RIIO-GD2 preparation: cost of debt

Prepared for
Wales & West Utilities Limited

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Contents

Figures and tables

Executive summary

Wales & West Utilities Limited (WWU) has commissioned Oxera to assess whether the RIIO-GD1 approach to the cost of debt is appropriate. In this report, we consider the following three areas:

- whether WWU has issued its debt efficiently;
- how WWU has performed and is expected to perform relative to the RIIO-GD1 cost of debt index;
- given our findings on the above, whether Ofgem's approach would be appropriate for the next control period.

At this stage, we do not consider the impact of WWU's swap portfolio. As the majority of WWU's swap portfolio was entered into when interest rates were significantly higher than today's rates, we would expect the cost of debt to increase once swaps are accounted for. Further, our analysis was based on WWU's position as at 31/12/2017, and does not take account of any debt transactions it may have undertaken since then.

The key conclusions of this report are as follows.

1. Has WWU issued its debt efficiently?

Our analysis confirms that WWU's existing debt has been raised in an efficient manner. Specifically, where comparisons are appropriate:

- yields to maturity at the time of issuance of WWU's bonds were in line with those of WWU's peers;
- yields on WWU's bonds were around the level of A and BBB rated indices around the time of issuance.

More generally, we note that most of WWU's existing debt was raised in the UK public bond market, which is used by most, if not all, utilities in the UK. Further, since March 2010 WWU has maintained a whole business securitisation structure, which supports the raising of efficiently priced debt. This structure has enabled A- debt ratings, with two rating agencies, for the majority of WWU's debt since March 2010. No other UK regulated gas distribution network company has this credit rating track record. Put differently, there is nothing in the set-up or management of WWU's debt structure which would indicate a propensity for inefficient cost incurrence, from either the market chosen or the consistent quality of its rating profile. WWU is a company that experienced market participants in the UK debt markets and regulated sectors would expect to raise debt efficiently. The results of our analysis confirm it has done so in relation to its existing bond debt.

2. How has WWU performed and how is it expected to perform relative to the RIIO-GD1 index?

For RIIO-GD1, we have based our analysis on WWU's cost of debt estimates during the current control period, which we have verified. For RIIO-GD2, we have used scenario analysis in order to illustrate how the difference between WWU's debt costs and Ofgem's allowance might evolve.

The low scenario is based on the assumption that the spot cost of debt observed on the market will remain at the current low level over the GD2 period. The high scenario is based on the assumption that the spot cost of debt

observed on the market will increase by 25bp per annum for the next five years and then will remain constant until the end of GD2.

Under both scenarios, the analysis forecasts that continuation of the RIIO-GD1 approach to the cost of debt over the eight years of RIIO-GD2 will lead to WWU under-recovering its efficiently incurred cost of debt. This is in addition to a deficit of approximately £60m in nominal prices, forecast based on WWU's cost of debt estimates for RIIO-GD1. These calculations are based on a notional gearing assumption of 65%.

Under the low scenario, the average WWU customer is estimated to pay on average £3.02 less every year during RIIO-GD1, and £3.88 less during RIIO-GD2 than it costs WWU to finance its functions. This translates into a 37bp reduction in return on RAV and a 104bp reduction in RoRE for RIIO-GD1, which is not visible in the financial performance presented by Ofgem in the RIIO-GD1 annual reports. During RIIO-GD2 the decrements to return on RAV and RoRE are forecast to be 34bp and 98bp, respectively.

Under the high scenario, the customer is estimated to pay on average £2.94 less every year during RIIO-GD1, and £4.11 less during RIIO-GD2 than it costs WWU to finance its functions. This translates into a 36bp reduction in return on RAV and a 102bp reduction in RoRE for RIIO-GD1. During RIIO-GD2 the decrements to return on RAV and RoRE are forecast to widen to 36bp and 104bp, respectively.

The issues with the RIIO-GD1 approach that we highlight in this report are not new, and were raised with Ofgem during the RIIO-GD1 business planning process.[1] We also note that Ofgem has acknowledged a number of these issues in its RIIO-2 framework consultation published on 7 March 2018.[2]

Conclusions

The analysis presented in this report demonstrates that for individual companies, the cost of debt index can produce windfall gains and losses relative to their actual cost of efficiently raised debt. The variance is largely driven by when companies raised their debt, and the constraints on the companies' ability to time their issuance to match the index. Companies that have no need to access debt markets at times of relatively low interest rates will be penalised, and companies that have no need to raise debt when interest rates are relatively high will benefit. We note that Ofgem has recognised scope for improvement to its cost of debt index and outlined some alternatives for RIIO-2 in its framework consultation.

The evidence in this report shows that WWU has not been and will not be adequately compensated for its efficiently incurred cost of debt in RIIO-GD1. Continuation of this position into RIIO-GD2 would therefore not meet at least one of the guiding principles set out by Ofgem in its framework consultation:[3]

> The cost of debt allowance should be a fair and reasonable estimate of the actual cost likely to be incurred by a notionally geared, efficient company.

This shortfall will likely increase in RIIO-GD2 if the current methodology continues.

[1] Oxera (2012), 'RIIO-GD1 Initial Proposals: options to reduce risk under debt indexation', prepared for Wales & West Utilities, 31 August.
[2] Ofgem (2018), 'RIIO-2 Framework Consultation: Our approach to setting price controls for GB gas and electricity networks', paras 7.5-7.28, March.
[3] Ofgem (2018), 'RIIO-2 Framework Consultation: Our approach to setting price controls for GB gas and electricity networks', para 7.11, March.

The extent of the shortfall in RIIO-GD2 is likely to be greater than the expected outcome for RIIO-GD1. Our scenario analysis shows that this situation is likely to persist irrespective of the future path of interest rates, which links back to the fact that specific features of Ofgem's approach would not allow WWU to recover its efficiently raised debt costs.

At this stage, we have not consider the impact of WWU's swap portfolio. As the majority of WWU's swap portfolio was entered into when interest rates were significantly higher than today's rates, we would expect the cost of debt to increase once swaps are accounted for.

In addition, the evidence in this report does not support the existence of any material 'halo effect' referred to by Ofgem at RIIO-GD1. Therefore, transaction costs of debt issuance and cost of carry would appear to be unfunded under Ofgem's current approach.

1 Introduction

In 2020 and 2021, Ofgem will determine the price control for the UK gas distribution networks for the RIIO-GD2 period. For the purpose of this report, this period is assumed to have the same term as for RIIO-GD1, i.e. eight years (from 1 April 2021 to 31 March 2029). It is important to investors and other stakeholders that Ofgem's approach enables regulated networks to recover the efficiently incurred costs of each individual element of the building blocks of allowed revenues in isolation from other parts of the allowed revenue calculation. This report focuses on the cost of debt allowance.

Ofgem is currently using indexation to determine the cost of debt allowance in each year of the price control. The index represents a ten-year trailing average of daily yields on A and BBB rated corporate debt with a maturity of 10+ years. Under this approach, the allowance for each year reflects historical corporate debt costs over the last ten years, with the most recent year of daily observations added and the oldest year of daily observations dropped in each annual update of the index.

The approach does not make a separate cost allowance for transaction costs because iBoxx indices used by the regulator exclude such costs. Ofgem assumes that the networks would be able to cover their transaction costs through the 'halo effect'.

