frontier economics

NOTIONAL CAPITAL STRUCTURE

AN INDEPENDENT ASSESSMENT OF OFWAT'S PROPOSED APPROACH FOR PR24

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Executive summary

We have reviewed Ofwat's proposal to lower the notional gearing level from 60% and conclude that it does not satisfy Ofwat's own notional gearing framework, nor is it supported by empirical evidence.

A group of water companies have asked Frontier Economics to assess Ofwat's proposal to reduce the notional gearing level for PR24. This work forms part of a wider piece of research on cost of capital at PR24 and other aspects such as beta levering and de-levering approaches are covered elsewhere. In this document we take 'gearing' to mean regulatory gearing i.e. the ratio of net debt for the appointed business to its regulatory capital value (RCV) rather than market value based measures of gearing.

Ofwat has proposed lowering the current notional gearing of 60% for PR24.

Ofwat introduces its proposed framework for setting the appropriate notional capital structure in its 2021 risk and return discussion paper.[1] In the context of this framework, Ofwat has suggested that the current notional gearing level of 60% may be too high and a lower gearing rate would be more appropriate to provide headroom against greater uncertainty.

There are a variety of conceptual considerations when thinking about the optimal notional gearing level. This conceptual framework is best interpreted via the market evidence.

Ofwat uses the concept of notional gearing for three purposes: (1) as an input into the weighted average cost of capital (WACC), (2) for the notional financeability assessment; and (3) for monitoring and enforcing financial resilience. Our scope of work focuses on the first two.

There are several factors that influence the range of optimal gearing and these will vary across the purposes described above. The overall optimal gearing range will need to balance minimisation of the pre-tax WACC, the impact of external factors such as sector risks, economic policy, and financial market conditions, the impact of interactions with behavioural factors, and the relevant social cost and benefits.

We make two observations in light of the complexity of this conceptual framework. Firstly, the framework endorses a range of gearing levels rather than a single optimal level. Secondly, the best way to implement the conceptual framework is to focus on the market data rather than attempting to estimate the optimal gearing range from first principles. Market data including credit rating agency criteria and actual company gearing levels will reflect private considerations in the conceptual framework while wider evidence on sector wide financial resilience should be used to assess whether the social optimal differs from the private optimal level of gearing seen in the market data.

Furthermore, regulatory practice dictates that the notional gearing level should be assessed on an independent and objective basis. Adjusting the notional gearing level away from this objective level in order to address financeability issues would not be consistent with Ofwat's financing duty.

We therefore asses Ofwat's proposals against the following set of questions:

- What is the market evidence on gearing? Is there a case to set notional gearing at a different level?

[1] Ofwat (2021) PR24 and beyond: Discussion paper on risk and return

- Is notional gearing the best tool to provide additional headroom for risk?
- Is the treatment of notional gearing in line with regulatory best practice?

The relevant market metric is regulatory gearing. Gearing ratios based on enterprise value (EV) are not relevant to financeability.

When reviewing the empirical evidence the relevant metric is regulatory gearing, typically measured as the ratio of net debt for the appointed business to its regulatory capital value (RCV). This is the metric used by credit rating agencies in their financeability criteria. Gearing levels based on enterprise value (EV) are inappropriate in the context of notional gearing for several reasons.

EV based metrics are useful to understand the amount of risk borne by equity. However, it is debt rather than equity that is the focus of the financeability assessment in regards to the level of notional gearing, specifically the ability of a company to service its debt and its associated credit default risk. For example, Moody's methodology for regulated water companies specifies that 'leverage ratios aim to capture different measures of how easily an issuer can repay its debt, coverage ratios focus more on the ability to service the debt prior to repayment'.[2] As water company cashflows are defined by their RCV, the EV is of limited consequence to debt investors. Therefore it is gearing in relation to the RCV that matters.

The current notional gearing level of 60% is already at the bottom end of the range implied by market evidence. There is no evidence to justify reducing it below current levels.

The market evidence across credit rating agency criteria, actual gearing rates, and regulatory precedent supports a range of 60%-75%. The current notional gearing level of 60% is therefore already at the bottom of this range:

- **Credit rating guidance**. Moody's ratio guidance for UK water utilities has threshold regulatory gearing range of 65%-72% for a Baa1 rating. A regulatory gearing level of 60% is actually at the midpoint of the Moody's 55%-65% range for an A3 rating which is higher than Ofwat's target for the notional company of BBB+/Baa1. The current level of 60% therefore already provides headroom for the notional company.

- **Actual sector gearing.** In the water industry, the current sector wide RCV weighted average gearing level is 68.5%[3] which is well above the 60% notional gearing level. Furthermore, the interquartile range of actual company gearing in 2021/22 was 63% - 72% and the lower quartile has remained at or above 64% over the past seven years. Currently only three companies have a gearing level below 60% and all three have non-standard capital structures that limit their value as comparators for the notional company or industry as a whole.[4] Excluding these three companies results in actual 2021/22 gearing levels ranging from 62% to 81%. Again this suggests that 60% already lies at the lower bound of efficient gearing levels. Furthermore, whilst there has been a modest reduction in actual sector gearing

[2] Moody's investor service (2018). Rating methodology. Regulated water utilities

[3] This is the total sector gearing level i.e. total net debt / total RCV

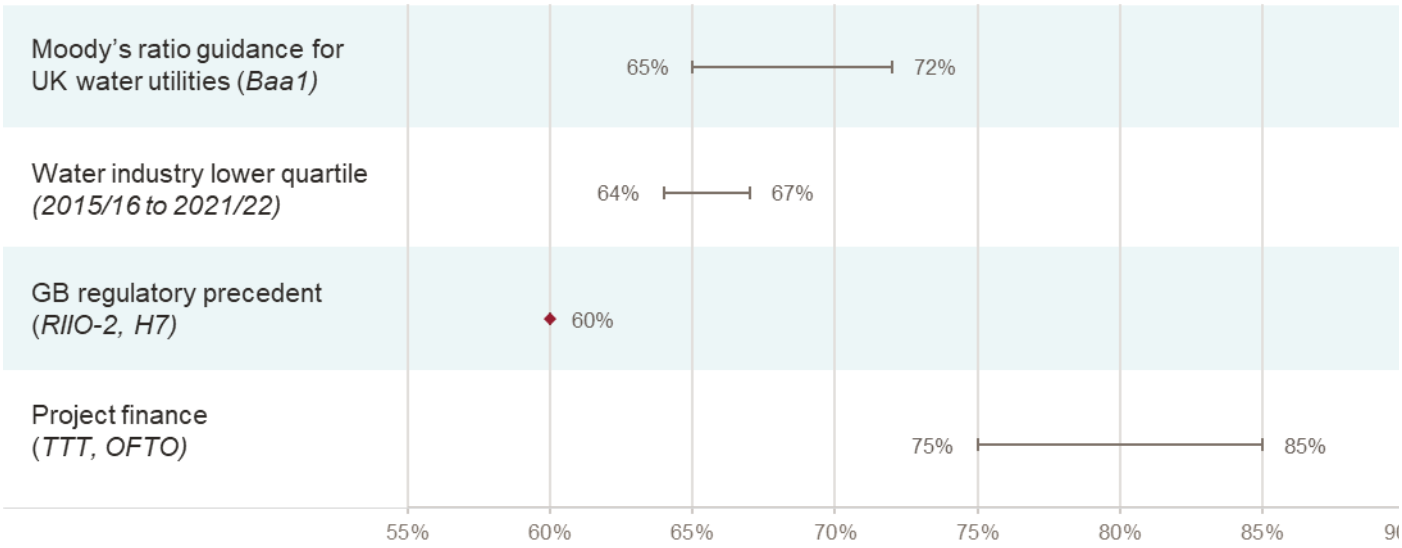
[4] The three companies are Hafren Dyfrdwy, Dŵr Cymru, and South Staffordshire Water. Haffren Dyfrdwy has a reported gearing level of 40% which reflects its ownership by Severn Trent and intragroup adjustments. Dŵr Cymru's gearing level reflects its limited by liability ownership structure and renders it incomparable to the rest of the sector. South Staffordshire Water's parent company, South Staffordshire plc, recently implemented a new group structure including the creation of a new intermediate holding company SSW Finance Limited (MidCo).

