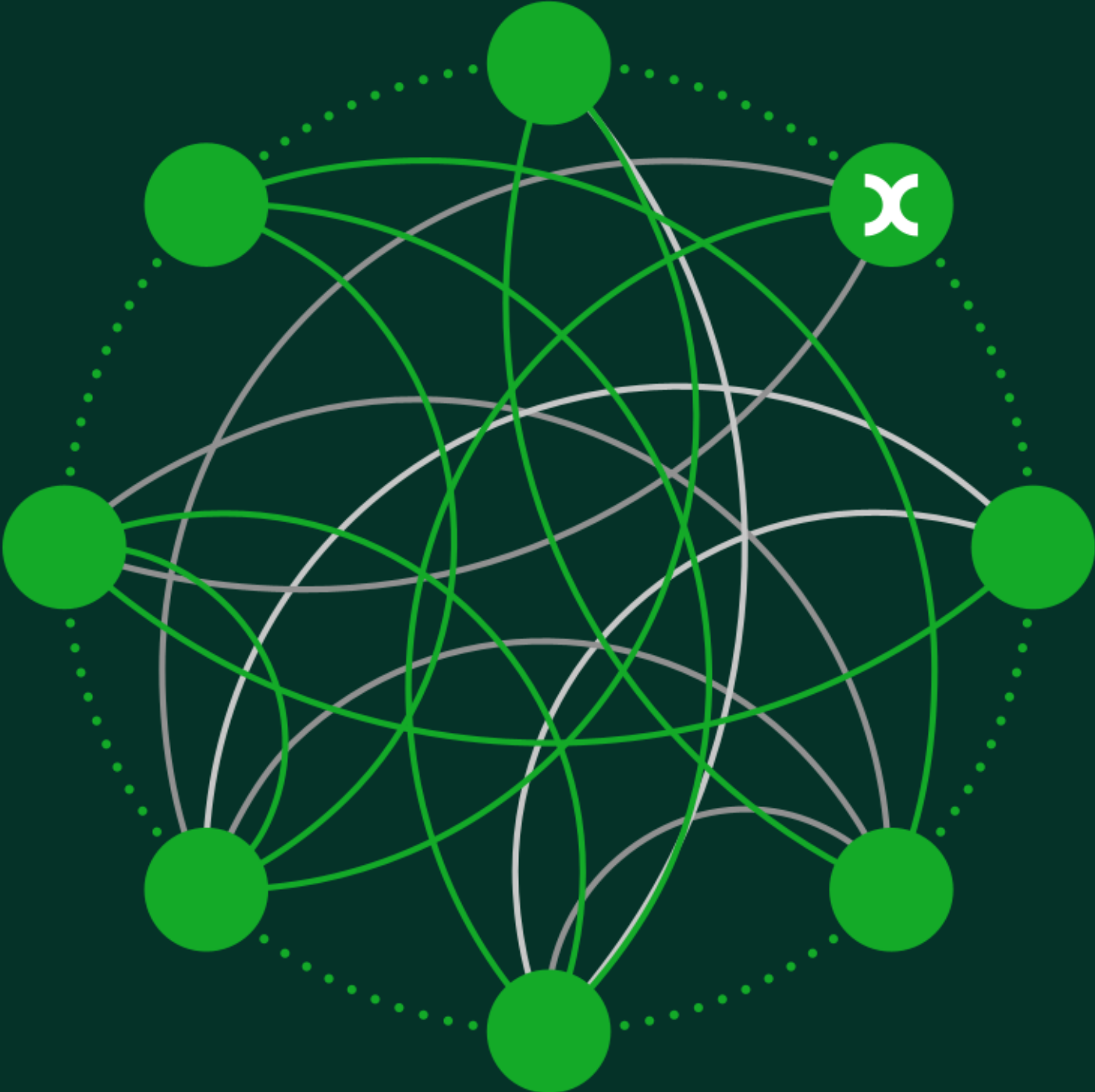


August 2023



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Executive summary

In light of the Civil Aviation Authority's (CAA) Provisional Decision, NERL has asked Oxera to undertake a revised assessment of the NR23 risk-free rate, asset beta and cost of debt, considering the recent market developments since our response to the CAA's Initial Proposals.



Box 1.1 Findings

Taking account of market data up to 31 March 2023:

- our range for the risk-free rate—based on the one-month trailing average yield on ten-year ILGs, a convenience premium of 50bp and a forward adjustment—amounts to 0.67–0.98%. This is lower than our previous range of 0.94% to 1.31%, which reflected at the time the dramatic increase in gilt yields in October 2022;
- we maintain our range for the asset beta of 0.61–0.74, in light of the relatively constant one-, two- and five-year asset betas for aviation comparators since our previous assessment. It is notable that the estimated betas for ENAV sit at the top end of this range (or above);
- our RPI-real cost of debt estimate now amounts to -0.64%, compared to -0.14% previously. The decrease is mainly due to the £105.5m (fair value) of debt raised through the March 2023 tap issuance being lower than the £250m holding assumption used at the time of our previous assessment. This results in more weight being placed on older debt with lower yield at issuance.

Source: Oxera.

1 Introduction

- 1.1 The CAA's NR23 price control review will establish the maximum level of air navigation charges that NERL will be able to impose in the period from January 2023 to December 2027.
- 1.2 At various points throughout the periodic review process, NERL has commissioned Oxera to undertake independent assessments of the cost of capital for NR23 based on the latest market evidence.¹
- 1.3 Given the developments in capital markets since our response to the CAA's Initial Proposals,² we have now updated our estimates of the risk-free rate, the asset beta, and the cost of debt parameters. We also comment on the CAA's Provisional Decision in regard to these parameters, where applicable.³
- 1.4 The analysis underpinning our risk-free rate and beta analysis uses a cut-off date of 31 March 2023. This date was chosen (prior to publication of the Provisional Decision) to align with NERL's expectation of the cut-off date that the CAA would use for the analysis underpinning its Provisional Decision. We note that, in reality, the CAA has used a cut-off date of 15 March 2023 for its cost of capital analysis. However, the impact of this should be relatively small.
- 1.5 The remainder of the report considers the following cost of capital parameters in turn:
 - section 2 discusses the risk-free rate;
 - section 3 presents the asset beta;
 - section 4 covers the cost of debt.

¹ Oxera (2021), 'Cost of capital for NR23', October and Oxera (2022) 'NR23 cost of capital: November 2022 update', December.