In this context, WWU has commissioned Oxera to assess whether Ofgem's approach to the cost of debt is appropriate. In this report, we consider the following aspects:

- whether WWU has procured its existing debt efficiently (section 2);
- how WWU has performed and can be expected to perform relative to Ofgem's index under its current approach (section 3.1);
- given our findings on the above, whether Ofgem's approach would be appropriate for the next control period (section 3.2).

2 Has WWU issued its debt efficiently?

This section considers whether WWU has issued its existing debt in an efficient manner, with a focus on bond debt for which benchmark data is publicly available. We review WWU's debt costs relative to both its peers and a general corporate debt index. This analysis is undertaken before considering the impact of WWU's swap portfolio.

We assess efficiency relative to benchmark costs at the point of issuance.

2.1 Performance relative to peers

Comparator analysis represents one way of testing whether WWU's debt has been raised in an efficient manner. As Ofgem's view at RIIO-GD1 was that UK regulated networks have been able to raise debt at lower cost than general corporates,[4] we have considered whether WWU's debt costs are comparable to those of its peers. To the extent that regulated networks are able to outperform the iBoxx general corporate indices, benchmarking to peers constitutes a more challenging benchmark for efficiency.

For the purpose of this analysis, we have compared yield to maturity (YTM) on WWU's bonds relative to its peers at the time of issuance. The initial comparator sample included all issuances by water and energy companies that are available from the Dealogic database. We then applied a number of filters to identify the most appropriate comparators for WWU's bonds:

- **issuance date**—should be within a period of six months before or after the issuance of WWU's bonds;
- **credit rating**—should include only BBB and A rated bonds, in line with the rating of WWU's bonds;
- **currency**—should include only GBP-denominated bonds, in line with WWU's bond portfolio;
- **maturity**—should be within a +/-1 year range around the maturity of WWU's bonds. Where it was not possible to identify any relevant comparators under this filter, we extended the range;
- **type of rate**—should match the type of rate for each of WWU's bonds (i.e. fixed, variable or floating);
- **size of issuance**—we did not apply a specific filter based on this criterion as it would result in a very limited number of comparators. However, for transparency, we show the amount of proceeds for each comparator bond below.

Table 2.1 shows the resulting selection of comparators for each of WWU's bonds. It is important to note that we were unable to identify a suitable comparator for WWU's junior callable bond due to the specific features of that transaction.

[4] Ofgem (2012), 'RIIO-GD1: Final Proposals – Finance and uncertainty supporting document', para 3.51, 17 December.

Table 2.1 Comparator analysis for WWU's bond debt

Issuer	Issuance	Maturity (years)	S&P rating	YTM[1] (%)	Proceeds (£m)
National Grid Gas plc	19/01/2009	11	A-	6.4	140
ENW Capital Finance plc	10/07/2009	12	BBB+	6.3	200
United Utilities Water plc	10/06/2009	13	A-	5.9	375
Wales & West Utilities Ltd	**10/07/2009**	**12**	**BBB+**	**6.3**	**250**
United Utilities Water plc	17/06/2009	7	A-	4.7	425
Phoenix Natural Gas Finance plc	28/10/2009	8	BBB+	5.7	275
Wales & West Utilities Finance plc	**02/12/2009**	**7**	**A-**	**5.3**	**200**
Yorkshire Water Services Bradford Finance Ltd	16/04/2010	30	A-	2.6	260
Wales & West Utilities Finance plc[2]	**31/03/2010**	**25**	**A-**	**2.5**	**100**
Thames Water Utilities Cayman Finance Ltd	02/09/2010	20	BBB	5.8	300
Wales & West Utilities Finance plc	**31/03/2010**	**20**	**A-**	**6.0**	**300**
Southern Gas Networks plc	28/09/2011	12	BBB	4.9	300
Wales & West Utilities Finance plc	**04/11/2011**	**12**	**A-**	**4.7**	**250**
NIE Finance plc	27/05/2011	15	BBB+	6.4	400
Anglian Water Services Financing plc	20/03/2012	16	A-	4.6	250
Wales & West Utilities Finance plc	**04/11/2011**	**16**	**A-**	**5.1**	**150**

Note: [1] YTM is shown as at the date of issuance, which represents the actual cost of debt for the company. [2] This is an index-linked bond with the comparator of the same rate type. YTM is shown in nominal terms for fixed-rate bonds and in real terms for the index-linked bond. The bond that we were unable to identify comparators for has the following features: issuance date of 31/03/2010; maturity of 27 years; S&P credit rating of BBB; YTM at issuance of 6.8%; proceeds of £115m.

Source: Oxera analysis based on data from Dealogic and Bloomberg.

It is important to note that it was not possible to identify perfect comparator bonds which would have exactly the same characteristics as WWU's bonds. Therefore, it was essential to include comparators based on a range of criteria rather than just one parameter. For example, Table 2.1 shows that some of WWU's bonds had slightly lower or higher YTMs than its comparator bonds with exactly the same credit rating. However, these marginal differences in YTMs could be explained by differences in other characteristics such as issuance date or amount of proceeds.

Our analysis shows that YTMs at the time of issuance of WWU's bonds were largely in line with those of WWU's peers. That is, except for the class B £115m callable bond, yields on all other WWU's bonds were either within the comparator range, below or marginally above the yield of the only comparator that is available. On this basis, we conclude that the WWU embedded debt reviewed above has been raised in an efficient manner.

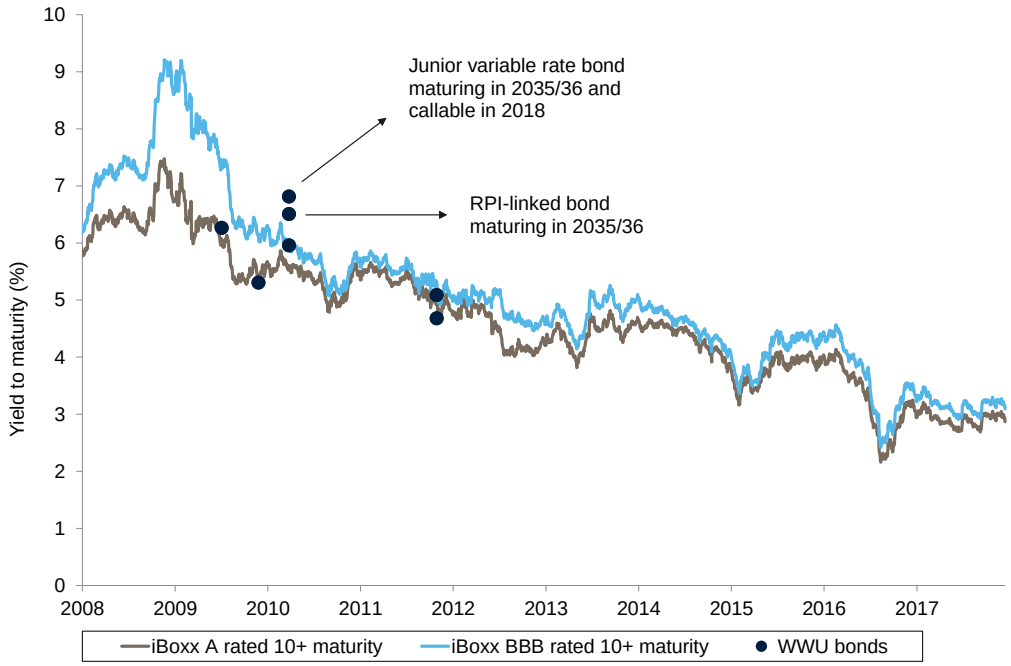
2.2 Performance relative to corporate debt index

Another way to test whether WWU's debt has been raised efficiently is to compare its YTMs at issuance with those on a general corporate debt index. This analysis complements the analysis above in that it determines whether

WWU's debt costs were in line with not only its peers' costs but also the debt costs of general corporates of the same credit rating range.