levels in 2021/22, much of this is likely due to companies moving towards the notional gearing in response to Ofwat's push for lower gearing as part of the PR19 strategy. This should not be interpreted automatically as evidence that the notional gearing should continue to fall as it risks becoming a self-fulfilling prophecy. gearing. More generally, even with the small reduction in total sector gearing in 2020/21, the majority of companies remain well above the 60% notional level, reinforcing its position as the bottom end of the market range.

- **Competitive infrastructure project finance.** Comparators from competitive infrastructure finance have also been consistently higher than 60%. For example, the Thames Tideway Tunnel currently has a gearing of 83% and Offshore Transmission Operators have typically been financed at gearing levels of 75%-85%.

- **Regulatory precedent**. Recent GB regulatory precedent for energy (RIIO-2) and aviation (H7) have all used 60% as their notional gearing assumption.

Figure 1 Summary of market evidence



Source: Frontier Economics

Furthermore, There is no evidence to indicate that the social optimal level of gearing would be below the level determined by the market evidence. Also to the extent that Ofwat has identified increases in the risk profile, we have not seen any rating agencies update their criteria to suggest lower gearing levels are required to address risk in the sector.

Even if additional headroom were required, Ofwat has not justified why lowering the notional gearing is the best option.

As Ofwat recognises in its draft methodology, credit ratings are based on multiple factors. Regulatory gearing only has a weighting of 10% in Moody's rating methodology and Ofwat has not provided evidence that it has considered other options for providing necessary headroom which may be more effective. Other regulators have considered alternative solutions to address uncertainty from factors such as increased risk of extreme weather. For example, Ofgem's draft determination for RIIO-ED2 includes a severe weather funding

mechanism, as well as severe weather allowances and re-openers. We recommend that Ofwat works with companies to understand the root cause, scale, and balance of any additional uncertainty and use this to assess solutions in the round.

Without clear market evidence and supporting assessment in the round, changing the notional gearing level risks undermining investor confidence and goes against regulatory best practice.

The government's recent review of economic regulation has highlighted the importance of stability in the regulatory regime to support long-term investment. This is key given that the water industry is likely to require significant investment in PR24 and beyond. Lowering the notional gearing rate without supporting evidence is likely to reduce investor confidence due to higher perceived regulatory risk. This in turn will undermine Ofwat's original intentions to support investment in the sector and may be perceived as counter-intuitive given the role of debt investment over the life of new assets.

While Ofwat argues that a change of up to 5% would not be unprecedented based on historical gearing levels, these should be considered in the context of the wider financial and regulatory environment and, in particular, the growth of RCV relative to annual costs over the past 30 years. This means that relying on historical gearing rates alone is not sufficient to argue that a change today is precedented, particularly as Ofwat has provided no empirical data or evidence to justify moving away from 60%.

In summary, we have seen no significant evidence to support a move away from the current 60% gearing level which already lies at the bottom of the reasonable range informed by market data. Nor have Ofwat provided an impact assessment to demonstrate that a reduction in notional gearing levels is beneficial for customers, particularly as any change in gearing levels will have associated costs including equity issuance cost and tax liability impacts.

Without this evidence, there is a real risk that a reduction in the notional gearing level will mean companies are incentivised to move to inefficient actual gearing levels. This would lead to several adverse impacts including undermining investor confidence, over-reliance on a single source of financing, and equity issuance costs which ultimately need to be borne by customers.

1 Introduction

Ofwat published its draft methodology for the next price control period PR24 in July 2022. This set out its proposed approach to risk and return in PR24 and builds on its December 2021 discussion paper.

A group of water companies have asked Frontier Economics to independently assess Ofwat's proposed approach to notional gearing. Other aspects of risk and return have been addressed separately including issues relating to beta levering and de-levering approaches.

1.1 Ofwat's proposed approach

In its December 2021 discussion paper Ofwat introduced its proposed framework for setting the appropriate notional capital structure.[5] This framework is intended to:

- Incentivise efficient financing choices given the balance of risk faced by water companies;
- Reflect the scale and nature of investment needs;
- Take account of a range of appropriate benchmarks and evidence; and
- Allows the regulator to set a price control that is in the best interest of current and future customers.

In the context of this framework, Ofwat suggested that the current notional gearing level of 60% may not be fit for purpose for PR24 and that a lower gearing rate would be more appropriate. It justified this thinking on the basis that the water sector faces greater uncertainty in the future leading to a 'greater role for equity in order to provide a buffer against supply-side or demand-side shocks'.[6]

This discussion paper also addressed Ofwat's approach to estimating betas for the notional company in PR19, including its method for de-levering comparator raw betas and re-levering them in line with the notional gearing level. It draws heavily on a recent report by Professors Mason and Wright[7] who raise two issues with the approach taken at PR19: (1) measurement challenges for comparator gearing levels and (2) the positive relationship between notional gearing levels and the WACC. While treatment of the equity beta is not the focus of this work, we will address interactions with the level of notional gearing.

Ofwat has since published its draft methodology. It recognised that there was 'limited support for our proposed framework for determining the notional structure and companies were universally opposed to a reduction in notional gearing from 60%'.[8] However it is proposing to continue with its notional capital framework and remains minded to adopt a lower notional gearing level for PR24.

[5] Ofwat (2021) PR24 and beyond: Discussion paper on risk and return

[6] Ibid.