² Oxera (2022), 'NR23 cost of capital: November 2022 update', December.

³ Civil Aviation Authority (2023), 'Economic regulation of NATS (En Route) plc: Provisional Decision for the next price control review ("NR23")', CAP2553, July.

2 Risk-free rate

2.1 General approach

2.1 In estimating the risk-free rate for NR23, our approach to date has involved:

- calculating the trailing one-month average of the spot yield on ten-year index-linked gilts (ILGs);
- adding a convenience premium of 50bp in accordance with academic and empirical evidence;
- applying a forward-rate adjustment based on the implied forward yield over the NR23 period.

2.2 Our resulting risk-free rate range in our December 2022 report was 0.94% to 1.31%.⁴ This captured evidence on yields through to a cut-off date of 11 November 2022.

2.3 The remainder of this section updates this range by applying the same methodology but updating for more recent market evidence (section 2.2). We then consider how this differs from the CAA's estimate (section 2.3).

2.2 Revised Oxera estimate

2.2.1 Index-linked gilts (ILGs)

2.4 Using a cut-off date of 31 March 2023, the trailing one-month average of the spot yield on ten-year ILGs is 0.17%.

2.5 This compares to a one-month average yield of 0.43% at our previous cut-off date of 11 November 2022 (a reduction of 26bp). The decrease in the observed yield reflects the fact that at the time of our previous report, gilt yields had increased dramatically in October 2022 due to market (and political) conditions at the time, before falling in November 2022.

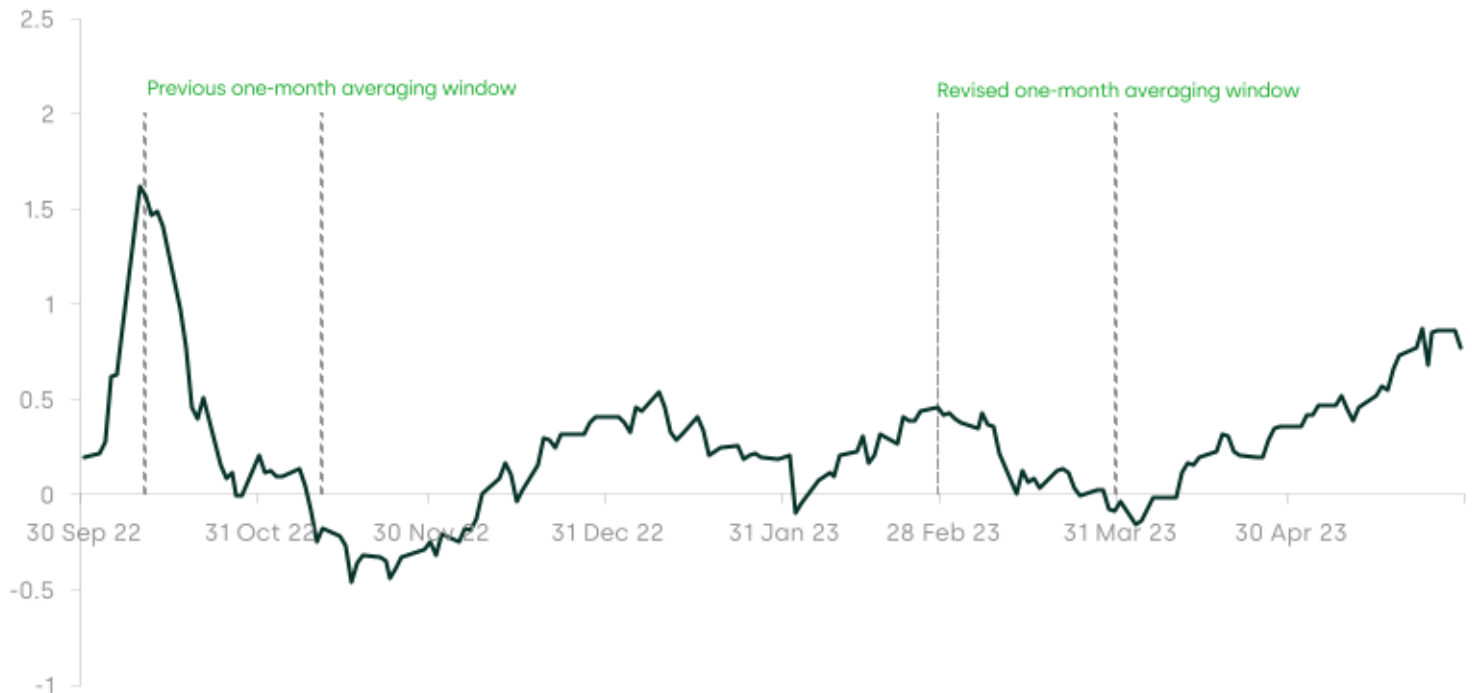
2.6 This is illustrated in Figure 2.1 below. The surge in yields in October 2022 has been attributed to the volatility of capital markets following the Truss/Kwarteng mini-budget as well as the sell-offs of gilts between 11 and 14 October, as the end of

⁴ Oxera (2022), 'NR23 cost of capital: November 2022 update', December, p. 16.

the Bank of England's temporary intervention to buy bonds was approaching.⁵

- 2.7 The yields on ten-year ILGs have subsequently fluctuated between -0.5% and +0.5%, and while the yield in March 2023 was 0.17%, there has been a general upwards trend thereafter, as can be seen in Figure 2.1.

Figure 2.1 Spot yield on ten-year ILG (%)



Source: Oxera analysis based on data from Bank of England data.

- 2.8 Table 2.1 below shows the variance in yields depending on the cut-off date for the risk-free rate analysis. Using a more recent cut-off date, of 31 May 2023, would result in a trailing one-month average of the spot yield on ten-year ILGs of 0.59% (an increase of 42bp relative to two months earlier). This highlights that the risk-free rate estimate is currently relatively sensitive to the cut-off date of the analysis.
- 2.9 An estimate based on spot rates could also be considered as this would reflect the latest information available from the

⁵ The Bank of England bond market intervention was set from 28 September to 14 October 2022. Bank of England (2022), 'Bank of England widens gilt purchase operations to include index-linked gilts', October, available at: <https://www.bankofengland.co.uk/news/2022/october/boe-widens-gilt-purchase-operations-to-include-index-linked-gilts>, last accessed on 28 June 2023.

market. However, for the purposes of this report, we have continued to assess the one-month trailing average of the yield.

