006. Looking at the period 2001-2006, coskewness is clearly observed.

⁴ Fraport, Annual Report 2012 (see page 33).

⁵ AdP, Annual Report 2012 (see page 30) and AdP, 2012 Full Year Results presentation, 28 February 2013 (see page 23).

⁶ Fraport, Annual Report 2012 (see page 80).

⁷ AdP, Annual Report 2012 (see page 5).

⁸ Fraport, Annual Report 2012 (see page 144).

PwC calculation: Spot betas as of 28th March 2013 based on gross debt (Table 7.11)				Heathrow calculation: 5 year gearing based on net debt	
Company	Spot β_e	Spot β_u	Implied leverage	Leverage	Spot β_u
Copenhagen Airport	0.77	0.59	27%	n.a.	n.a.
Vienna International Airport	0.76	0.37	59%	n.a.	n.a.
Zurich Airport	1.03	0.62	44%	34%	0.71
Auckland Airport	0.75	0.54	32%	28%	0.57
Florence Airport	0.49	0.43	15%	7%	0.46
Rome Airport	1.09	0.44	66%	58%	0.51
Sydney Airport	1.03	0.45	62%	47%	0.60
Fraport	1.00	0.48	58%	31%	0.72
Paris Airport	0.92	0.58	41%	29%	0.68
Average Total	0.87	0.50	45%	33%	0.61
Average Fraport & AdP	0.96	0.53	50%	30%	0.70

After adjusting PwC calculations with the correct leverage position, the average asset beta of listed airports is 0.61. However, Heathrow has always argued that the most relevant comparators are the large European hubs of Frankfurt and Charles de Gaulle.⁹ The holding company asset betas of these hub airports are remarkably consistent at 0.72 and 0.68 respectively, averaging 0.70. This compares to only 0.42-0.52 assumed 6 years ago for Heathrow for Q5. The best analysis of the available current evidence clearly points to an asset beta for Heathrow well above the level for Q5.

Not only are airports riskier (more revenue-exposed) than utilities (see NERA's reports¹⁰), but evidence shows that they have got riskier over the last 5 years -- since the Q5 WACC was set.

We have also looked at the trend in Fraport's asset beta since the Q5 decision.¹¹ As before, we used PwC's approach of 5 years data on monthly returns with a Bayesian adjustment to the raw equity betas (which we sourced from Bloomberg), and a debt beta of 0.1 with the Harris-Pringle formula for deleveraging. We can provide the spreadsheet used in the calculation to the CAA on request. The critical comparison is the value of Fraport's asset beta now (or more precisely in July 2013) with that when the Q5 decision was made (sometime between December 2007 and March 2008), since it is **this comparison alone** that will show if the Q5 asset beta is too high or too low. The table below shows the changes.

Trend in Fraport's asset beta since Q5	
Dec-07 to Jul-13	+ 7.0%
Mar-08 to Jul-13	+ 16.0%

The analysis clearly shows that Fraport's asset beta (measured from 5 years of monthly returns) is between 7-16% higher now than it was at the time of the Q5 determination.

⁹ We have previously noted that these airports dominate their groups.

¹⁰ NERA, 'A Review of the Risk Assessment in the CAA's Initial Proposals for Q6, A Report for London Heathrow', 10 June 2013.

¹¹ We can't do this comparison for AdP because of the shorter history of public listing.