[7] Mason R, Wright S. (2021) A report on financial resilience, gearing, and price controls

[8] Ofwat (2022) Creating tomorrow, together: consulting on our methodology for PR24. Appendix 10 – Aligning risk and return

1.2 Structure of this document

The remainder of this document is structured as follows:

- Section 2 lays out the key theoretical arguments surrounding the level of notional gearing and uses these to develop a framework for notional gearing;
- Section 3 sets out empirical evidence against the notional gearing framework in the context of Ofwat's proposed approach in addition to the potential impacts of lowering the notional gearing;
- Section 4 summarises our overall conclusions.

2 Framework for notional gearing

In order to review Ofwat's proposed approach to notional gearing, we need to establish a conceptually justified method for establishing the notional gearing level. This should reflect corporate finance principles, regulatory best practice, and account for relevant precedent.

We first discuss the purposes of setting a notional gearing level, the way in which each of these affects the reasonable range, and the need for consistency. We then explain how the notional gearing level is linked to Ofwat's regulatory duties. Finally, we bring this together to set out a framework for setting notional gearing in practice.

2.1 Purpose of notional gearing

As a starting point it is important to recognise that Ofwat uses the concept of notional gearing for different purposes within the overall regulatory methodology:

- as an input into the weighted average cost of capital (WACC);
- for the notional financeability assessment; and
- as an input into the ongoing monitoring and enforcing financial resilience.

The range of reasonable figures for the notional gearing level may differ depending on which of these three purposes it is being used for. However, there needs to be consistency across the notional gearing levels used for estimating the WACC and the financeability assessment. This was noted by the Competition Commission's assessment who highlighted that consistency across the two was integral to achieving Ofwat's financing duty (see section 2.3).

We note that for monitoring and enforcing financial resilience a regulator could adopt a range for notional gearing, whereas for the other two purposes a point estimate of gearing is used.

In this report we focus on setting a notional gearing rate for the calculation of the WACC and notional financeability assessment. However, we note that while Ofwat states that actual gearing is a matter for companies, its decisions on notional gearing have important impacts on the price determination and actual financing of investments (discussed in 3.4).

2.2 Regulatory gearing vs. other gearing ratios

There are two broad categories of gearing metrics: (1) those based on book value and (2) those based on enterprise values (EV). In the context of notional gearing, it is book value rather than market value that is relevant. Gearing levels based on enterprise value (EV) are inappropriate in the context of notional gearing for several reasons.

Whilst EV based gearing metrics are useful to understand the amount of debt borne by equity, the financeability assessment focuses on the ability of companies to service their debt and their associated credit default risk. This is reflected in credit rating agency criteria which use regulatory gearing, the ratio of net debt for the appointed business to its regulatory capital value (RCV), as an input into the calculation of a company's

credit rating. For example, Moody's methodology for regulated water companies specifies that 'leverage ratios aim to capture different measures of how easily an issuer can repay its debt, coverage ratios focus more on the ability to service the debt prior to repayment'.[9]

We therefore disagree with the position that one should move away from regulatory gearing to market value based measures of gearing for the purpose of setting the notional gearing. The remainder of this document uses the term 'gearing' to refer to regulatory gearing.

2.3 Relationship with Ofwat's regulatory duties

While companies are free to set their actual gearing levels, Ofwat's decision on the notional gearing level acts as an important signalling mechanism to companies considering their own choice of capital structure. This is because both the allowed return and financeability assessment are underpinned by an efficient company with the notional level of gearing.

This means that Ofwat needs to consider its relevant regulatory duties when determining the notional gearing level. Ofwat has five primary regulatory duties. Of these we consider the following three to be of particular relevance when discussing notional gearing:

- To further the consumer objective to protect the interests of consumers, wherever appropriate by promoting effective competition (referred to as the consumer objective);
- To secure that water companies can (in particular through securing reasonable returns on their capital) finance the proper carrying out of their statutory functions (referred to as the financing duty); and
- To further the 'resilience objective' which is defined as:

  (a) to secure the long-term resilience of water undertakers' supply systems and sewerage undertakers' sewerage systems as regards environmental pressures, population growth and changes in consumer behaviour; and

  (b) to secure that undertakers take steps for the purpose of enabling them to meet, in the long-term, the need for the supply of water and the provision of sewerage services to consumers, including by promoting: (i) appropriate long-term planning and investment by relevant undertakers; and (ii) the taking by them of a range of measures to manage water resources in sustainable ways, and to increase efficiency in the use of water and reduce demand for water so as to reduce pressure on water resources.

There is no hierarchy between these primary duties. The CMA in the redetermination appeals following PR19 stated as follows:[10]

> *"The CMA has previously set out (in the CMA's Bristol PR14 Determination) that the primary duties are equally important and are intended to complement one another."*

[9] Moody's investor service (2018). Rating methodology. Regulated water utilities

[10] CMA; Anglian Water Services Limited, Bristol Water plc, Northumbrian Water Limited and Yorkshire Water Services Limited price determinations, Final report, March 2021, para 2.84.

The assessment of notional gearing most clearly relates to the performance of the financing duty. At the same time we note that the method in which Ofwat sets notional gearing could have an impact on both the consumer objective duty and the resilience duty (i.e. promoting long-term planning and investment), particularly if the method does not follow the principles of best regulatory practice. We refer to the potential implications for these duties further in this paper.

In terms of the financing duty, it is established regulatory practice[11] that this is achieved through:

- Setting a WACC that properly reflects the cost of debt and cost of equity, and a level of notional gearing that is appropriate for an efficiently financed company;
- Consideration of the importance of maintaining access to debt finance on reasonable, in the form of investment grade credit ratings; and
- An assessment that regulatory assumptions about costs and service performance are likely to be achievable.

The fact that the assessment is based on notional gearing rather actual gearing is consistent with the regulatory principle that actual capital structure decisions are a matter for the company and its investors. For example, the Competition Commission (2010) stated[12]:

> *"We agreed with Ofwat that Bristol Water's actual financial structure is for Bristol Water to determine, but that this was at Bristol Water's own risk. Accordingly, we considered it reasonable for us to conduct our assessments on the basis of assumptions as to financial structure that we considered to be reasonable in terms of gearing (as long as we applied such adjustments in calculating the WACC)"*

We note that the Competition Commission highlighted that the notional gearing estimate should be applied consistently to both the WACC calculation and the financeability assessment and that this was integral to achieving the financing duty.

Therefore, our conclusion with regard to the regulatory duties, reflecting the established regulatory practice outlined above, is that the notional gearing level should be assessed on an independent and objective basis. Adjusting the notional gearing level away from this objective level in order to address financeability issues would not be consistent with satisfying the financing duty.

Looking forward, government is proposing to launch a review of utilities regulators' statutory duties later this year. The review will consider what changes, if any, are required to ensure that UK regulation are transparent and predictable to facilitate investment, protect consumers, and deliver sustainable growth.[13]

2.4 Wider regulatory best practice

In addition to consistency with established economic and corporate finance principles, Ofwat's justification for changing the notional gearing level for PR24 needs to be in line with wider regulatory best practice.