Table 2.1 Impact of different cut-off dates on ILG yields

Cut-off date	Spot yield	One-month trailing average
11 November 2022 (previous Oxera report)	-0.17%	0.43%
31 March 2023	-0.04%	0.17%
31 May 2023	0.70%	0.59%

Source: Oxera analysis based on data from Bank of England data.

2.2.2 Convenience premium and forward adjustment

2.10 As set out in our previous report, we apply a convenience premium of 50bp to the spot yield data in accordance with academic and empirical evidence.⁶

2.11 We previously applied a forward adjustment to both the low and the high end of our range, with the low end based on the implied forward yield at the start of the NR23 period (1 January 2023) and the high end based on the implied forward yield at the end of the period (31 December 2027).

2.12 For this update, we no longer apply the forward adjustment to the low end of our range, given that the regulatory period has now started. However, we continue to apply an implied forward yield for the end of the NR23 period for the high end of our range.⁷

2.2.3 Revised risk-free rate estimate

2.13 Based on the methodology set out above, our revised risk-free rate range (using a cut-off date of 31 March 2023) is 0.67% to 0.98%, as set out in Table 2.2 below. If a later cut-off date were to be used, the corresponding risk-free rate estimate would

⁶ Oxera (2022), 'NR23 cost of capital: November 2022 update', December, pp. 14–15.

⁷ This is calculated as a forward adjustment between our cut-off date of 31 March 2023 and the end of NR23.

currently be higher, in light of the increase in gilt yields over the last few months.

Table 2.2 Revised risk-free rate estimate

Parameters	Lower bound	Upper bound
UK government bond yields (one-month average at 31 March 2023)	0.17%	0.17%
Convenience yield	0.50%	0.50%
Forward adjustment	0.00%	0.31%
Proposed risk-free rate	0.67%	0.98%

Source: Oxera analysis.

2.3 Comparison to the CAA's Provisional Decision

2.14 The CAA's Provisional Decision incorporates an updated value for the risk-free rate, taking account of data up to 15 March 2023. This leads to a significant increase in its estimate relative to the Initial Proposals given the movement in ILG yields in the period following the CAA's previous cut-off date (of March 2022). The use of updated data brings the CAA's estimate into much closer alignment with the Oxera estimate.

2.15 The most significant remaining differences in approach between our above estimate and the CAA's estimate of 0.32–0.82% in its Provisional Decision⁸ are as follows.

- While there is agreement on the need for a convenience premium and its size,⁹ the CAA applies the premium only to the top end of its range for the risk-free rate.
- We continue to apply a forward adjustment, whereas the CAA does not consider that such an adjustment is necessary.

⁸ Civil Aviation Authority (2023), 'Economic regulation of NATS (En Route) plc: Provisional Decision for the next price control review ("NR23")', CAP2553, July, p. 156.

⁹ The CAA's latest estimate of the convenience premium (of 49bp) is very close to our estimate (of 50bp).

2.16 The rationale behind our approach is detailed in our previous report.¹⁰ In particular, we noted that:

- the CAA's approach effectively means that only half of the estimated convenience yield is applied to the mid-point estimate of the risk-free rate;
- forward curves reflect market-implied expectations for future interest rate changes over the course of the price control period and therefore constitute relevant evidence when setting a fixed risk-free rate allowance on a forward-looking basis.

¹⁰ Oxera (2022), 'NR23 cost of capital: November 2022 update', December, pp. 14–16.

3 Asset beta

3.1 General approach

3.1 Throughout the NR23 review, our approach has been to estimate NERL's asset beta based on an approach that directly relies on empirical market data. This approach aligns with well-established regulatory practice, and avoids the subjective adjustments required under the CAA's proposed beta methodology.

3.2 In updating our analysis, we have calculated one-, two- and five-year daily asset betas for our comparator set, which consists of four airport operators (Aéroports de Paris (AdP), Aena, Fraport, Zurich) and one air navigation service provider (ENAV).

3.3 Our proposed range includes the full range of the average beta estimates across these various estimation windows. Given that ENAV is the closest comparator to NERL, as the only publicly listed air navigation service provider, we have placed particular weight on the ENAV beta in our analysis to date.

3.4 Our asset beta range in our December 2022 report was 0.61 to 0.74.¹¹

3.2 Revised Oxera estimate

3.5 Table 3.1 below shows the asset beta estimates at our previous cut-off date of 11 November 2022, and at our current cut-off date of 31 March 2023.

¹¹ Oxera (2022), 'NR23 cost of capital: November 2022 update', December, p. 25.

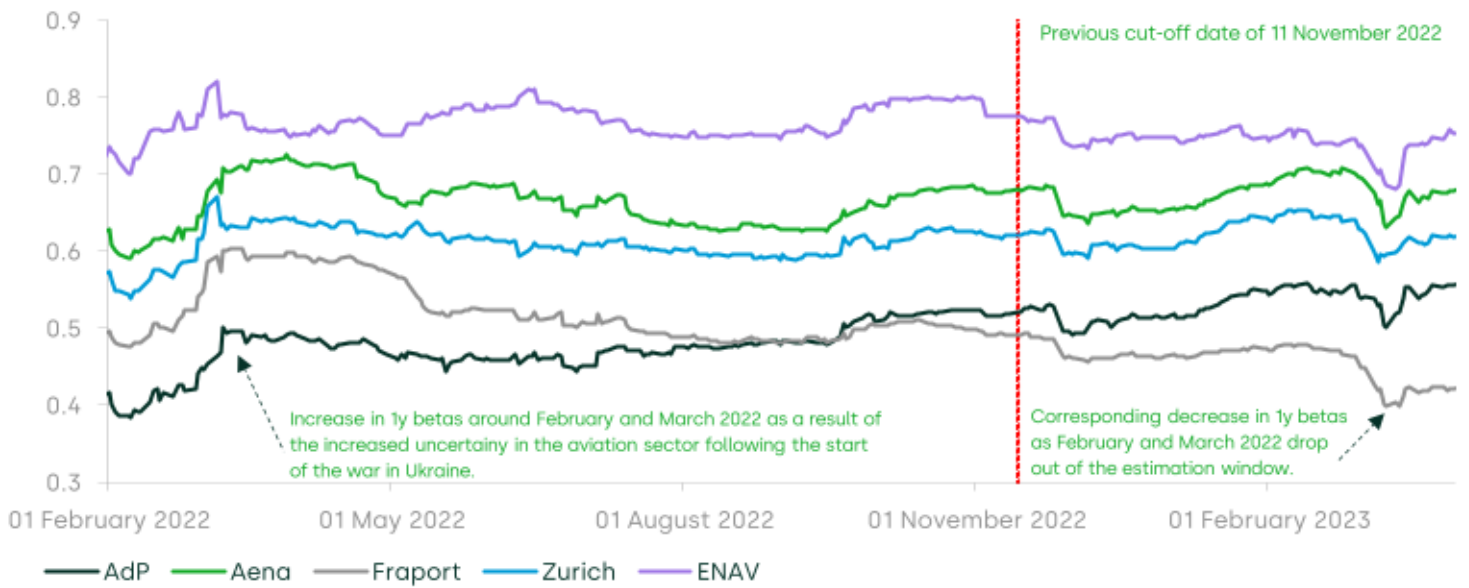
Table 3.1 One-, two- and five-year asset betas of comparators