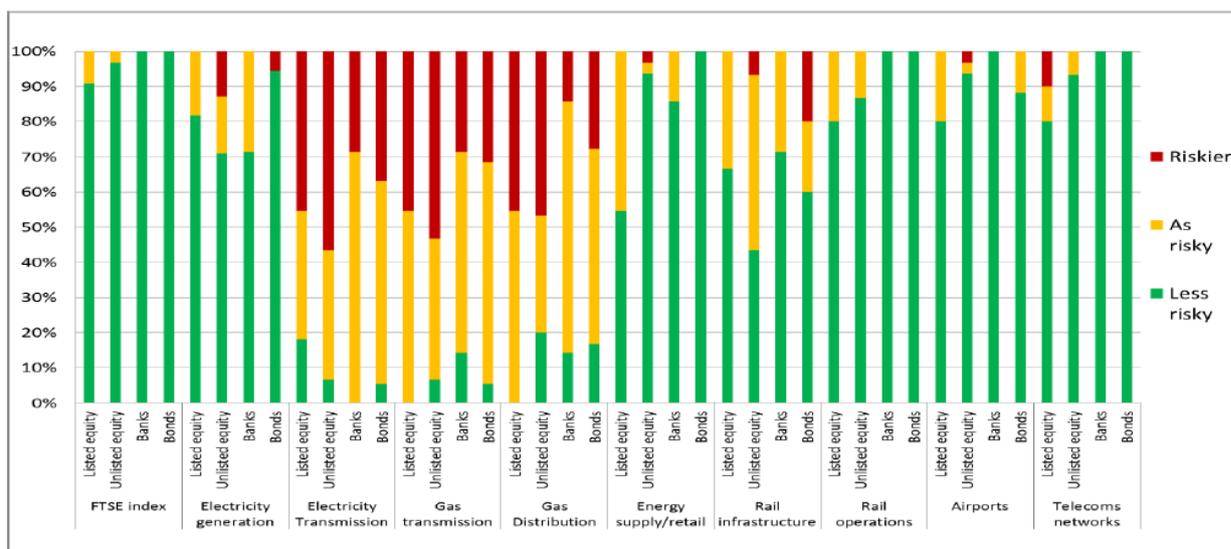
Beta evidence from investor surveys

Indepen’s “2013 Survey of Investors in the water sector”¹² has provided further insight into the relative risk of airports compared to other regulated sectors. Indepen’s Chart 11 (reproduced below) shows the riskiness of water relative to each sector and so, by implication, the riskiness of each sector relative to water. Over 80% of investors believe equity investment in water to be “less risky” than airports – and so by implication over 80% of investors believe equity investment in airports to be more risky than water. Interestingly, the results for telecoms and rail operations (as opposed to rail infrastructure) are very similar to those for airports, suggesting that airports, telecoms and rail operations are all of comparable risk.

The less risky sectors are rail infrastructure -- but still more risky than water; and all the energy transmission and distribution networks – all less risky than water.¹³

Investor Survey June 2013

Chart 11 – Riskiness of water relative to other infrastructure sectors



The striking conclusion is that the energy transmission and distribution networks are viewed by investors as being the least risky of all the regulated sectors. It follows that Ofgem’s recent decisions on WACC for electricity and gas transmission and gas distribution should represent a floor for all other regulated sectors. The table below shows that rather than treating the energy transmission and distribution networks as a risk floor, the CAA’s Initial Proposals has placed Heathrow as a range centred about the energy networks.

¹² Indepen, ‘2013 Survey of Investors in the water sector, A Report by Indepen for Water UK’, June 2013.

¹³ Energy supply and retail (unregulated), and the FTSE index as a whole are both seen as being more risky equity investments than any of the regulated sectors.

	Post-tax cost of equity	Implied vanilla WACC
CAA Initial Proposals	5.65-7.65%	3.64-4.86%
Ofgem – electricity transmission	7.0%	4.6%*
Ofgem – gas transmission	6.8%	4.4%*
Ofgem – gas distribution	6.7%	4.2%*
<u>Other recent regulatory decisions</u>		
ORR – Network Rail (Draft)	n/a	4.3%

* Adjusted within in building block model for accounting return to give effective WACC of 4.1% (gas distribution), 4.5% (electricity transmission) and 4.3% (gas transmission)

Indepen’s report also analyses the changes in investors’ responses since the previous report in 2008 (conveniently the time of the Q5 price review). Indepen’s Table 2 is reproduced below. This table shows that, since 2008, the relative riskiness of water has increased relative to electricity generation and gas distribution and transmission; but has reduced relative to telecoms, and even more so compared to airports.

Water has maintained its relative risk position compared to the FTSE index as a whole, energy supply and retail, and electricity transmission.