For the purposes of this analysis, we have used the underlying indices of Ofgem's approach—i.e. daily yields on A and BBB rated iBoxx indices with a maturity of 10+ years. Figure 2.1 below illustrates the comparison.

Figure 2.1 WWU's bond debt and iBoxx indices



Note: Yield on the RPI-linked bond has been converted from real into nominal using historical break-even inflation at the issuance date.

Source: Oxera analysis based on Dealogic and Datastream.

As can be seen from Figure 2.1, yields for the majority of WWU's bonds were around the level of the A rated index at the time of issuance, reflecting WWU's A- credit rating for its Class A debt. It is notable that the yield on the RPI-linked bond (2.5% in real terms and 6.5% in nominal terms) is above the yield on the index by around 0.5 percentage points. As a point of comparison, the yield on Yorkshire Water's index-linked bond issued around the same time was also above the index and even higher than that of WWU (see Table 2.1).

One explanation could be that this particular bond has the longest tenor (25 years) in WWU's portfolio, which is longer than the average tenor of iBoxx indices (currently around 21 years[5]). This indicates that such long maturities are not accounted for in Ofgem's current approach (see section 3.2 for details). Another explanation is that index-linked bonds, while helping the companies to manage their RPI risk, tended to be more expensive than fixed rate bonds at the time of issuance in 2010 due to demand for the latter being higher than for the former. This means that iBoxx indices do not represent appropriate benchmarks for index-linked bonds issued around 2010 and more weight should be given to the comparator analysis, which confirms that WWU's RPI-linked bond has been raised efficiently.

It is also notable that the yield on the BBB flat junior callable bond, representing less than 10% of WWU's debt, and for which we were unable to

[5] i.e. 19 years for BBB 10+ index and 23 years for A 10+ index.

identify a comparator, was higher than yields on the indices. However the bond has a number of atypical features, including a relatively small size, which normally deters potential investors due to illiquidity concerns after issuance, a change in the coupon from December 2018 and a possibility to call it (and, hence, refinance it) in 2018.[6] Therefore, it would be inappropriate to compare the bond's YTM to those of either the iBoxx indices, or bonds with more standard terms that were issued by WWU's peers.

Overall, the evidence above confirms that, where it is appropriate to draw comparisons, WWU's debt costs were in line with those of its peers and general corporate debt indices. From a regulatory perspective, WWU's bond debt has been raised in an efficient manner.

2.2.1 The 'halo effect'

As part of its decision for RIIO-GD1, Ofgem argued that energy networks had generally outperformed the iBoxx, referring to this phenomenon as a 'halo effect'. Ofgem stated that this effect was to do with the fundamental nature of regulated utilities which would remain under RIIO-GD1.[7]

In the presence of the 'halo effect', which was estimated by Ofgem to be around 30–40bp at the time,[8] the regulator argued that it would not be necessary to make a separate allowance for issuance costs. Ofgem stated that the allowance would be implicit in the index value that companies could be expected to outperform.

Figure 2.1 does not support the existence of any material 'halo effect' referred to by Ofgem at RIIO-GD1. Indeed, yields on WWU's bonds have been very close to the yields on iBoxx indices at the time of issuance. Therefore, the absence of a specific allowance for issuance costs and cost of carry would increase the company's shortfall against the index (see section 3.1 for details).

[6] On 27/03/2019 WWU bought back £48m of this bond.
[7] Ofgem (2011), 'Decision on strategy for the next transmission and gas distribution price controls - RIIO-T1 and GD1 Financial issues', 31 March, p. 28.
[8] Ofgem (2011), 'Decision on strategy for the next transmission and gas distribution price controls - RIIO-T1 and GD1 Financial issues', 31 March, p. 49.

3 How has WWU performed and how is it expected to perform relative to the RIIO-GD1 index?

This section considers whether the RIIO-GD1 approach to the cost of debt allowance would be appropriate for RIIO-GD2. First, we analyse how WWU's debt costs have evolved during GD1 compared with the allowance. Second, we use two simple interest rate scenarios to illustrate how they can be expected to compare with the allowance during GD2.

At this stage, we do not consider the impact of WWU's swap portfolio. As the majority of WWU's swap portfolio was entered into when interest rates were significantly higher than today's rates, we would expect the cost of debt to increase once swaps are accounted for.

3.1 Performance relative to the RIIO-GD1 index

Figure **3.1** below illustrates WWU's performance on financing against Ofgem's allowance during RIIO-GD1 and RIIO-GD2. For RIIO-GD1, we have based our analysis on WWU's cost of debt estimates as of 31/12/2017 for the current control period, which we have verified. For RIIO-GD2, we have used scenario analysis in order to illustrate how the difference between WWU's debt costs and Ofgem's allowance might evolve. Specifically, we have used two simple interest rate scenarios (see Appendix A1 for details):

- **low scenario**—based on the assumption that the spot cost of debt observed on the market will remain at the current low level over the GD2 period. Under this scenario, we assume that the average annual yield on A and BBB rated iBoxx indices will remain at the current level of -0.14% (real).[9] It is important to note that this figure is based on Ofgem's decision to calculate the latest historical annual average using the data from 01/11/2016 until 04/05/2017 rather than until 31/10/2017, due to the relevant data series being unavailable to Ofgem.[10] Therefore, this illustrative scenario assumes that, on average, yields on A and BBB rated bonds will be around -0.14% in every year from FY 2017/18 until the end of GD2. We consider that this scenario represents an appropriate lower bound for iBoxx indices for the purpose of this illustrative analysis;
- **high scenario**—based on the assumption that the spot cost of debt observed on the market will increase by 25bp per annum for the next five years and then will remain constant until the end of GD2. Under this scenario, we apply the annual average of -0.14% only in FY 2017/18 and then increase it by 25bp for each of the next five years. We consider that this scenario represents an appropriate upper bound for iBoxx indices for the purpose of this illustrative analysis.

It is important to note the difference in how the annual averages of iBoxx indices are then used to inform WWU's future debt costs and Ofgem's allowance. We assume that in every given year of the RIIO-GD2 period WWU's cost of new debt will be equal to that year's iBoxx spot value.[11] We also assume that the annual average of the indices will serve as an input to Ofgem's ten-year average calculation in all future years (as shown in Appendix

[9] Derived from nominal using historical breakeven inflation, as per Ofgem's approach.
[10] See Ofgem (2017), 'Memo on amendments to Cost of Debt Indexation Model', 30 November.
[11] As explained above, we have used WWU's projections for RIIO-GD1 (which we have verified) rather than have based them on our own estimates of future iBoxx indices. This means that our estimates start to feed into WWU's cost of debt calculation from the beginning of RIIO-GD2 and into Ofgem's allowance from now on, as shown in Appendix A1.

A1). This approach ensures that there is no inconsistency in our assumptions for WWU's actual and allowed cost of debt.

Our modelling approach assumes no out- or under-performance of new issuances relative to market rates (i.e. iBoxx indices) expected to prevail in future. This implies a continuation of the 'no halo effect' into RIIO-GD2 and, therefore, a shortfall in funding for issuance costs, etc. We note that our scenario analysis is used for illustrative purpose only and will not necessarily match the company's view on likely future debt costs.