Comparator	11 November 2022			31 March 2023		
	One-year	Two-year	Five-year	One-year	Two-year	Five-year
AdP	0.52	0.49	0.76	0.56	0.52	0.76
Aena	0.68	0.68	0.80	0.68	0.70	0.81
Fraport	0.49	0.51	0.66	0.42	0.51	0.65
Zurich	0.62	0.62	0.79	0.62	0.63	0.77
ENAV	0.78	0.75	0.70	0.75	0.75	0.70
Average	0.62	0.61	0.74	0.61	0.62	0.74

Source: Oxera analysis based on data from Bloomberg.

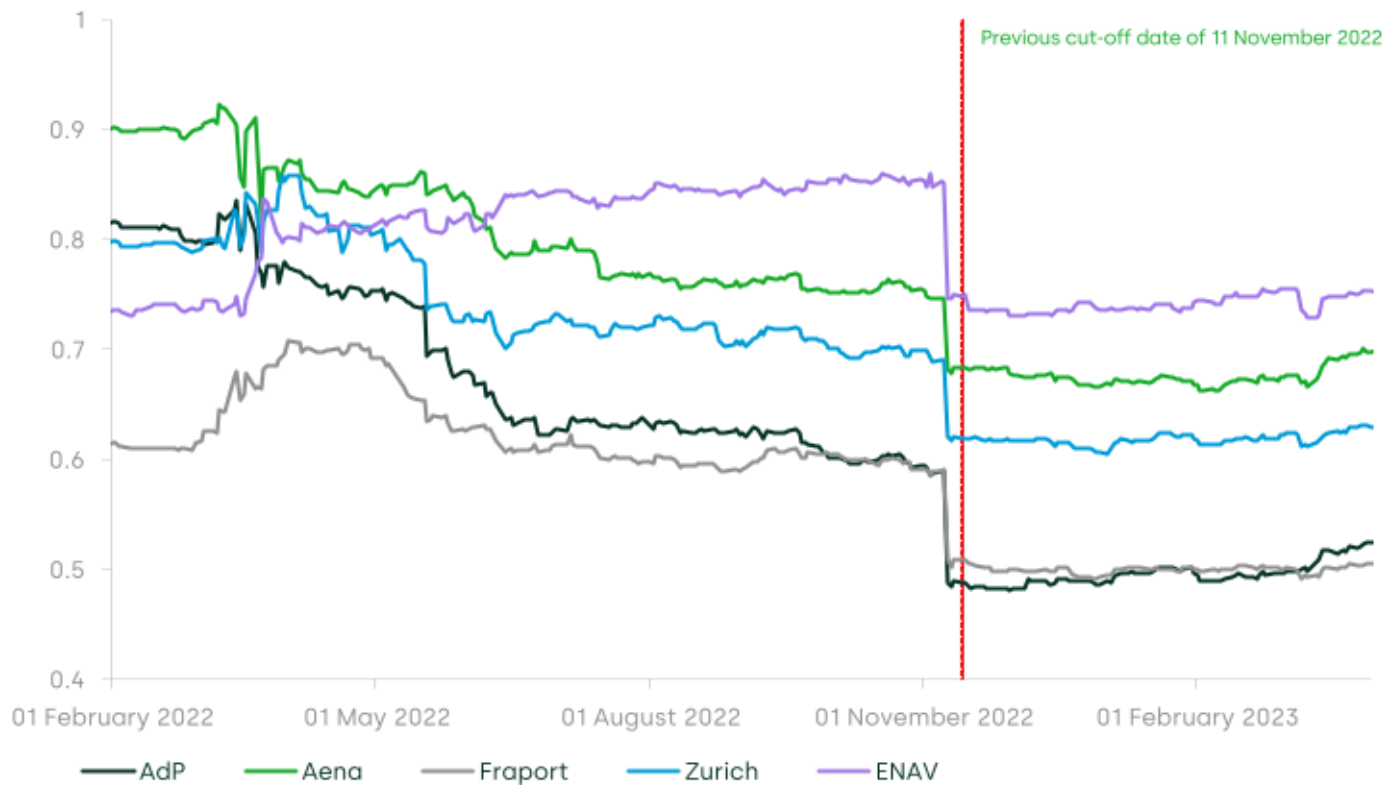
- 3.6 Table 3.1 shows that two- and five-year asset betas have stayed relatively stable, on average, since our previous assessment. This is evident in Figure 3.2 and Figure 3.3 respectively below.
- 3.7 The one-year asset betas for the sample have also remained relatively stable, albeit with some volatility around February and March 2023, where the decrease highlighted in Figure 3.1 corresponds to the drop-out from the estimation window of the increased betas observed in the aviation sector around the time of the start of the war in Ukraine in February and March 2022. Indeed, at the start of the conflict, there was increased uncertainty in the aviation sector as a result of transport disruptions and increased jet fuel prices, among other factors, which in turn led to an increase in aviation betas.