[11] For example, see CMA (2021), paras 9.39, 10.72 – 10.73, or Competition Commission, Bristol Water plc, Report, August 2010, para 10.8.

[12] Competition Commission, Bristol Water plc, Report, August 2010, para 10.10.

[13] Department for Business, Innovation and Skills (2022). Economic regulation policy paper

Regulation in the UK is guided by the Government's Principles for Economic Regulation.[14] Ofwat is also a member of the UK Regulators Network (UKRN) and has signed up to their principles for cost of capital.[15] Both the Government and UKRN's principles for regulation include stability and predictability i.e. ensuring that the regulatory framework is stable across periods and that any changes are well justified to provide the necessary confidence for long-term investment.

Given the sector's new focus on long-term investment, this is more important than ever. This is emphasised in BEIS's recent consultation paper on the framework for better regulation which states that 'a key element to encouraging investment is providing a stable and predictable environment for investors and consumers'.[16] More generally, given the 20+ year investment horizons in the water sector, any changes in gearing levels should be gradual within a stable and predictable regulatory environment.

If Ofwat considers it appropriate to decrease the level of gearing for PR24, then it must imply that either approaches used previously to set the notional gearing level resulted in higher than optimal levels, or that the optimal level is decreasing. We have not seen any significant evidence to suggest that the previous approach to setting the notional gearing level resulted in inappropriately high values. Any change in gearing level must therefore be supported by clear market evidence that it remains in the reasonable range for gearing (we focus on establishing this range in section 3).

In the absence of this evidence, changing the notional gearing level risks introducing greater uncertainty into the regulatory environment without any actual benefit to consumers. This outcome would be inconsistent with Ofwat's regulatory duties (financing duty, consumer objective duty, and the resilience objective duty).

2.5 Framework for notional gearing

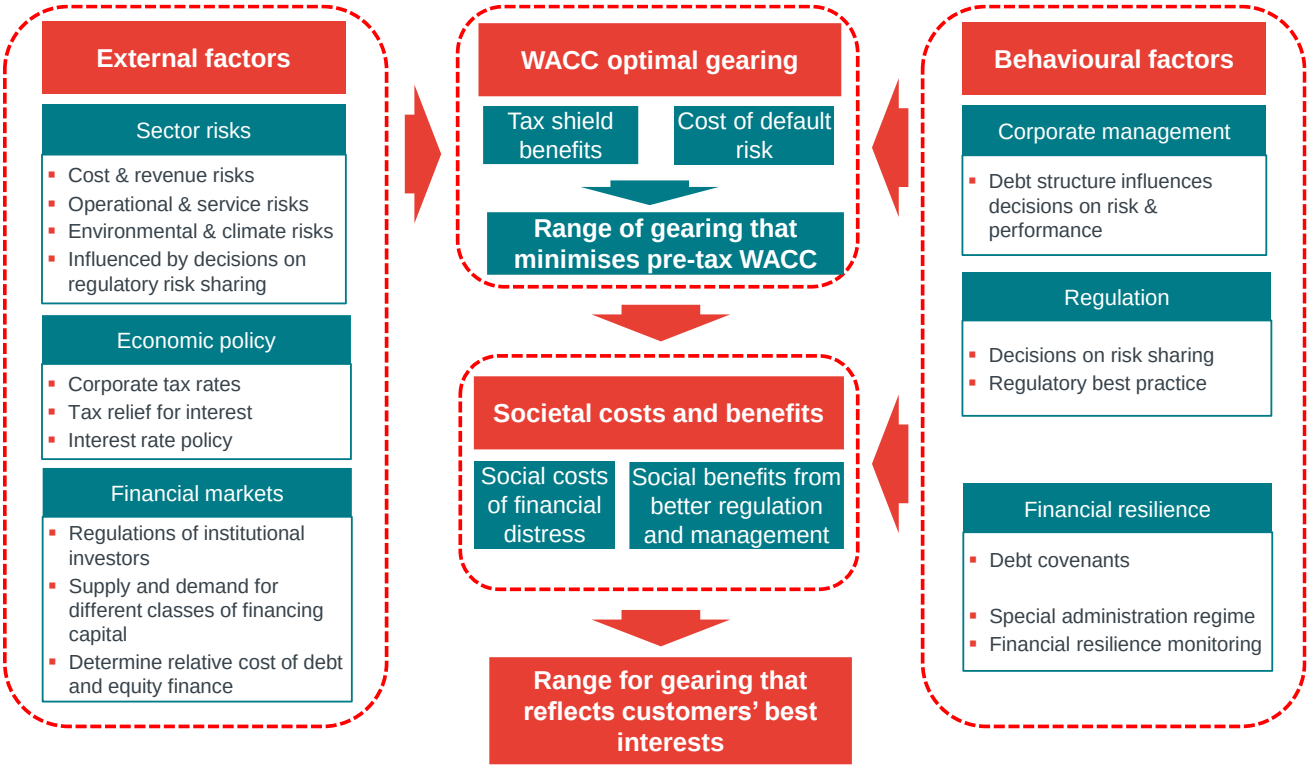
Our conceptual framework for assessing notional gearing is set out in Figure 2. The aim of this framework is to identify the wide range of factors that can influence a gearing assessment and to explore the complexity of the interactions. As we explain below we are not proposing this as a tool for estimating the notional gearing, but do consider that it is useful for understanding and assessing Ofwat's position.

[14] Department for Business, Innovation and Skills (2011) The Principles for Economic Regulation

[15] UKRN website. Accessed at: cost of capital | UKRN: the UK Regulators Network