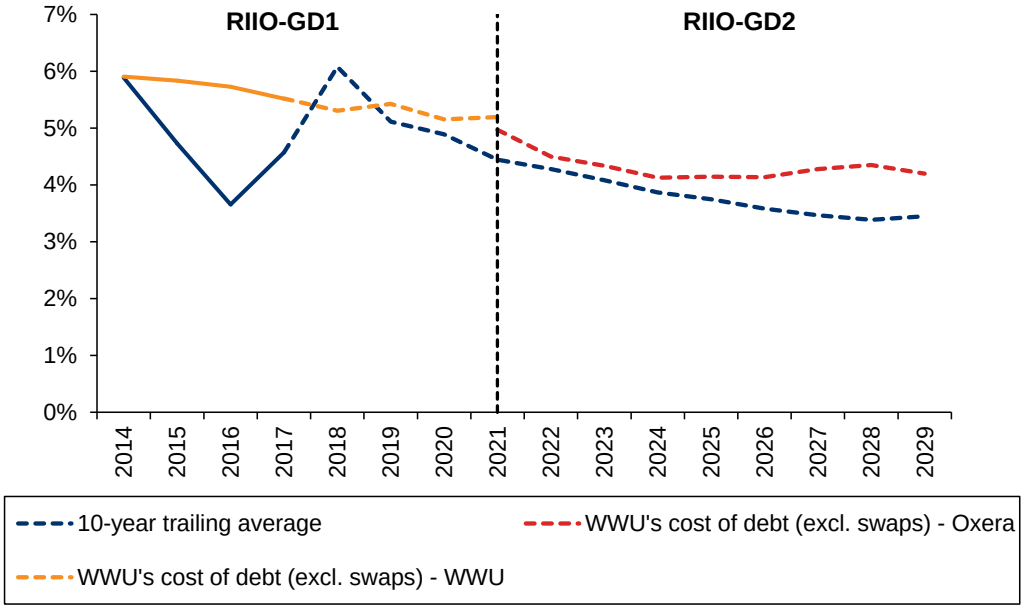
Throughout the report we show our results in both nominal and real terms. When calculating the figures in monetary terms, we used Ofgem's methodology as per its RIIO-GD1 financial model. To obtain the figures in real terms, we have multiplied the estimate of real net debt in 2009/10 prices (notional) by the real cost of debt in % terms. To obtain the figures in nominal terms, the real amounts were uplifted by the cumulative inflation since 2009/10. This means that the 'in-year' inflationary element of the cost of debt has not been taken into account in our calculations. This is in line with Ofgem's methodology which compensates the companies for this element of inflation over time through indexation of the RAV rather than directly through the annual cost of debt allowance.

3.1.1 Results under low scenario

Figure **3.1** and Figure **3.2** show that the revenue allowance has fallen short on a cumulative basis since the beginning of RIIO-GD1. Under the assumption of persistently low market rates, this shortfall is expected to increase until the end of RIIO-GD2 assuming the continuation of the notional gearing assumption of 65%.[12] The key reason for this is that the majority of WWU's outstanding debt was raised between 2009 and 2011 when efficient interest rates were considerably above current levels, as reflected in the index for those years. The years when WWU's debt was raised will drop out of the regulatory index before the end of RIIO-GD1, between 2019 and 2021, whilst the actual debt raised will largely continue through RIIO-GD2.

[12] All subsequent figures in the report show WWU's cost of debt on a notional rather than actual gearing basis, which means that they are comparable to Ofgem's allowance estimates.

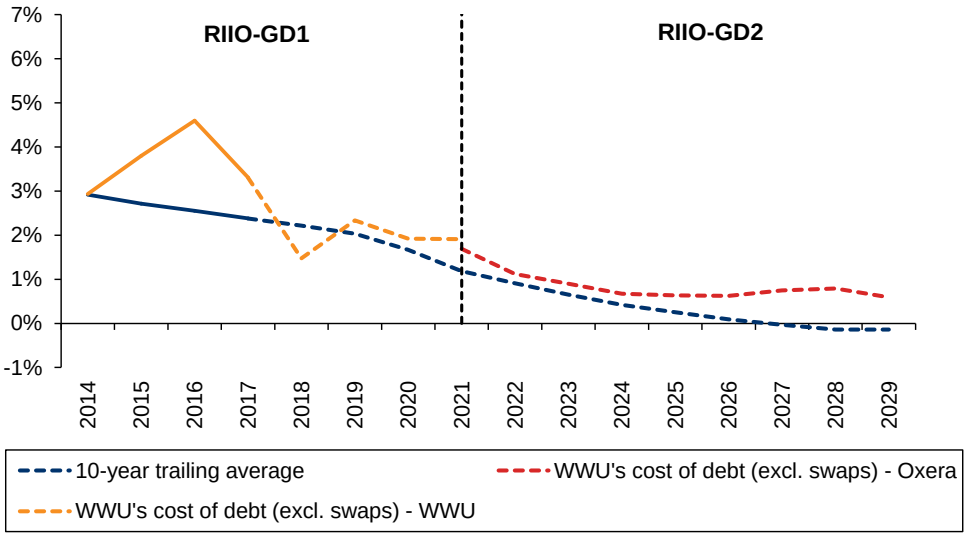
Figure 3.1 WWU's debt costs versus Ofgem's allowance (nominal)



Note: We have used WWU's net debt to calculate its debt costs in both £ and %, recognising the cost of carry incurred by WWU which is not allowed for in Ofgem's methodology. Our calculations exclude any impact of the interest received on cash as the impact is likely to be very limited. This approach is applied to all figures and tables in the rest of the report.

Source: Oxera analysis based on data from WWU and Datastream.

Figure 3.2 WWU's debt costs versus Ofgem's allowance (real)



Source: Oxera analysis based on data from WWU and Datastream.

Figure **3.1** and Figure **3.2** show that the revenue allowance is projected to fall short of WWU's cost of debt on a cumulative basis, with the gap widening over the GD2 period. This is mainly because the value of Ofgem's ten-year index will inevitably decrease as older observations drop out, while WWU's debt costs remain at a higher level over the forecast period. A number of long-term bonds will remain in WWU's portfolio during RIIO-GD2, which, while issued efficiently at the time, are more expensive compared with the recent market data and Ofgem's current ten-year trailing iBoxx index.

Table 3.1 analyses the difference between Ofgem's allowance and the estimate of WWU's cost of debt over RIIO-GD1/GD2.

Table 3.1 The shortfall in the allowed cost of debt (nominal) under low scenario

	RIIO-GD1	RIIO-GD2	Total
Notional basis			
Revenue allowance shortfall (£m)	60	77	137
Average impact on customer bill (£ per annum)	3.02	3.88	3.45
Average impact on return on RAV (% per annum)[2]	0.37%	0.34%	0.35%
Average impact on RoRE (% per annum)	1.04%	0.98%	1.01%

Note: [1] Using the total shortfall over each regulatory period. As per the methodology described above, the shortfall against the allowance is based on WWU's debt cost figures in RIIO-GD1 and Oxera's scenarios for RIIO-GD2. [2] Using average RAV over each regulatory period and 65% assumption for notional gearing.

Source: Oxera analysis based on data from WWU and Datastream.