Table 2 – Relative risk in comparison with 2008 (% change)

	Water less risky	Water as risky	Water riskier
FTSE index*	-3	3	0
UK energy supply/retail	-4	8	-4
Telecoms*	8	-1	-1
UK electricity generation	-13	8	5
Airports*	13	-3	-4
UK gas distribution	-12	9	3
UK gas transmission	-11	6	4
UK electricity transmission	-1	2	-1

*Compared with 2008, we changed the descriptions of some of the comparators. What we now have as FTSE index was previously described as "Average UK market," Telecoms was previously BT and Airports was BAA. These changes were made to make the descriptions consistent.

The overall conclusion we can take from Table 2 is that, since 2008, the relative riskiness of airports has increased compared to all regulated sectors, and the FTSE index as a whole. Contrary to the position of CEPA therefore, the Indepen data supports an increase in the relative riskiness of airports since Q5, and this should be expressed in an increase in both airports asset betas relative to all regulated sectors and the FTSE index.

Finally under the heading of ‘Experience of Q5’ CEPA claim that Heathrow should have learned ‘lessons’ from Q5 events such as snow disruption, the Icelandic volcano and the global financial crisis. In the case of snow disruption it is certainly true that Heathrow is now better prepared for snow events. However, Heathrow’s shock analysis shows that snow events are a relatively small risk. The ash cloud event from the Icelandic volcano was many times more material, but since all airspace was closed it is difficult to see what action Heathrow could have taken to protect passenger volumes. Similarly it is difficult to see how Heathrow could protect revenues against the 2.8% fall in passenger numbers as a result of the global financial crisis.

In summary, the fact that recent transactions for Heathrow shares valued the airport at 1.09x multiple of RAB and these same investors assumed a WACC for Q6 substantially above that of Q5 in part due to the CAA's most recent NATS decision (i.e., 7.0% for a business protected by a strong risk sharing mechanism) demonstrates that the CAA's Initial Proposals for WACC (i.e., 5.35%) severely understates the risk of Heathrow as perceived by equity investors in that airport.

2. The CAA's selection of a point in its WACC range

The CAA argues that precedent and consistency are important to any settlement. In Q5 the CAA adopted the 88th percentile. There is no reason why the CAA should move away from this precedent. In the NATS review, it was established by CAA that when the asset beta is not observable the degree of aiming up should be higher. There is no reason why this should change. In fact there is now even less certainty over the value of Heathrow's asset beta than there was at the time of Q5, since the data on which the Q5 estimates were based is now 6 years out of date.

CEPA's arguments on the impact on investment incentive

CEPA use a highly subjective argument that airports' underinvestment is somehow more acceptable than that of other utility sectors. Indeed, investment for airport maintenance and safety must be every bit as important as comparable investment for utilities. Separately, Heathrow's severe capacity constraint is a relatively recent phenomenon and the importance of delivering the airport's Master Plan, including de-bottlenecking existing infrastructure and delivering expansions, is becoming more (not less) important to the airlines, their passengers and the UK economy. If CEPA determines to pursue this line of reasoning, they should provide a more fulsome and fact-based explanation of the differences between airports and utilities with regards to their respective need for investment. Currently, CEPA's reasoning is anecdotal and spurious.

Nor, as CEPA argue, is investment by airlines materially damaged by setting airport charges at a level to incentivise airport investment. Airport charges are, in large part, passed on to airline passengers. CEPA almost acknowledge this when they say that "...passenger demand at airports is not perfectly inelastic". This is true, and in fact Heathrow's econometric model, reviewed by Dr Bates, estimates an average fare elasticity at Heathrow of -0.11. This shows that although demand is not perfectly inelastic, it is nevertheless substantially inelastic, and so any rise in airport charges will be largely passed on to passengers in higher fares with minimal impact on demand. When we combine this with the fact that airport charges are only a small proportion of the total fare (far less than APD) and so the effective elasticity with respect to airport charges will be only a small proportion of -0.11 (most probably less than -0.01), it follows that the impact on return to airline investment will also be minimal and so airline investment will be largely unaffected by Heathrow's airport charges. In fact the 80% load factors of airlines operating from Heathrow provide no indication that airport charges are constraining passenger numbers.