[16] ibid

Figure 2 Conceptual framework for assessing notional gearing

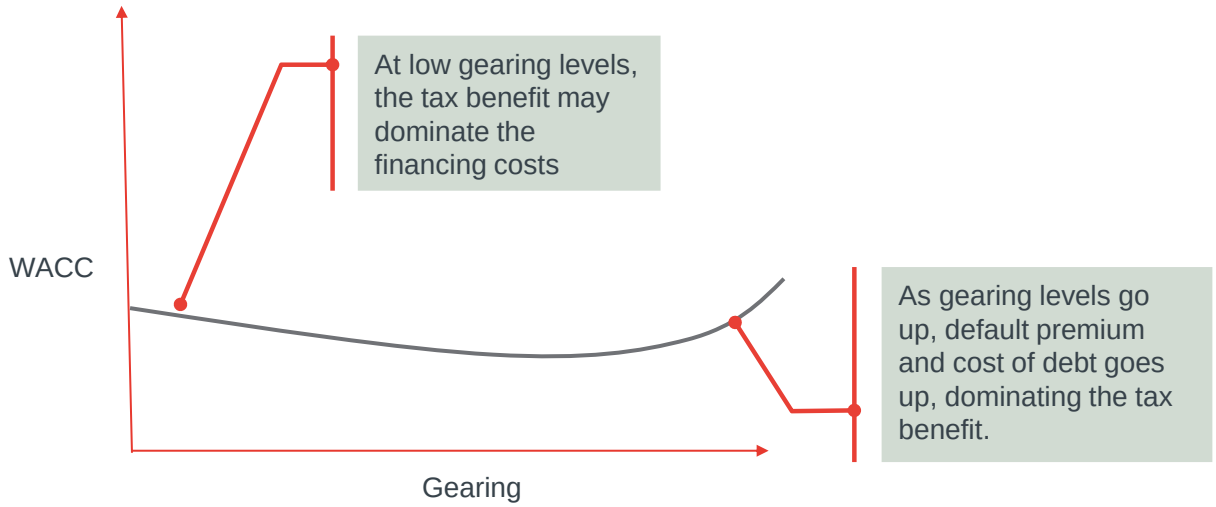


At the centre of the framework is the familiar concept that there is a range of gearing, for a given sector at a point in time, that minimises the pre-tax WACC. An illustration of this is shown in Figure 3. The shape of this relationship reflects the interaction of two factors:

- The tax shield benefits of debt acts to reduce the pre-tax WACC as gearing increases.
- The premium on the cost of debt for default risk acts to increase the pre-tax WACC as gearing increases.

Initially as gearing increases from 0% the tax shield effect dominates and the WACC falls but beyond a certain point the default risk effect becomes more important and the WACC increases again.

Figure 3 Pre-tax WACC and gearing – illustration



Source: Frontier Economics

In practice the shape of this relationship and the gearing range at which the WACC is minimised will depend on a number of factors, which we have divided into external and behavioural.

2.5.1 External factors.

The external factors that influence the appropriate level of gearing for a sector can be divided into: i) sector risks; ii) economic policy and iii) financial market conditions.

2.5.1.1 Sector risks

The upward slope of the gearing curve in Figure 3 is driven by the default premium on debt. This, in turn, depends on the probability of default at a given gearing level and also the expected recovery rate in the event of default. The nature of risks facing the sector will influence both of these. For the water sector the principal risks include:

- Cost risk. The risk that expenditure requirements within a price control period will exceed the allowance in price limits (for example due to changes in input costs).
- Operational and service risks. Performance issues in providing water services, or the treatment and disposal of wastewater, can result in additional costs or financial penalties.
- Environmental and climate risks. Changes in environmental targets and obligations, and changes in climate patterns, are an important underlying driver of both cost and service risk in the water sector.

Crucially, the impact of these risks on investors and gearing decisions, will depend on the regulatory treatment of risks. Elements of the regulatory methodology (for example, cost sharing rates, incentive caps and collars, re-openers) determine how risk is shared between the company (i.e. the investors) and customers. In addition, the regulatory methodology including the effectiveness of the Special Administration regime will influence the recovery rate on debt in the event of default.

Therefore the greater the degree of underlying risk (cost risk, operational & service risks, etc) the lower will be the optimal gearing range. At the same time, the more the regulatory regime shares risks with customers the higher will be the optimal gearing range.

2.5.1.2 Economic policy.

Economic policy factors covers:

- The corporate tax regime (main rate of corporation tax and system of capital allowances);
- The extent of corporate tax relief for debt interest payments; and
- Monetary policy with respect to interest rates.

A higher corporate tax rates will increase the optimal gearing range as it will increase the tax shield benefits of debt. An increase in interest rates will also increase the value of tax shield benefits but at the same time could be associated with an increase in the cost of debt relative to the cost of equity, which would act in the opposite direction (next section).

2.5.1.3 Financial market conditions

Financial market conditions covers a range of factors that influence the relative costs of debt and equity finance and, through that, the appropriate gearing level. These factors include:

- Rules and regulations that affect the demands from institutional investors for different asset classes. These include Basel regulations and Solvency rules.
- Trends in the investment policies of financial institutions and sovereign funds.
- Other changes in the supply and demand of capital for investment in infrastructure assets.

These factors determine the overall supply and demand conditions for equity and debt financing[17]. For example an increase in the demand for equity financing of infrastructure would increase the cost of equity financing relative to debt financing and therefore influence the optimal gearing range.

2.5.2 Behavioural factors

Alongside the external factors mentioned above there are set of considerations that we described as behavioural factors. In the economic literature these ideas have emerged from analysis of asymmetric information and Principal/Agent models of incentives and behaviours.

For the purpose of understanding notional gearing these factors can be divided into two areas:

- The relationship between decisions on gearing and the behaviour of company management in relation to risk and performance; and
- The relationship between decisions on gearing and the behaviour of regulators in relation to risk and performance.

[17] And also within debt financing the relative supply and demand for different credit rated debt issues.

In this section we summarise the nature of these issues. We do not aim to provide a full review of the literature. We note that Mason and Wright (2021) provided a summary of the literature on the second of these areas.

2.5.2.1 Management behaviours

The relationship between gearing and management behaviours is based on the following observations, following Jensen and Meckling (1976) [18]:

- Investors have imperfect information about the decisions and performance of management;
- The incentives of management may not align to the long-term interests of investors; and
- Default has a relatively greater negative impact on management.

By imposing a higher level of gearing the investors impose a discipline on management, since management will be keen to avoid the costs associated with default. This managerial discipline could include a reduction in risk-taking activities. This would result in a shift of the WACC curve in Figure 3 and therefore alter the optimal gearing range.

In addition the discipline could result in additional managerial effort and focus on performance. This would not necessarily alter the WACC curve but would nevertheless increase the value of the firm. This aspect of the gearing relationship is important to note because it suggests that the level of gearing that is 'optimal' for the investors is not necessarily the level that minimises the pre-tax WACC.

The significance of management behaviours in the gearing decision is well understood. A 2004 report[19] by the Department of Trade and Industry and HM Treasury into the gearing levels of utilities stated as follows:

> *"In a world of imperfect (and asymmetric) information, managers in mature cash-rich firms might have an incentive to spend money on imprudent investment or acquisitions, to the detriment of shareholders. In such instances, imposing a capital structure with a greater proportion of debt can increase managerial focus on profits (necessary to service the debt), and hence raise firm value."*

2.5.2.2 Regulator behaviours

A similar relationship exists between gearing and regulatory behaviours: .

- Regulatory decisions should reflect the long-term interests of investors and customers;
- It is not possible for regulators to commit to long-term decisions and regulators face pressure from other stakeholders to make decisions in the short-term that may not align with the long-term interests; and
- Default by a regulated company would be seen as a regulatory failure (as well as imposing costs on customers) and therefore the regulator has an incentive to manage the risk of default.

[18] Jensen M.C. and W.H. Meckling (1976) 'Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure, Journal of Financial Economics, 3, 305–60.