Our analysis forecasts that continuation of the RIIO-GD1 approach to the cost of debt over the eight years of RIIO-GD2 will lead to WWU under-recovering the efficiently incurred cost of debt by approximately £77m (NB: WWU projects a greater shortfall than Oxera). This is in addition to a deficit of approximately £60m, forecast based on WWU's cost of debt estimates for RIIO-GD1. These calculations are based on a notional gearing assumption of 65%.

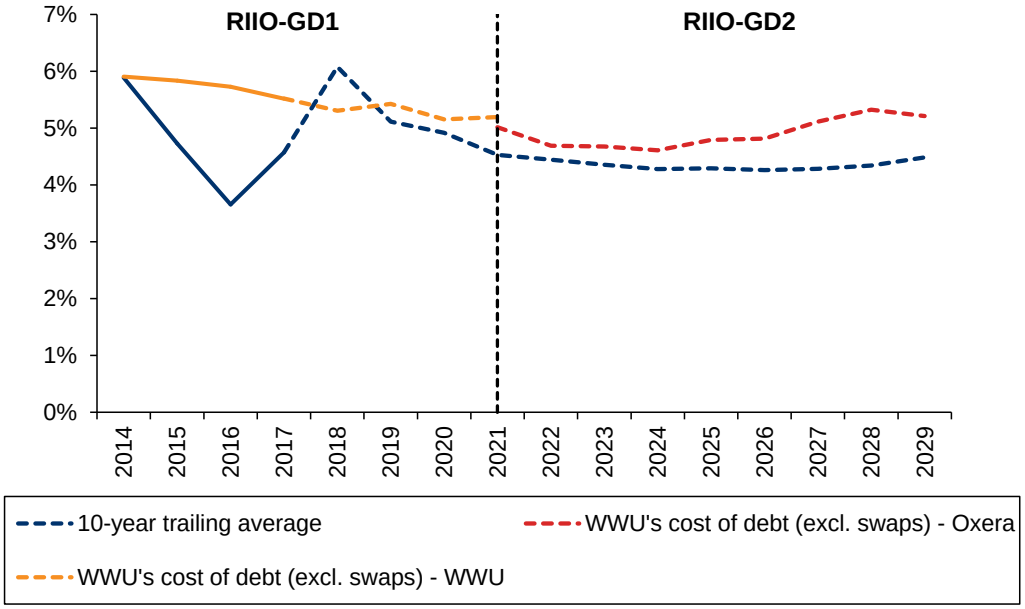
Therefore, the average WWU customer is estimated to pay on average £3.02 less every year during RIIO-GD1, and £3.88 less during RIIO-GD2 than it costs WWU to finance its functions. This translates into a 37bp reduction in return on RAV and a 104bp reduction in RoRE for RIIO-GD1, which is not visible in the financial performance presented by Ofgem in the RIIO-GD1 annual reports. During RIIO-GD2 the decrements to return on RAV and RoRE are forecast to be 34bp and 98bp, respectively.

3.1.2 Results under high scenario

Figure 3.3 and Figure 3.4 show a similar picture to that under the low scenario. Under the assumption of increasing market rates, WWU can still be expected to experience a shortfall relative to the allowance and this shortfall is likely to increase towards the end of RIIO-GD2. This is mainly due to the following:

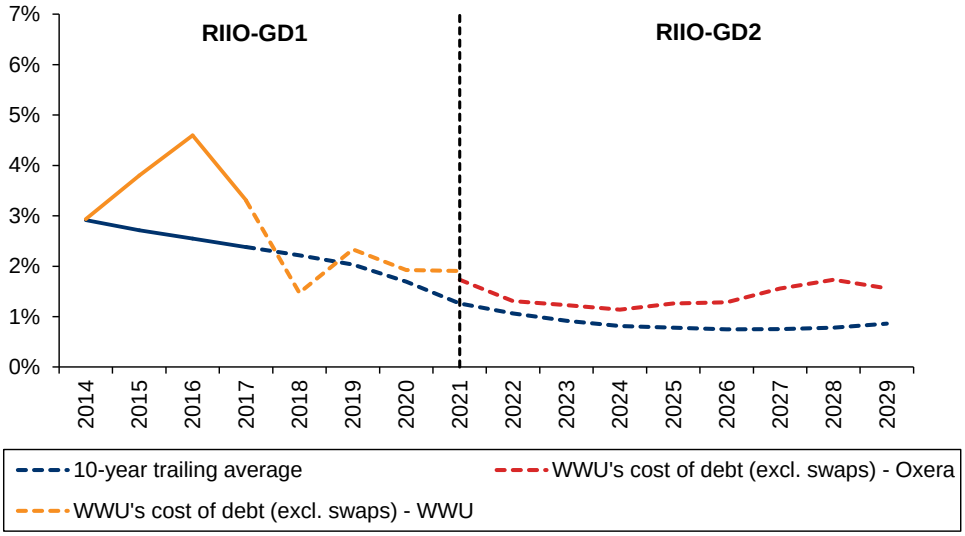
- the assumed increase in market rates is not sufficiently large to cover the costs of debt raised between 2009 and 2011;
- WWU's actual cost of new debt will increase faster than the allowance due to the latter being based on a long-term average rather than on spot rates.

Figure 3.3 WWU's debt costs versus Ofgem's allowance (nominal)



Source: Oxera analysis based on data from WWU and Datastream.

Figure 3.4 WWU's debt costs versus Ofgem's allowance (real)



Source: Oxera analysis based on data from WWU and Datastream.

Table 3.2 analyses the difference between Ofgem's allowance and our estimate of WWU's cost of debt over RIIO-GD1/GD2.

Table 3.2 The shortfall in the allowed cost of debt (nominal) under high scenario

	RIIO-GD1	RIIO-GD2	Total
Notional basis			
Revenue allowance shortfall (£m)	59	82	141
Average impact on customer bill (£ per annum)	2.94	4.11	3.53
Average impact on return on RAV (% per annum)[1]	0.36%	0.36%	0.36%
Average impact on RoRE (% per annum)	1.02%	1.04%	1.03%

Note: [1] Using average RAV over each regulatory period and 65% assumption for notional gearing.

Source: Oxera analysis based on data from WWU and Datastream.

Under this scenario, the continuation of the RIIO-GD1 approach to the cost of debt over the eight years of RIIO-GD2 will lead to WWU under-recovering the efficiently incurred cost of debt by approximately £82m (NB: WWU projects a greater shortfall than Oxera). This is in addition to a deficit of approximately £59m, forecast based on WWU's cost of debt estimates for RIIO-GD1. The average WWU customer is estimated to pay on average £2.94 less every year during RIIO-GD1, and £4.11 less during RIIO-GD2 than it costs WWU to finance its functions. This translates into a 36bp reduction in return on RAV and a 102bp reduction in RoRE for RIIO-GD1. During RIIO-GD2 the decrements to return on RAV and RoRE are forecast to widen to 36bp and 104bp, respectively.

Overall, the evidence above confirms that Ofgem's ten-year trailing average approach would not allow WWU to recover the cost of its efficiently raised debt. Our scenario analysis also shows that this situation is likely to persist irrespective of the future path of interest rates and, therefore, is mainly due to the specific features of the regulatory approach.

3.2 Issues with the RIIO-GD1 debt index

The analysis of WWU's financial performance relative to Ofgem's cost of debt allowance reveals a number of issues with the current regulatory approach, which we discuss in turn below.