Figure 3.1 One-year daily asset betas



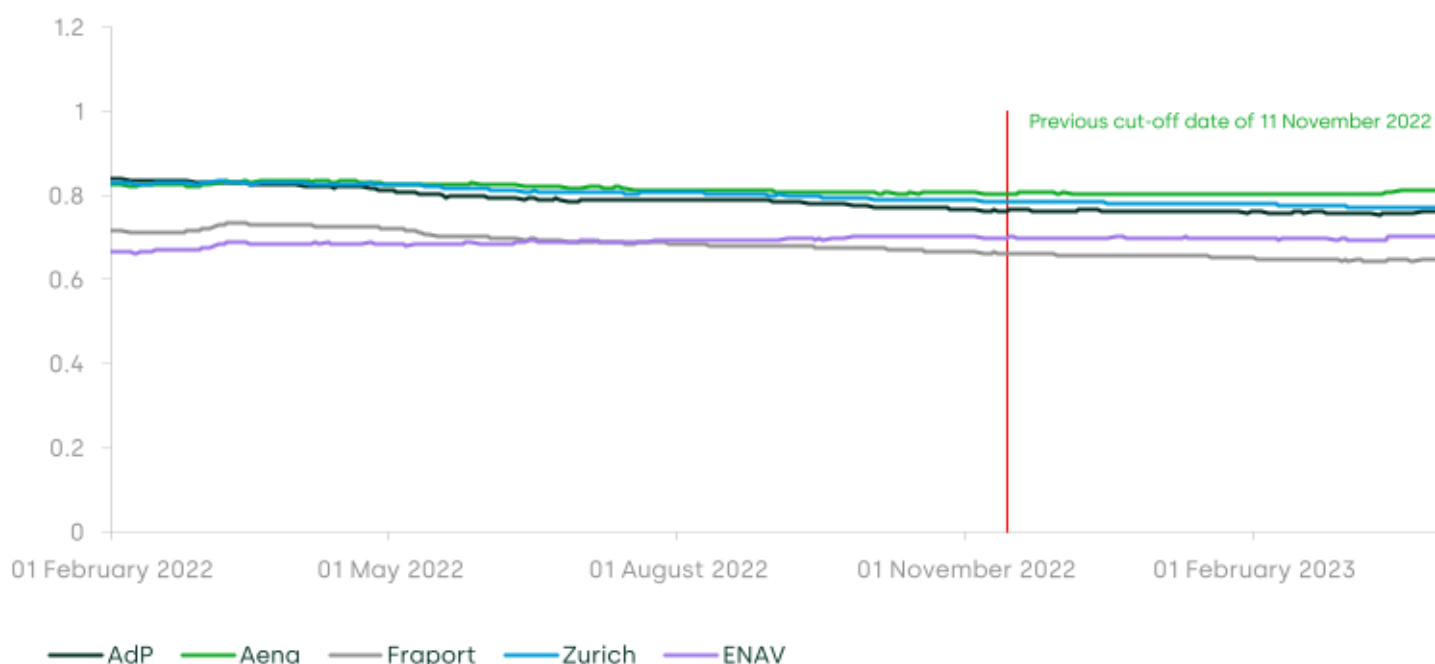
Source: Oxera analysis based on data from Bloomberg.

Figure 3.2 Two-year daily asset betas



Source: Oxera analysis based on data from Bloomberg.

Figure 3.3 Five-year daily asset betas



Source: Oxera analysis based on data from Bloomberg

3.8 As mentioned above, in our December 2022 report, the market evidence showed that the average of the betas across all comparators was 0.62 for the one-year asset beta, 0.61 for the two-year asset beta and 0.74 for the five-year asset beta. This resulted in a range of 0.61–0.74.

3.9 As shown in Table 3.1, the updated evidence suggests that the range put forward in our previous report remains appropriate.

3.10 Additionally, the data on ENAV indicates that a point estimate towards the top end of our proposed range may be appropriate. This remains particularly relevant, as ENAV's betas have continued to trend upwards since the 31 March 2023 cut-off date. Indeed, as at 31 May 2023, ENAV's beta range was 0.70–0.78,¹² compared to 0.70–0.75 at 31 March 2023, as shown in Table 3.1.

3.3 Comparison to the CAA's Provisional Decision

3.11 The CAA's Provisional Decision uses an asset beta range of 0.52–0.70, with a point estimate of 0.61. This range is based on

¹² Oxera analysis based on data from Bloomberg.

updated analysis undertaken by Flint Global, which considers 'clean' beta estimates and then applies a COVID uplift based on Flint's assessment of 'COVID-affected' data.¹³

3.12 We note that the CAA now bases its estimate on the full Flint range, rather than cutting off the top end of the range (as it had done at the Initial Proposals stage). Moreover, the comparator set now aligns more closely to the comparator set that we have considered, as Sydney and Vienna are no longer included in Flint's analysis.

3.13 These changes go some way to reducing the differences between our assessment and the CAA's assessment of the appropriate beta. However, there remain key differences in terms of the following factors.

- **The approach to accounting for the impact of COVID-19.**
The CAA continues to rely on Flint's approach to adjusting 'baseline' betas for COVID effects. As noted in our previous report, Flint's approach relies on a COVID adjustment being made to the baseline beta in future regulatory periods. If NERL were to receive the uplift to the pre-pandemic beta for only one control period, it would be remunerated for only a fraction of the pandemic-related beta risk over the 20–50-year period. Flint acknowledges this in its latest report:

'NERL and Oxera suggest that it is implicit in our approach that a COVID adjustment should be applied permanently (i.e. in future price control decisions). We do not speculate about what market evidence will be available to the CAA in future. However, we agree that an 'ongoing' COVID adjustment may be justified, so long as backward-looking evidence relied upon to estimate the future 'baseline beta' is judged to be clean of COVID-19-like events, but the risks of such events are believed to remain.'¹⁴

This is a considerably more complex approach than relying on unadjusted market evidence at the time of the

¹³ Flint Global (2023), 'Support to the Civil Aviation Authority: NR23 Updated Beta Assessment', April.

¹⁴ Flint Global (2023), 'Support to the Civil Aviation Authority: NR23 Updated Beta Assessment', April, p. 9.

regulatory review and, given there is no guarantee that the CAA will extend this approach into future reviews, it increases the regulatory risk for NERL.

Moreover, these adjustments rely on subjective assessments of the data, including the split between 'clean' and 'COVID-affected' data. Flint has revised its view of when COVID-19 ceased to have any impact on investors' perception of risk for the aviation sector, such that it assumes the effects of COVID-19 ceased in December 2021 (rather than the 31 March 2022 date used in its previous analysis). In reality, the effects of the pandemic on the aviation sector were still being felt well beyond this time.