Added to this airport and airline investment is in many cases complementary. Airline investment in capacity will, in many cases, be conditional on airport investment in, for example, stands. A WACC that encourages airport investment will, therefore, also support airline investment.

Finally, CEPA claim that since Heathrow is investing less in Q6 than Q5, there is less need to incentivise investment. But as we have already argued, investment in airports is long term with average asset lives of 20-30 years. Heathrow invested in Q5 in part because it believed there would be stability of regulation over the long term, including the WACC in future quinquennia. Reducing WACC in Q6 compromises not only investment in Q6, but in future quinquennia also.

CEPA's arguments on WACC components

In its Table 1.4, CEPA suggest that the CAA is already marking up individual WACC components – and asserts this on the basis that the PwC range is above CEPA's own estimate. Heathrow would argue the precise reverse -- the PwC range is an underestimate.

Professor Sudarsanam

In regard to the paper by Professor Sudarsanam, we are separately submitting a paper from Europe Economics that addresses the further points raised by Professor Sudarsanam. Europe Economics provides an explanation of why regulators "aim-up" on WACC, and also respond to Professor Sudarsanam's spurious arguments for why these should not apply in the case of Heathrow. It remains the case that, in the long run, it will be worse for passengers if airport investment is disincentivised through a WACC that is too low compared to a situation where airport charges are set slightly too high. The argument that airline investment will be disincentivised lacks substance as we have discussed above. Airlines also would be worse-off if airport investment is disincentivised.

Europe Economics also respond to Professor Sudarsanam's misunderstanding of the role of the 3rd moment CAPM. Whilst they agree that the 3rd moment CAPM can't be calibrated with the same precision as the traditional 2nd moment CAPM, the higher cost of equity that it implies does provide a cross-check for the results from (a) the analysis of NERA that Heathrow's asset beta should significantly exceed that of regulated utilities, and (b) evidence from betas of Fraport and AdP, to support the weight of evidence that Heathrow's asset beta is above that of the Q5 determination.

Impact of the CAA's proposed Q6 licence requirement to maintain 24 months resources

It is important to highlight the adverse impact on the cost of debt, and so WACC, of the CAA's draft licence requirement for Heathrow to have sufficient financial resources for a 2 year period (see page 269 of CAA's Initial Proposals).

We have previously indicated that the impact on our overall cost of debt of maintaining our liquidity support, through our revolving credit facilities, was 17-20 basis points split broadly equally between front end fees and commitment fees (see Heathrow's response to the Initial Proposals , Appendix 2 – see page 124). This assessment was based on the current size of the facilities that are tailored to provide 12-15 months liquidity (with a cushion beyond that for safety) and an assumption that the 5 year facilities would need to be refinanced every 3.5-4.0 years to maintain our going concern obligations.

The impact of the CAA's proposals on cost of debt would be felt in two areas. First, Heathrow would need to have around £750m in additional facilities which would cost £4m per annum in commitment fees which would add 4-5 basis points to the overall cost of debt at the 60% notional gearing. Heathrow would also need to refinance the facilities every 2.5-3.0 years rather

than 3.5-4.0 years so as to maintain the assurance of 2 years of financing. Combining this (which gives rise to amortising front-end fees over a one year shorter period) with the additional £750m in facilities would add 6-7 basis points to the cost of debt.

So in summary, the CAA's proposals for 2 years assurance on resources would add 10-12 basis points to Heathrow's cost of debt. The CAA should take account of this when considering where in its range to determine Heathrow's WACC.

3. Debt indexation

Debt indexation has been adopted by Ofgem in the context of the move towards 8 year price controls, but not adopted by any other regulator. Despite Ofgem's precedent, other UK regulators have not chosen to adopt cost of debt indexation to set cost of debt allowances. Most recently in its recent methodology paper for PR14 (2015 to 2019), Ofwat stated that it intends to retain its existing approach to setting fixed cost of debt.