First, by construction, the index assumes a specific refinancing profile where roughly equal tranches of debt are raised each year—an assumption that Ofgem acknowledged in its recent framework consultation for RIIO GD2.[13] This might not reflect the efficient financing profile of a particular network. The assumption that WWU would be able to raise new debt in small amounts each year does not represent an efficient financing strategy for a company of WWU's size. The amount raised by WWU would depend on the size of maturing debt, the need to finance its business, and RAV growth. In these circumstances, it is more efficient to raise new debt only when the financing needs are large enough to benefit from the economies of scale. Further, public debt markets tend to require minimum transaction sizes to underpin the liquidity requirements of investors. Indeed, the iBoxx index is based on debt transactions with larger sizes than what would be required to track the index itself. Therefore, an assumption of an artificially smooth refinancing profile would not be in line with an efficient financing strategy in WWU's case.

[13] Ofgem (2018), 'RIIO-2 Framework Consultation: Our approach to setting price controls for GB gas and electricity networks', para 7.14, March.

Second, the ten-year moving average method used by Ofgem implies that WWU's efficiently incurred long-term debt raised in the late 2000s will not be taken into account in the index during the next control period. This creates a disconnect between regulatory decisions over time, in the sense that decisions prior to RIIO-GD1 allowed for the recovery of efficient debt costs while the current approach does not, simply due to the construction of the index. Furthermore, the ten-year refinancing assumption is not in line with the underlying maturity of the bonds that make up the index used by Ofgem, which is currently around 21 years.[14]

Third, the majority of UK regulators have placed some weight on actual costs in their allowances for the regulated companies. They have typically done this by accounting for the cost of embedded and new debt separately. For example, in its determination for Northern Ireland Electricity (NIE), the Competition and Markets Authority (CMA) stated the following concerning the estimation of NIE's cost of debt:[15]

> Our determination of the efficient level of the cost of debt was informed by the levels of interest payable on NIE's historically incurred debt because there was no evidence to suggest that this debt had either been inefficiently incurred at the time it had been taken out or that restructuring this debt now would be financially sensible.

The RIIO-GD1 index represents a departure from this approach, as it uses a single estimate derived from the index to approximate the efficient cost of all debt for all companies in the gas distribution sector. This will inevitably result in some companies being unable to recover their efficiently incurred costs of debt, thereby suffering a windfall loss, whilst others benefit from a windfall gain.

For RIIO-ED1, Ofgem amended its method to use a 'trombone' average that extends each year from a ten-year period in 2015/16 to a 20-year period by 2025/26. However, this method has not been applied to all controls and does not take into account all of the issues with the current RIIO-GD1 approach.[16]

Finally, there is an inconsistency in how Ofgem derives the cost of debt allowance in monetary terms in the RIIO financial model. Specifically, Ofgem calculates the debt interest rate based on iBoxx indices, which represent a rate on gross debt. This is then multiplied by the level of notional gearing, which is assumed to represent the level of debt net of cash balances, although cash balances are not explicitly modelled. This means that the calculation does not take into account that companies need to hold cash balances that generate less interest income than is paid on the gross debt (i.e. the cash balances earn a negative spread). For example, cash balances can be held to underpin ongoing license requirements on adequacy of resources or because of raising new debt before existing debt expires (i.e. to reduce refinancing risk and meet liquidity requirements). Given that the evidence does not support the existence of any material 'halo effect' for WWU, the RIIO-GD1 approach does not provide an allowance for the cost of carry or for debt issues and ancillary costs.

3.3 Conclusions

This section has demonstrated that for individual companies the cost of debt index can produce windfall gains and losses relative to their actual cost of

[14] 19 years for BBB 10+ index and 23 years for A 10+ index.
[15] Competition and Markets Authority (2014), 'Northern Ireland Electricity Limited price determination', 26 March, para. 17.36.
[16] Ofgem (2014), 'RIIO-ED1: Draft determinations for the slow-track electricity distribution companies. Financial Issues. Supplementary annex to RIIO-ED1 overview paper', 26 September, p. 12.

efficiently raised debt. The variance is largely driven by when companies raised their debt, and the constraints on the companies' ability to time their issuance to match the index. Companies that have no need to access debt markets at times of relatively low interest rates will be penalised and companies that have no need to raise debt when interest rates are relatively high will benefit We note that Ofgem has recognised scope for improvement to its cost of debt index and outlined some alternatives for RIIO-2 in its framework consultation.

It is highly likely that continuation of the RIIO-GD1 approach to the cost of debt over the eight years of RIIO-GD2 would not produce a revenue allowance to cover the cost of efficiently incurred debt. The extent of the shortfall in RIIO-GD2 is likely to be greater than the expected outcome for RIIO-GD1. Our scenario analysis shows that this situation is likely to persist irrespective of the future path of interest rates, which links back to the fact that specific features of Ofgem's approach would not allow WWU to recover its efficiently raised debt costs.

A1 Details of cost of debt calculations

In order to illustrate the extent of WWU's underperformance, we use two stylised scenarios for market cost of debt. In the low scenario, we assume that the cost of debt will not change, i.e. it will stay at the currently observed level. Whereas in the high scenario, we assume that market rates will increase by 25bp each year up until 2022 after which they will stay constant. These scenarios are summarised in Table A1.1.

Table A1.1 Stylised scenarios for annual changes in market yields

Period	Low	High
2019–23	0.00%	+0.25%
2024–30	0.00%	0.00%

Source: Oxera.

The details of our calculations are shown in Table A1.2 below. The figures in the last two columns show the assumed annual average of WWU's future cost of debt and the future allowed cost of debt, respectively. The figures are shown under the two stylised scenarios.

Table A1.2 Stylised scenarios for iBoxx yields under low case (%)

Calculation (start date)	Calculation (end date)	FY (spot)	FY (allowance)	A–BBB, real yield (actual)	Change in yield	Cumulative change in yield	Forecast spot yield	Ten-year average
				[A]		[B]	= [A] + [B]	
Low case								
Nov 98	Oct 99	1999	2000	3.48			3.48	
Nov 99	Oct 00	2000	2001	3.77			3.77	
Nov 00	Oct 01	2001	2002	4.17			4.17	
Nov 01	Oct 02	2002	2003	3.87			3.87	
Nov 02	Oct 03	2003	2004	3.46			3.46	
Nov 03	Oct 04	2004	2005	3.06			3.06	
Nov 04	Oct 05	2005	2006	2.77			2.77	
Nov 05	Oct 06	2006	2007	2.49			2.49	
Nov 06	Oct 07	2007	2008	2.77			2.77	
Nov 07	Oct 08	2008	2009	3.32			3.32	3.32
Nov 08	Oct 09	2009	2010	4.49			4.49	3.42
Nov 09	Oct 10	2010	2011	2.46			2.46	3.29
Nov 10	Oct 11	2011	2012	2.28			2.28	3.10
Nov 11	Oct 12	2012	2013	2.08			2.08	2.92
Nov 12	Oct 13	2013	2014	1.44			1.44	2.72
Nov 13	Oct 14	2014	2015	1.41			1.41	2.55
Nov 14	Oct 15	2015	2016	1.07			1.07	2.38
Nov 15	Oct 16	2016	2017	0.85			0.85	2.22
Nov 16	May 17	2017	2018	-0.14			-0.14	2.03
Nov 17	Oct 18	2018	2019		0.00	0.00	-0.14	1.67
Nov 18	Oct 19	2019	2020		0.00	0.00	-0.14	1.18
Nov 19	Oct 20	2020	2021		0.00	0.00	-0.14	0.91
Nov 20	Oct 21	2021	2022		0.00	0.00	-0.14	0.65
Nov 21	Oct 22	2022	2023		0.00	0.00	-0.14	0.42
Nov 22	Oct 23	2023	2024		0.00	0.00	-0.14	0.25
Nov 23	Oct 24	2024	2025		0.00	0.00	-0.14	0.09

Nov 24	Oct 25	2025	2026	0.00	0.00	-0.14	-0.03
Nov 25	Oct 26	2026	2027	0.00	0.00	-0.14	-0.14
Nov 26	Oct 27	2027	2028	0.00	0.00	-0.14	-0.14
Nov 27	Oct 28	2028	2029	0.00	0.00	-0.14	-0.14
Nov 28	Oct 29	2029	2030	0.00	0.00	-0.14	-0.14

Note: Financial year is assumed to be started on the 1 April of the shown year, e.g. FY 2018 means the year starting on 1 April 2018 and ending 31 March 2019.