- **The weight to place on ENAV's beta.** Flint and the CAA continue to place less weight on ENAV's beta, despite it being the only air navigation service provider in the comparator set (and thus arguably the closest direct comparator to NERL). Flint argues that:

the apparent shift in value of ENAV's beta between the pre- and post-COVID-19 level...makes it particularly challenging to estimate the counterfactual beta that would have prevailed absent the COVID-19 pandemic – an important element when estimating NERL's forward-looking beta.¹⁵

This is, however, only an important consideration due to the approach taken by Flint, which relies on the hypothesis that the beta should be unchanged between the pre- and post-COVID periods. This highlights a clear issue with following the adjustment-based approach, advocated by Flint.

Its approach is not able to account for the fact that ENAV's beta has increased, rather than returning to pre-COVID levels. The CAA and Flint therefore effectively place less weight on ENAV because the data does not fit with Flint's underlying hypothesis.

¹⁵ Flint Global (2023), 'Support to the Civil Aviation Authority: NR23 Updated Beta Assessment', April, p. 15.

Flint further notes that 'the CAA is unaware of evidence that would support disregarding the recent ENAV share price evidence. However, the CAA is also unaware of evidence that would point to a clear structural shift in ENAV's systematic risk.'¹⁶ The CAA's inability to explain the movements in beta is not a reasonable ground for dismissing the market evidence—in particular, given that changing investor perception of risk in a post-COVID world is a plausible explanation for why there would be a structural shift in an air navigation service provider's systematic risk relative to the market as a whole.

We remain of the view that the volatility of ENAV's beta compared to the airport comparators does not constitute evidence that it should be excluded from the dataset, or receive less weight in the analysis.¹⁷ On the contrary, the ENAV beta should be given greater weight, as there is clear evidence that the movements in the ENAV beta (the only air navigation service provider) differ from those of the airport group.

Flint notes that the Performance Review Body of the Single European Sky (PRB) did not place weight on ENAV's beta information in its 2021 cost of capital study.¹⁸ However, there is no suggestion in the PRB report that this was due to concerns around the reliability of the ENAV beta and therefore we do not see this as justification for excluding ENAV from the NR23 beta analysis.

As a result, we continue to consider that ENAV is the best comparator for NERL, and continue to advocate for a point estimate towards the top end of our above-proposed range.

- **Flint's interpretation of the 'baseline' beta range.** Under Flint's approach, it is critically important that the baseline

¹⁶ Flint Global (2023), 'Support to the Civil Aviation Authority: NR23 Updated Beta Assessment', April, p. 15.

¹⁷ We note that Flint Global's analysis of confidence intervals does not suggest that ENAV's beta is significantly more volatile than the other comparators, particularly in 2022. The main driver of the reported difference in volatility across all years of data appears to be 2017, which is likely to be affected by post-listing volatility given ENAV was publicly listed in July 2016.

¹⁸ Flint Global (2023), 'Support to the Civil Aviation Authority: NR23 Updated Beta Assessment', April, pp. 15–16.

beta is robustly calculated as the COVID adjustment is then applied to this value.

Flint has reduced the bottom end of its baseline beta range from 0.52 to 0.50 since its previous report. The justification for this downwards shift is unclear. The only beta estimate quoted by Flint that would support this lower bound is the one-year Fraport beta (0.49). All other beta estimates calculated using the 'non-COVID-19 dataset' are in the region of 0.54–0.76.¹⁹

Conversely, Flint has not revised the top end of its baseline beta range, even though the data for ENAV (and Aena) has increased since its previous report. This means that the top end of the baseline beta range is capped at 0.62, even though the ENAV beta estimates (0.62 and 0.76) and the Aena one-year beta estimates are above this value.

In deciding not to increase the top end of the baseline beta range in light of the latest AENA one-year beta, Flint argues that 'we are cautious about giving undue weight to recent one-year beta statistics of limited history'.²⁰ This appears to contradict its decision to reduce the lower bound in light of the one-year estimate for Fraport (0.49).

¹⁹ Flint Global (2023), 'Support to the Civil Aviation Authority: NR23 Updated Beta Assessment', April, p. 19.

²⁰ Flint Global (2023), 'Support to the Civil Aviation Authority: NR23 Updated Beta Assessment', April, p. 20.

4 Cost of debt

4.1 General approach

- 4.1 In assessing the cost of debt for NR23, we have assessed the actual cost of NERL's bond issuance (calculated on the basis of the yield at issuance) and compared this to the yield on a benchmark bond index at the time of issuance, as an efficiency cross-check. We have also added 13 bp in order to account for issuance and liquidity costs.
- 4.2 Furthermore, we have weighted the bonds by the value of principal at the time of issuance for the bullet bonds, and by the principal outstanding (after amortisation) in each year of NR23 for the amortised bond.
- 4.3 Finally, we have estimated a long-term RPI inflation rate in order to deflate the nominal cost of debt.
- 4.4 Our real cost of debt estimate in our December 2022 report was -0.14%.²¹

4.2 Revised Oxera estimate

4.2.1 NERL's embedded debt portfolio

- 4.5 Since our December 2022 report, NERL has issued new debt in March 2023 through a £145m tap issuance of its existing £300m bullet bond, with a 5.17% yield at issue.²² As a result, all three of NERL's debt instruments are now considered embedded debt, and treated as such.
- 4.6 NERL's embedded debt portfolio thus now consists of:
- a £450m ten-year amortising bond maturing in March 2031, with a yield at issuance of 1.438%;
 - a £300m 12.5-year bullet bond maturing in September 2033, with a yield at issuance of 1.785%;
 - a £145m tap issuance of NERL's existing £300m bullet bond, also maturing in September 2033, with a yield at issuance of 5.166%. There is a considerable gap between the face

²¹ Oxera (2022), 'NR23 cost of capital: November 2022 update', December, p. 35.

²² A tap issuance refers to the issuance of a new bond which is based on a previously-issued bond, specifically in terms of the same maturity and coupon rate, but with a different pricing that reflects the market conditions at the time of issuance of each bond.

value of the tap (£145m) and its fair value (£105.5m), which the CAA has reflected in its analysis of the cost of embedded debt, and which we apply as well.

4.7 We understand that NERL does not plan to issue any further debt over the NR23 period and, hence, that the 'all in' cost of debt is equal to the cost of embedded debt (i.e. there is no need to calculate a separate cost of new debt). This aligns to the approach adopted by the CAA.