The idea behind indexation is that it would reduce risks for investors, by allowing pass-through of relevant interest rate changes. However, there are a number of issues that the CAA will need to consider if this objective is to be achieved:

- Firstly, for risk to be reduced, the CAA would need to provide assurance that, over the course of a number of quinquennia, the indexation regime would be applied equally in those periods where interest rates were expected to rise, as in those where they were expected to fall;
- Second, the CAA would need to take a view that, over the long term (many quinquennia), airlines were in a better position to absorb interest rate risk than Heathrow;
- Thirdly there would be a number of significant challenges to the construction of the control index:
 - How would it reflect the pattern of Heathrow's new debt requirements, both historically and in future?
 - How will the issuance and other debt platform costs be reflected, since these are not covered by any of the published indices? Heathrow's efficient debt programme -- consisting of multiple maturities, multiple currencies, multiple tenures -- will need to be reflected, as well as the cost of the funding platform. In the case of Heathrow, therefore, there would need to be a margin above any debt index to reflect debt platform costs (estimated to be 32-38 bps) and costs associated with foreign currency issuance (at least 30 bps). CEPA appears to be unaware of these costs since they do not feature in their proposed indexing arrangements;
 - What particular type of corporate bonds (sector, tenure and risk rating) would be included in the index?
 - Most importantly, does the chosen index actually track Heathrow's efficient cost of debt, and is the relationship sufficiently stable over time for the chosen index to provide a suitable proxy for the whole of the Q6 period? Europe Economics

found that Heathrow's debt (and airport debt in general) traded at higher yields than both UK utility debt, and corporate debt in general of equivalent credit rating. Although this difference may have narrowed in recent months, this does suggest that the relationship is not stable over time, and could be influenced by external events such as unexpected regulatory risk, or prospective changes in future debt requirements (e.g. an increased likelihood of 3R investment). We note that this is in contrast to the energy networks, where the relationship between corporate debt yields and the iBoxx index was found to be relatively stable.

Heathrow is not opposed to debt indexation, provided that an appropriate index is identified to accurately reflect the costs of Heathrow's efficiently incurred debt. Although Ofgem has adopted debt indexation it is worth noting that other regulators have been more cautious. CEPA itself says:

In design and implementation, it is important that the mechanism reflects the specific case of airports rather than simply adopting the Ofgem model without further analysis for simplicity.

We have commissioned work from NERA to explain the issues with the application of debt indexation to Heathrow. NERA's emerging conclusions are:

- CEPA's proposals for debt indexation are clearly deficient:
 - Heathrow debt has historically required yields above the proposed iBoxx indices. NERA find that between 2008 and 2012 Heathrow's sterling bonds have averaged a premium of 80 basis points to CEPA's proposed iBoxx benchmark index. The fact that the difference has narrowed in recent months simply shows that the relationship is unstable and can't be relied upon for the whole of the forthcoming Q6 period;
 - The maturities of Heathrow's debt do not match the equal weightings of 3-5 year, 7-10 year and 15+ years proposed by CEPA;
 - Heathrow's debt requirements are lumpy, making the 10 year trailing average an incorrect proxy;
 - CEPA's proposals ignore debt platform costs (e.g. transaction costs);
- If debt indexation were to be adopted by the CAA, it would require the following characteristics:
 - It would need to reflect the 10-15 year average maturities of Heathrow's debt;
 - The weighting in the historical averaging would need to reflect the actual profile of Heathrow's actual debt issuance;
 - The level of the index would need to be adjusted to reflect the premium Heathrow's debt incurs compared to the index (e.g. because of Heathrow's airport risk profile) – at least 60 bps;
 - The relationship between the chosen index and Heathrow's actual debt yields would need to be shown to be sufficiently stable;

- An additional allowance would need to be included for Heathrow's efficient debt platform costs that would not be captured by the index (e.g. transactions costs and fees).

Finally, the CAA should be cautious about moving to debt indexation in a hurried manner at the end of the Q6 determination process, without a full analytical basis. It may make sense to monitor various indices during Q6 and run a yearly shadow analysis of what would have happened under different mechanisms.