Source: Oxera analysis

Table A1.3 Stylised scenarios for iBoxx yields under high case (%)

Calculation (start date)	Calculation (end date)	FY (spot)	FY (allowance)	A–BBB, real yield (actual) [A]	Change in yield	Cumulative change in yield [B]	Forecast spot yield = [A] + [B]	Ten-year average
High case								
Nov 98	Oct 99	1999	2000	3.48			3.48	
Nov 99	Oct 00	2000	2001	3.77			3.77	
Nov 00	Oct 01	2001	2002	4.17			4.17	
Nov 01	Oct 02	2002	2003	3.87			3.87	
Nov 02	Oct 03	2003	2004	3.46			3.46	
Nov 03	Oct 04	2004	2005	3.06			3.06	
Nov 04	Oct 05	2005	2006	2.77			2.77	
Nov 05	Oct 06	2006	2007	2.49			2.49	
Nov 06	Oct 07	2007	2008	2.77			2.77	
Nov 07	Oct 08	2008	2009	3.32			3.32	3.32
Nov 08	Oct 09	2009	2010	4.49			4.49	3.42
Nov 09	Oct 10	2010	2011	2.46			2.46	3.29
Nov 10	Oct 11	2011	2012	2.28			2.28	3.10
Nov 11	Oct 12	2012	2013	2.08			2.08	2.92
Nov 12	Oct 13	2013	2014	1.44			1.44	2.72
Nov 13	Oct 14	2014	2015	1.41			1.41	2.55
Nov 14	Oct 15	2015	2016	1.07			1.07	2.38
Nov 15	Oct 16	2016	2017	0.85			0.85	2.22

Nov 16	May 17	2017	2018	-0.14			-0.14	2.03
Nov 17	Oct 18	2018	2019		0.25	0.25	0.11	1.69
Nov 18	Oct 19	2019	2020		0.25	0.50	0.36	1.26
Nov 19	Oct 20	2020	2021		0.25	0.75	0.61	1.07
Nov 20	Oct 21	2021	2022		0.25	1.00	0.86	0.92
Nov 21	Oct 22	2022	2023		0.25	1.25	1.11	0.82
Nov 22	Oct 23	2023	2024		0.00	1.25	1.11	0.78
Nov 23	Oct 24	2024	2025		0.00	1.25	1.11	0.75
Nov 24	Oct 25	2025	2026		0.00	1.25	1.11	0.75
Nov 25	Oct 26	2026	2027		0.00	1.25	1.11	0.78
Nov 26	Oct 27	2027	2028		0.00	1.25	1.11	0.86
Nov 27	Oct 28	2028	2029		0.00	1.25	1.11	0.96
Nov 28	Oct 29	2029	2030		0.00	1.25	1.11	1.04

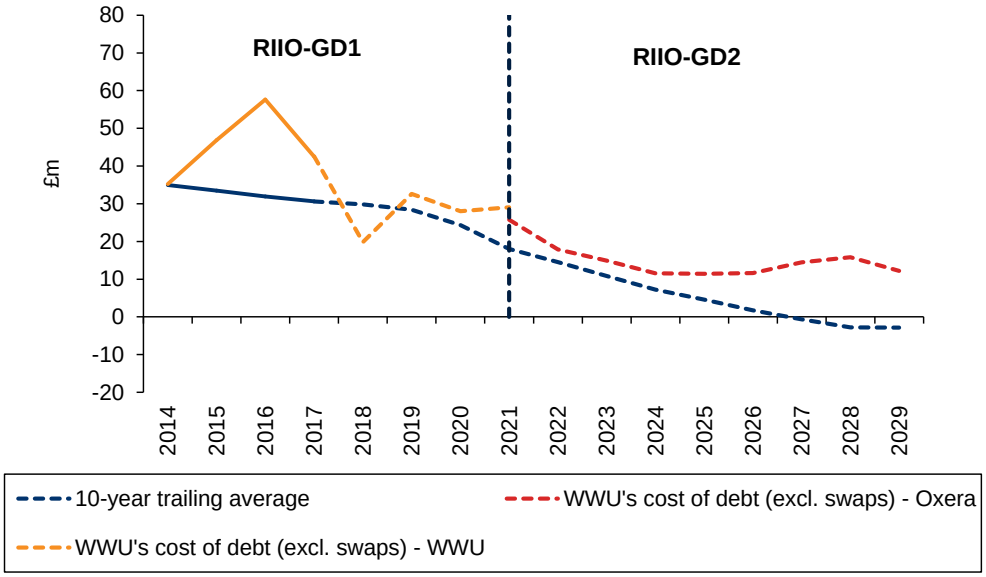
Source: Oxera analysis.

A2 Details of cost of debt results

A2.1 Results under low scenario

The two figures below are equivalent to Figure **3.1** and Figure **3.2** in the report, except that they show WWU's debt costs in monetary terms rather than in percentage terms.

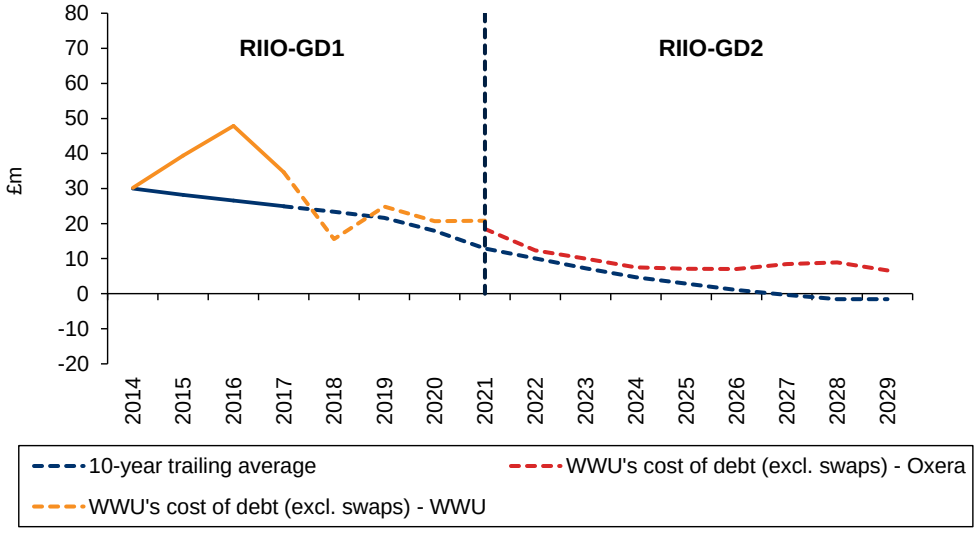
Figure A2.1 WWU's cost of debt rate versus Ofgem's allowance (nominal)



Note: The dotted part of the line indicates forecast as opposed to historical data. In line with Ofgem's approach, the monetary values have been calculated by multiplying real cost of debt by real net debt (2009/10 prices) and uprating the resulting figure by the cumulative inflation since 2009/10. The calculations assume a notional gearing of 65%.