[19] DTI, The drivers and public policy consequences of increased gearing, A report by the Department of Trade and Industry and HM Treasury, October 2004.

As noted above, the Mason and Wright (2021) paper described this aspect of the gearing relationship and summarised the relevant literature, including the papers by Spiegel and Spulber (1994 and 1997).[20]

Essentially the argument is that a higher level of gearing encourages the regulator to take decisions that put less risk on the company. This reduction in risk results in a shift of the WACC curve in Figure 3 and therefore an increase in the optimal gearing range.

2.5.2.3 Conclusions on external and behavioural factors

In summary this section has sought to explain that there are a wide range of factors that contribute to decisions on gearing. These factors are numerous and with complex interactions between them. As a result it is not straightforward or realistic to try to make judgements on the appropriate gearing levels based on a qualitative appraisal of a small set of factors.

2.5.3 Social costs and benefits

The above section has identified that there may be a divergence between the level of gearing that is optimal from the perspective of the investor and the level of gearing that is optimal from a societal point of view. In other words there are differences between the private costs and benefits and the social costs and benefits of gearing.

Such decisions could arise from the following factors:

- Discipline on management – gearing may result in better decisions in relation to risk-taking and performance that provide additional societal benefits.
- Discipline on regulators – gearing may result in reduction in regulatory opportunism that benefits society but could also result in less challenging regulatory decisions that are negative for society.
- Inefficient decisions to avoid default – in the period prior to a potential default management may make decisions that are sub-optimal for society.
- Societal costs of default – in the event of default there may be some costs associated with a transfer of operations to a new owner. The Special Administration regime is designed to minimise such costs.

Many of these factors were discussed in some detail in the Mason and Wright paper. However, in its findings the paper appear to assume that the social optimal level of gearing was below the private optimal level. As the discussion above has tried to illustrate there are potentially additional social benefits from gearing as well as additional social costs. It is not possible therefore to simply conclude that the social optimal is lower than the private optimal gearing. Nevertheless, Mason and Wright do acknowledge the complexity of such an assessment.

> *"The socially optimal level of gearing equates the social marginal benefits and costs from debt. While simple to state conceptually, there are formidable empirical challenges to determining this equality.*

[20] Spiegel Y. and D. Spulber (1994). "The Capital Structure of a Regulated Firm," RAND Journal of Economics, 25(3), 424-440. Spiegel Y. and D. Spulber (1997). "Capital Structure With Countervailing Incentives," RAND Journal of Economics, 28(1), 1-24.

Indeed, there is no consensus about privately optimal levels of gearing, never mind the socially optimal ones."

2.5.4 How to assess notional gearing in practice

From the assessment above we conclude the following:

- The relevant gearing metric is regulatory gearing based on book values. This is because the financeability assessment is focused on the ability of companies to service their debt and cashflows are determined by the RCV value not the EV.
- The optimal gearing level depends on a wide range of risk and behavioural factors that are complex to assess.
- The optimal gearing for the investor is not necessarily to level that minimises the pre-tax WACC.
- The gearing level that is optimal for society may be higher or lower than the private optimal, but this too is very complex to assess.

In the light of these conclusions, our recommended approach to assessing notional gearing is as follows.

- The best way to implement the conceptual framework for notional gearing is to focus on the **market data** and empirical evidence for **regulatory gearing** to understand the reasonable range.

This empirical approach would seek to address the following questions:

- What is the market evidence on the reasonable range for gearing? This would include the current gearing levels in the industry and trends over time; evidence from credit rating agencies and other investors, evidence from comparable sectors, and regulatory precedent.
- Is there a case to set notional gearing at a different level to that implied by the market evidence?
- If there is a concern that the risk exposure of the sector is increasing, is notional gearing the best tool to provide additional headroom for risk?
- Is the treatment of notional gearing in line with regulatory best practice and the interpretation of regulatory duties?

3 Assessment

Having set out our recommended approach to assessing notional gearing, we now provide evidence against each part of this approach:

- What is the market evidence on the reasonable gearing range? Is there a case to set notional gearing at a different level?
- Is notional gearing the best tool to provide additional headroom for risk?
- Is the treatment of notional gearing in line with regulatory best practice?

3.1 What is the market evidence on gearing? Is there a case to set notional gearing at a different level?

Ofwat's draft methodology suggests that the current notional gearing level of 60% is too high and that additional headroom is required to ensure that companies can address increased risks posed by climate change and greater regulatory service performance risk.

As we discuss in section 2, while there is sound economic and finance theory to link the optimal gearing rate with the level of risk in the sector, theory alone cannot tell us what this optimal level of gearing is for the water sector. For this we need to refer to real world observations in addition to sector specific analysis such as credit rating agencies.

Ofwat has not provided any quantitative evidence on the balance of risk to suggest why a notional gearing rate of 60% is too high to handle the risks facing companies over the PR24 period. If this were the case, we would expect to see:

- **Credit rating agency criteria.** Updated guidance from credit rating agencies that reduces target levels of regulatory gearing below 60% for BBB+/Baa1 (this is Ofwat's target for the notional company).[21]
- **Actual gearing levels and company performance.** Evidence that credit ratings for actual companies have been falling over time for companies with higher gearing rates following the recent pandemic and extreme weather events, or that companies are unable to borrow efficiently at current gearing levels.
- **Regulatory precedent.** Evidence of higher notional gearing rates in other sectors which face similar challenges from climate change or other sources of uncertainty.

We examine each of these sources of evidence below.

3.1.1 Credit rating agency criteria.

One reason Ofwat sets a notional gearing level is to carry out a financeability assessment of the notional company i.e. that an efficient company with the notional capital structure can raise reasonable finance on reasonable terms for its operations. Financeability of companies is largely determined by their credit rating,

[21] Ofwat (2022) Creating tomorrow, together. Consulting on our methodology for PR24

which is assessed by rating agencies. Investors will rely on this credit rating when deciding whether or not to lend money and the terms of this financing. In PR19, Ofwat targeted BBB+/Baa1 for the notional company and it proposes to continue to do so for PR24.[22]

Ofwat justifies its proposals to reduce the notional gearing level on the basis that greater uncertainty in the sector means companies require a larger equity buffer to remain financeable. If this is true, we would expect to see evidence of credit rating agencies lowering the target regulatory gearing level for any given investment grade rating below 60%. This has not been the case. Moody's gearing ratio guidance[23] for UK water utilities has a target gearing level for Baa1 of 65%-72%.[24] Fitch's sector specific rating methodology for regulated utilities has a target level of 70% for BBB before relevant business and regulatory risks are accounted for which would increase the actual target gearing threshold. [25] Looking outside the water sector, Moody's recently updated its scorecard for regulated electric and gas networks in March 2022. Its unadjusted target regulatory gearing level for Baa is 60%-75%.[26]

Table 1 Moody's rating criteria

ISSUER RATING	RCV GEARING RANGE
A2	Up to 55%
A3	55% - 65%
Baa1	65% - 72%
Baa2	72% - 80%

Source: Moody's ratio guidance for the UK water utilities (2018)

These ranges have remained unchanged over recent years despite the sector going through recent periods of significant volatility and uncertainty. Moody's methodology for water companies was last updated in 2018 and this methodology continues to be applied to assess water companies this year.[27] Its recent 2022 update of its rating methodology for regulated electric and gas networks in 2022 maintains the unadjusted 60% - 75% target leverage ratio for Baa that was in its 2017 guidance.[28] Whilst Fitch publishes an updated sector navigator more frequently, the unadjusted target regulatory gearing level for EMEA regulated networks has also remained the same over the last 5 years.