4.2.2 Pricing of the March 2023 tap issuance

4.8 In our October 2021 and December 2022 reports, we showed that NERL's amortising bond and £300m bullet bond were priced competitively and within a reasonable margin of the benchmark indices, regardless of whether we used our or the CAA's benchmarks.²³ We continue to use the same approach for the tap issuance.

4.9 As the tap issuance has a maturity in September 2033, its remaining years to maturity corresponds to 10.5 years as of March 2023. As such, we consider the iBoxx £ Non-Financials A 7-10 and iBoxx £ Non-Financials A 10-15 as benchmark indices, and use a weighted average approach across the two in order to arrive to the same corresponding remaining years to maturity as the tap issuance.

4.10 Given that the pricing for the tap took place on 7 March 2023,²⁴ we calculate the weighted average of the yields of the above two indices on that specific date. The resulting weighted yield of 5.14% indicates that the tap issuance, with a yield at issuance of 5.17%, was priced competitively and efficiently (see Table 4.1 below).

²³ Oxera (2022), 'NR23 cost of capital: November 2022 update', December, pp. 31–32.

²⁴ Based on information provided by NERL.

Table 4.1 Weighted benchmark yield on 7 March 2023

	iBoxx £ Non-Financials A 7-10	iBoxx £ Non-Financials A 10-15
Years to maturity	8.51	11.98
Weight to achieve 10.5 years to maturity	0.43	0.57
Yield	5.10%	5.17%
Weighted yield	5.14%	

Note: For presentation purposes, we only present numbers with 2 decimal points. As such, rounding errors might occur.

Source: Oxera analysis based on data from iBoxx.

4.2.3 Revised long-term inflation forecasts

4.11 We continue to deflate the cost of debt using a long-term inflation forecast that aligns to the tenor of debt, which in the case of NERL is around ten years.

4.12 Since our December 2022 report, the Office for Budget Responsibility (OBR) has produced new RPI inflation forecasts, as detailed in Table 4.2.

Table 4.2 New OBR inflation forecasts

	2023	2024	2025	2026	2027	Average
OBR November 2022 forecasts	10.7%	1.5%	-0.4%	1.0%	2.6%	3.0%
OBR March 2023 forecasts	8.9%	1.6%	1.0%	1.7%	2.8%	3.2%

Sources: Office for Budget Responsibility (2022), 'Economic and fiscal outlook', November, p. 55 and Office for Budget Responsibility (2023), 'Economic and fiscal outlook', March, p. 144.

4.13 We thus update our estimate of the long-term RPI inflation rate—from 2.80% in our December 2022 report to 2.88% currently—in order to reflect the higher updated OBR inflation forecasts. Our figure is still based on:

- applying the latest March 2023 OBR forecasts for 2023–27;

- using an RPI estimate of 3% for 2028–30;
- assuming that post-2030 RPI will equal the Bank of England's inflation target of 2% (given that the UK government and UKSA have announced that RPI will be aligned to CPIH in 2030).²⁵

4.2.4 Revised Oxera estimate

4.14 Table 4.3 summarises our estimate of the real weighted average cost of debt of **-0.64%**.

Table 4.3 Revised weighted average cost of debt

Parameters	Average outstanding fair value over NR23	Interest rate
Amortising bond	£367m	1.44%
Bullet bond	£299m	1.79%
March 2023 tap issuance	£105.5m	5.17%
Weighted average cost of debt		2.09%
RPI forecast		2.88%
Issuance costs		0.08%
Liquidity costs		0.05%
Cost of debt, real		-0.64%

Note: We convert the weighted average cost of debt in nominal terms to RPI-real using the Fisher equation: $(1 + \text{nominal rate}) = (1 + \text{real rate}) \times (1 + \text{inflation})$. We then add issuance and liquidity costs to the RPI-real estimate, in line with the approach adopted by the CMA for RP3.

Source: Oxera analysis based on data from Bloomberg and iBoxx, and based on information provided by NERL.

4.3 Comparison to the CAA's Provisional Decision

4.15 In contrast to our approach, the CAA has estimated the cost of embedded debt with direct reference to benchmark indices (while we use benchmark indices as an efficiency cross-check,

²⁵ HM Treasury and UK Statistics Authority (2020), 'A Response to the Consultation on the Reform to Retail Prices Index (RPI) Methodology', 25 November.

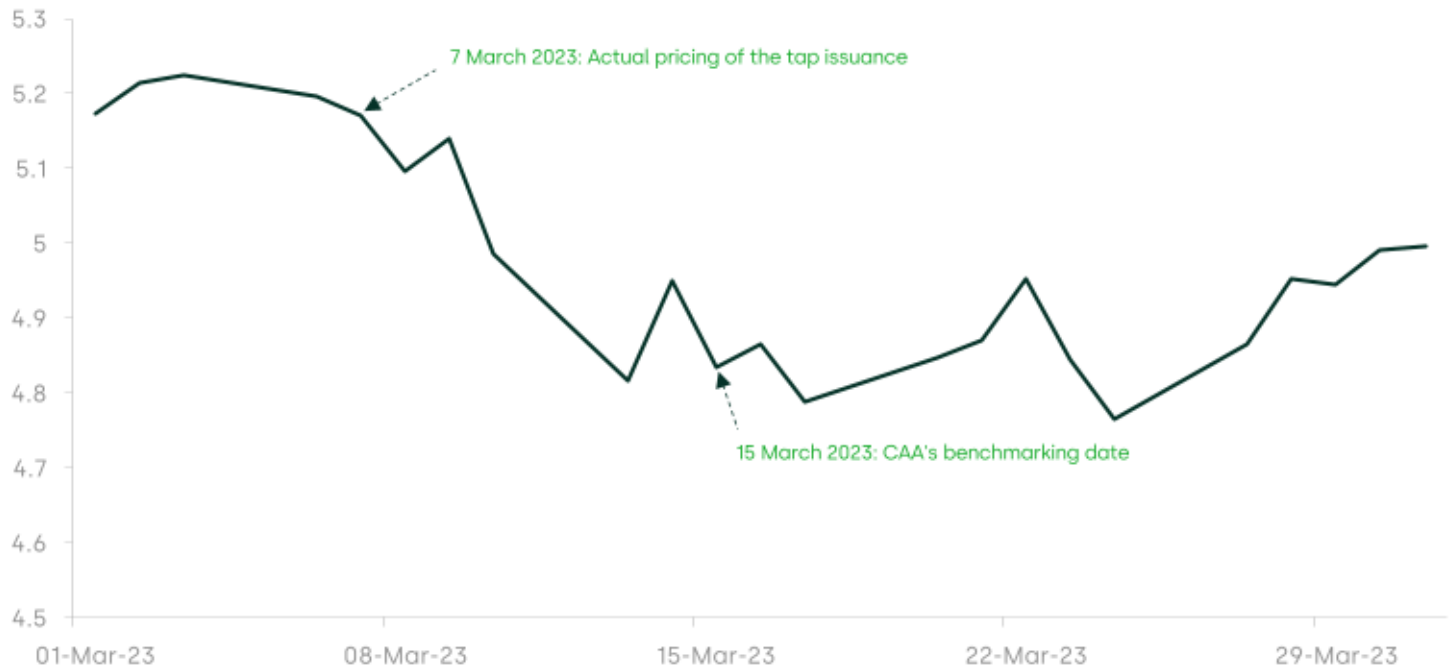
our assessment looks at the actual yield at issuance for NERL's bonds). This is a critical difference in our approaches.