Source: Oxera analysis based on data from WWU and Datastream.

Figure A2.2 WWU's cost of debt rate versus Ofgem's allowance (real)



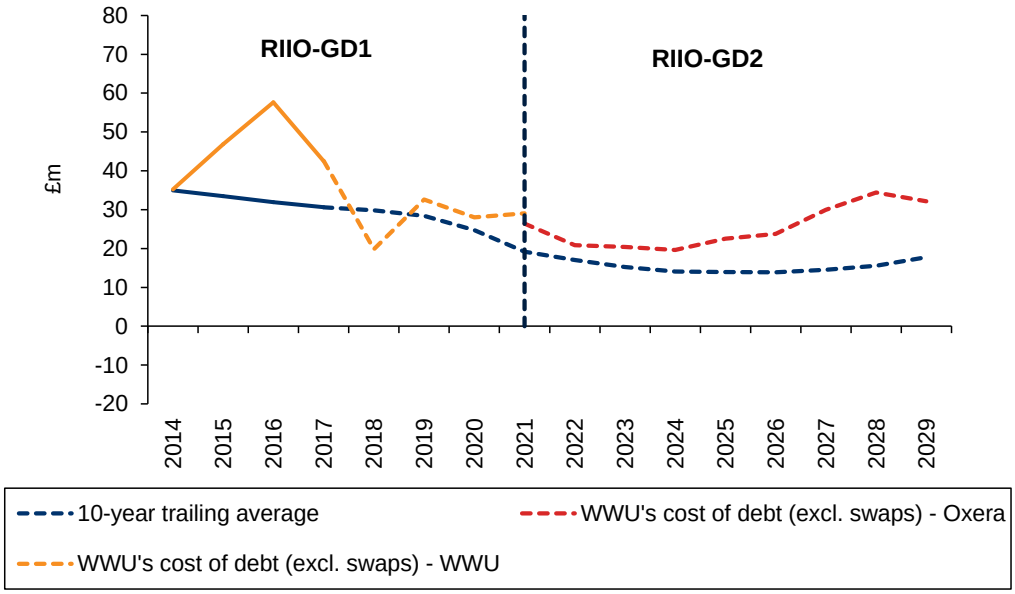
Note: The monetary values have been calculated by multiplying real cost of debt by real net debt (2009/10 prices). The calculations assume a notional gearing of 65%.

Source: Oxera analysis based on data from WWU and Datastream.

A2.2 Results under high scenario

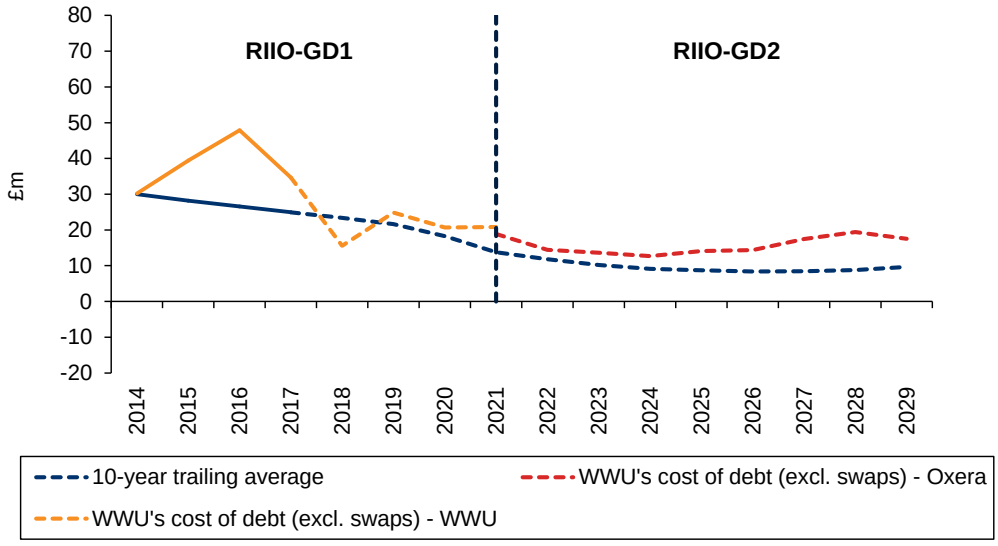
The two figures below are equivalent to Figure 3.3 and Figure 3.4 in the report, except that they show WWU's debt costs in monetary terms rather than in percentage terms.

Figure A2.3 WWU's cost of debt rate versus Ofgem's allowance (nominal)



Source: Oxera analysis based on data from WWU and Datastream.

Figure A2.4 WWU's cost of debt rate versus Ofgem's allowance (real)



Source: Oxera analysis based on data from WWU and Datastream.

Table A2.1 WWU's debt costs versus Ofgem's allowance (£m) (low scenario)

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	GD1	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	GD2
Nominal basis																		
WWU's debt costs (excl. swaps) (per Oxera)	34	46	55	36	22	25	25	26	**268**	18	15	12	11	12	14	16	12	**110**
WWU's debt costs (excl. swaps) (per WWU)	35	47	58	43	20	33	28	29	**292**									**n/a**
Allowed debt costs	35	33	32	31	30	28	24	18	**232**	15	11	7	5	2	-1	-3	-3	**33**
Real basis																		
WWU's debt costs (excl. swaps) (per Oxera)	29	38	45	30	17	19	18	18	**215**	12	10	7	7	7	8	9	7	**68**
WWU's debt costs (excl. swaps) (per WWU)	30	39	48	35	16	25	21	21	**234**									**n/a**
Allowed debt costs	30	28	27	25	23	22	18	13	**186**	10	7	5	3	1	-0	-2	-2	**22**

Note: The calculations assume a notional gearing of 65%.

Source: Oxera analysis based on data from WWU and Datastream.

Table A2.2 WWU's debt costs versus Ofgem's allowance (£m) (high scenario)

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	GD1	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	GD2
Nominal basis																		
WWU's debt costs (excl. swaps) (per Oxera)	34	46	55	36	22	25	25	26	**270**	21	20	20	23	24	30	34	32	**204**
WWU's debt costs (excl. swaps) (per WWU)	35	47	58	43	20	33	28	29	**292**									**n/a**
Allowed debt costs	35	33	32	31	30	28	25	19	**233**	17	15	14	14	14	14	16	18	**122**
Real basis																		
WWU's debt costs (excl. swaps) (per Oxera)	29	38	45	30	17	19	19	19	**217**	14	14	13	14	14	17	19	18	**124**
WWU's debt costs (excl. swaps) (per WWU)	30	39	48	35	16	25	21	21	**234**									**n/a**
Allowed debt costs	30	28	27	25	23	22	18	14	**187**	12	10	9	9	8	8	9	10	**75**

Note: The calculations assume a notional gearing of 65%.

Source: Oxera analysis based on data from WWU and Datastream.

www.oxera.com