[22] Ofwat (2022) Creating tomorrow, together. Consulting on our methodology for PR24

[23] There is a difference between credit rating ratios guidance and credit rating agency methodologies. Rating agency methodologies set out a target level of regulatory gearing for any given rating. However, this the target prior to relevant business and regulatory risks. Once these risks are accounted for the relevant gearing threshold is typically higher. For example, Moody's target for regulated water companies in its 2018 rating methodology for Baa is 55-70% but its actual target threshold for Baa1 is 65% - 72% and for Baa2 is 72%-80%.

[24] Moody's investors service (2018) Sector in-depth. Regulator's proposals undermine the stability and predictability of the regime

[25] Fitch Ratings (2022) Sector navigators. Addendum to the Corporate Rating Criteria, Page 204

[26] Moody's investors service (2022) Regulated Electric and Gas Networks Rating Methodology

[27] One example is Moody's 2022 updated assessment on United Utilities which was carried out based on its 2018 methodology.

[28] Moody's investors service (2017) Regulated Electric and Gas Networks Rating Methodology

In summary the evidence from rating agencies does not support the notion that additional headroom is required from notional gearing to maintain the target credit rating. In fact, the lower bound for a Baa/BBB+ rating based on Fitch and Moody's rating criteria (once business and regulatory and business risks are accounted for) is 65%. The current notional gearing level of 60% is already below the lower limit of the target range for credit rating agencies.

3.1.2 Actual gearing levels

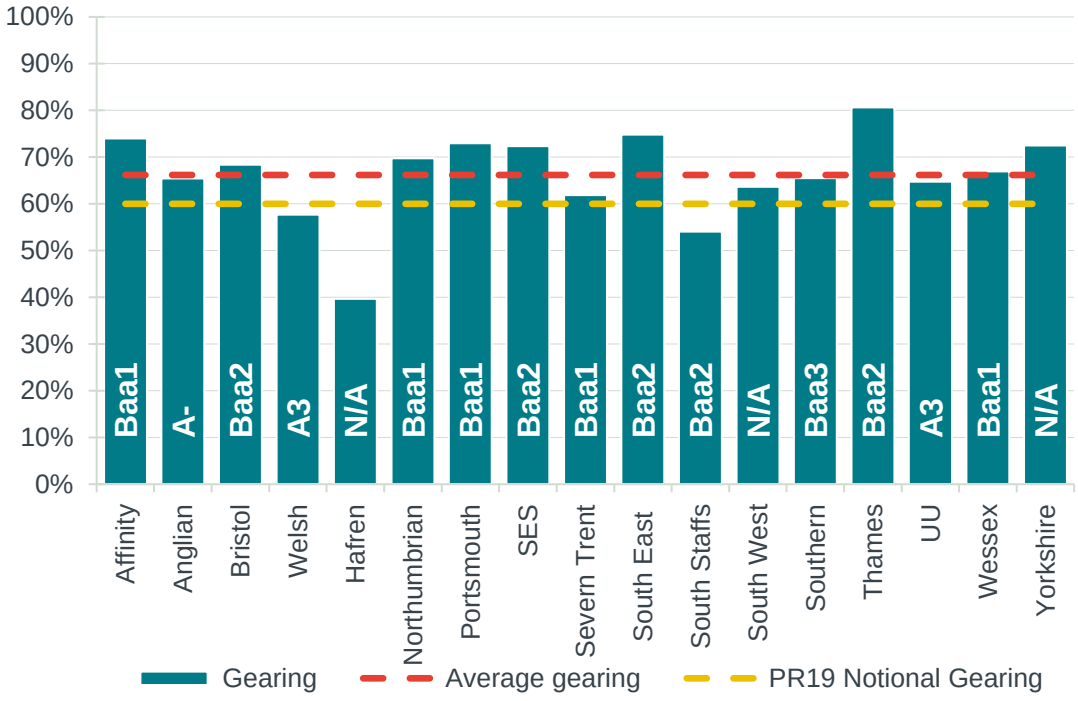
Ofwat argues that water companies expect to face significant investment needs over PR24 and beyond and therefore it is reasonable to expect the notional gearing to reduce gearing in order to increase its capacity to borrow efficiently. If this were the case, we would expect this to be evident in the market data to show:

- Actual gearing levels in the water industry below 60%;
- Significant reduction in gearing levels for companies with significant RCV growth.

3.1.2.1 Evidence from the water sector

We have reviewed historical data on actual gearing levels in the water industry and have seen no clear evidence that companies would be unable to borrow efficiently over PR24 at current gearing levels.[29]

Figure 4 Total gearing and adjusted gearing across the water sector (2021/22)



Source: 2021/22 Annual Performance Reports
Notes: Bar labels show Moody's credit rating, where applicable;

[29] We have no reason to believe that the industry as a whole is inappropriately geared and Moody's recent 2022 sector outlook for industry was stable.

In fact, the majority of water companies have gearing ratios well in excess of 60%. Figure 4 shows that as of the 31 March 2022, only three companies had a regulatory gearing level below 60% and a significant number of companies have gearing ratios exceeding 70%. All three companies with gearing ratios below 60% have non-standard capital structures that limit their applicability as comparators for the notional company or industry as a whole and Ofwat should not place undue weight on these datapoints.[30] Excluding these companies shows actual industry gearing levels ranged from 62% to 81%. All water companies are rated investment grade by Moody's, and there does not appear to be a strong correlation between gearing level and credit rating in this case.

Figure 5 gives an overview of summary statistics since 2015/16, with the boundary for the lower quartile of gearing ratios remaining at least 64% throughout the period. Again this suggests that 60% already lies at the lower bound of the range of reasonable gearing levels.