- 4.16 Such an approach has been used in other regulated sectors (e.g. energy and water) where there are multiple companies and the regulator is seeking to set an industry-wide cost of embedded debt, and/or in situations where companies have utilised more diverse debt instruments meaning that a 'balance sheet' approach is difficult. By contrast, NERL is the sole provider of en route air traffic services and has a simple debt portfolio (consisting of three bonds issued on the open market).
- 4.17 As such, it is more appropriate to start from NERL's actual debt issuances and only depart from these values if there is clear evidence of inefficiency. The application of efficiency cross-checks should be sufficient to ensure that NERL retains incentives to raise debt efficiently. This is the approach previously used by the CAA and upheld by the CMA at the RP3 redetermination.
- 4.18 The CAA's approach leads to an estimate of NERL's nominal cost of debt that is below the observed yield at issuance of the NERL bonds. The CAA has not provided any evidence to indicate that NERL's bond issuances were inefficient. As a result, there is considerable risk that NERL will be unable to recover efficiently incurred debt costs due to the approach adopted by the CAA.
- 4.19 Moreover, there are further differences in terms of the following factors.
- **The benchmark date for the tap issuance.** In its Provisional Decision, the CAA estimates a cost of 4.84% for the tap issuance, based on the yield of the iBoxx £-denominated A-rated 10 to 15 year index as at 15 March 2023, which corresponds to its adopted cut-off date.²⁶ However, in order to undertake an appropriate benchmark, the CAA should have compared the yield at issuance of the tap with the iBoxx index on the day on which the pricing for the tap took place, namely 7 March 2023. The benchmark yields on this date were 5.10% (A-rated 7-10 year bonds) and 5.17% (A-rated 10-15 year bonds).

²⁶ Civil Aviation Authority (2023), 'Economic regulation of NATS (En Route) plc: Provisional Decision for the next price control review ("NR23")', CAP2553, July, p. 158.

Figure 4.1 highlights the need to compare the tap issuance yield to the benchmark on the correct day, given the volatility in the CAA's benchmark index over March 2023.

Figure 4.1 iBoxx £-denominated A-rated 10 to 15 year yields over March 2023 (%)



Source: Oxera analysis based on data from iBoxx.

As such, when the correct issuance data is used for the benchmarking exercise, the evidence suggests that the tap issuance was priced competitively and efficiently with the market on the day of its pricing. This points to using a 5.17% yield for the tap issuance, rather than the CAA's 4.84% estimate.

- **Inflation.** The CAA continues to use a short-term inflation forecast in its Provisional Decision,²⁷ despite this not aligning with NERL's tenor of debt, while also contradicting extensive regulatory precedent for using long-term inflation forecasts to deflate the cost of debt allowance.

²⁷ Civil Aviation Authority (2023), 'Economic regulation of NATS (En Route) plc: Provisional Decision for the next price control review ("NR23")', CAP2553, July, p.147.

This includes CMA precedent in the case of the PR19 water redeterminations, in which the CMA explicitly rejected the use of short-run inflation forecasts.²⁸ Such an approach could also create additional regulatory risk if it leads to short-run inflation estimates being used when short-run inflation exceeds long-term averages, but no such adjustment when the reverse scenario is true. There is a 32bp difference in the inflation estimate used by the CAA relative to our estimate of long-run RPI inflation.

- 4.20 The problems inherent in the CAA's approach are highlighted by the fact that it suggests that the bullet bond issuance was efficient, but that the subsequent tap issuance for that bond was inefficient (by 33bp relative to the CAA's benchmark).

²⁸ For example: Competition and Markets Authority (2021), 'Anglian Water Services Limited, Bristol Water plc, Northumbrian Water Limited and Yorkshire Water Services Limited price determinations – Final report', para. 9.33.

5 NR23 updated WACC estimate

- 5.1 In responding to the CAA's Provisional Decision, NERL asked Oxera to undertake a revised assessment of the risk-free rate, asset beta and cost of debt. As a result, we have not undertaken an updated assessment of other parameters such as the total market return (TMR), gearing and debt beta.
- 5.2 Table 5.1 shows the impact of substituting our estimates of the risk-free rate, asset beta and cost of debt for the assumptions used by the CAA. The TMR, gearing and debt beta are as estimated by the CAA in its Provisional Decision.²⁹
- 5.3 This results in a vanilla WACC range of 3.27–3.94% (in RPI-real terms), compared to the CAA's estimated range of 2.31–4.06%.

Table 5.1 Impact of Oxera's revised parameter estimates on the RPI-real WACC range for NR23

Parameters	Composite WACC range		Source
	Low	High	
Asset beta	0.61	0.74	Oxera estimate
Debt beta	0.05	0.05	CAA and Oxera
Gearing	34%	34%	CAA
Equity beta	0.89	1.09	Oxera estimate
TMR	5.85%	5.85%	CAA
Risk-free rate	0.67%	0.98%	Oxera estimate
ERP	5.18%	4.87%	Value based on Oxera risk-free rate and CAA TMR
Cost of equity, post-tax	5.29%	6.31%	Oxera estimate
Cost of debt, pre-tax	-0.64%	-0.64%	Oxera estimate
WACC vanilla	3.27%	3.94%	Oxera estimate

²⁹ Our estimates for these parameters are set out in our previous report (dated November 2022) and, in the case of gearing and TMR, differ from the estimates used by the CAA.

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