Figure 5 Gearing statistics over time

YEAR	WEIGHTED AVERAGE	AVERAGE	MAX	MIN	UQ	LQ
2021/22	68%	66%	81%	40%	72%	64%
2020/21	73%	70%	83%	45%	77%	67%
2019/20	72%	71%	82%	60%	77%	66%
2018/19	70%	69%	82%	56%	76%	65%
2017/18	71%	70%	83%	57%	78%	64%
2016/17	68%	71%	84%	56%	78%	65%
2015/16	71%	71%	83%	52%	78%	64%

Source: 2021/22 Annual Performance Reports
Notes: Weighted average based on 2019/20 RCV

When considering the trends in gearing over time it is important to bear in mind possible changes to the wider context of the financial and regulatory environment (discussed further in section 3.3). The trend in sector gearing level is shown below in Figure 6.

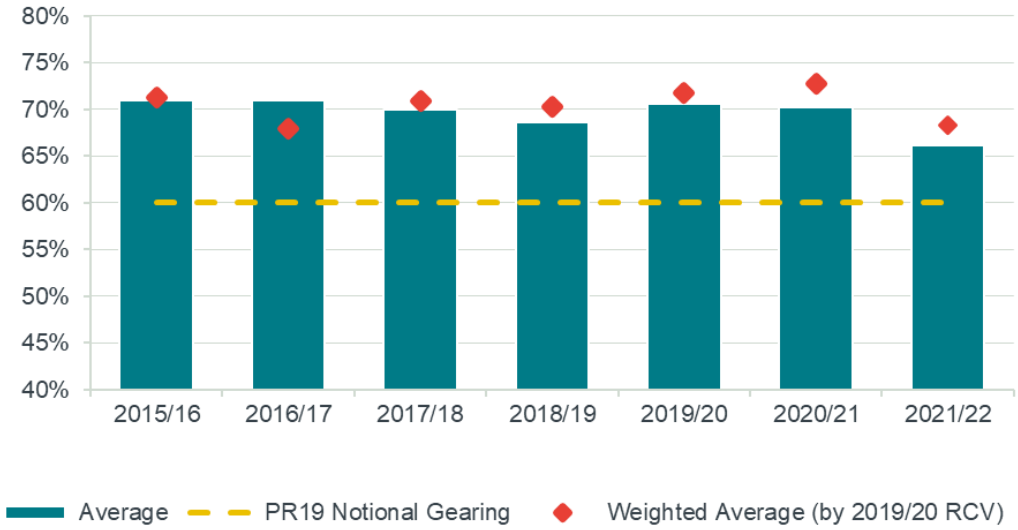
- Sector gearing has been consistently above and the average weighted by RCV has been approximately 70% over this period.
- There has been no clear trend over time, although gearing fell to around 68% in 2021/22.

While there has been a modest reduction in 2021/22, this could be driven by considerations beyond the notional gearing framework. This includes the impact of the GOSM which penalises companies for actual gearing companies that diverge too far from notional gearing levels, the impact of inflation, and company

[30] The three companies are Hafren Dyfrdwy, Dŵr Cymru, and South Staffordshire Water. Haffren Dyfrdwy has a reported gearing level of 40% which reflects its ownership by Severn Trent and intragroup adjustments. Dŵr Cymru's gearing level reflects its limited by liability ownership structure and renders it incomparable to the rest of the sector. South Staffordshire Water's parent company, South Staffordshire plc, recently implemented a new group structure including the creation of a new intermediate holding company SSW Finance Limited (MidCo).

specific adjustments to capital structures that should not affect the assessment of notional gearing. More generally, even with the recent reduction in total sector gearing in 2020/21, the majority of companies remain well above 60% gearing reinforcing its position as the bottom end of the reasonable range for gearing.

Figure 6 Total gearing across the water sector over time

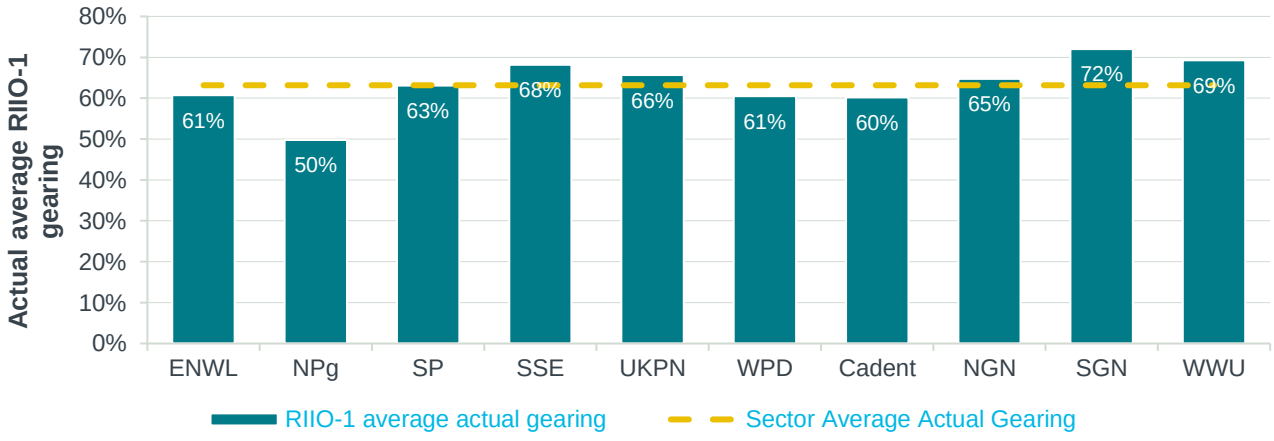


Source: Annual Performance Reports

3.1.2.2 Evidence from other sectors

We have reviewed gearing levels in the energy sector as a comparable benchmark. Taking the average gearing ratio of each energy network company across RIIO-1 gives an average gearing ratio of 63%. As shown on Figure 7 just one of these companies had an average gearing ratio below 60%. National Grid PLC had a gearing ratio of 66% in the year ending 31 March 2019[31], with a strong Moody's credit rating of Baa1.

Figure 7 RIIO-1 average gearing levels



Source: Annual Performance Reports

[31] National Grid (2019) NG.Debt

3.1.2.3 Evidence from project finance

Competitive infrastructure project finance has some differences in risks and regulation, its similarities make it a useful comparator. Ofwat argues that water companies expect to face significant investment needs over PR24 and beyond and it is therefore reasonable to expect the notional company to reduce gearing in order to increase its capacity to borrow efficiently. However the Tideway project, the largest infrastructure project carried out in the UK water sector since privatisation, currently has a gearing of 83%[32] and this figure has risen over the duration of the project. In its 2015 Ofwat guidance on the Tideway Tunnel, Ofwat recognised that the efficient level of gearing for an Infrastructure Provider such as this could be greater than the notional assumption of 62.5%.[33] In the energy sector, Offshore Transmission Operators have typically been financed at gearing levels of 75% to 85%.[34]

The risk profile of individual infrastructure projects will differ from that of an integrated utility business. Nevertheless, there is no evidence that gearing levels are declining for these projects and they highlight the importance of debt financing in infrastructure investment as a whole.

3.1.3 Regulatory precedent

The final balance of risk is a result of intrinsic risk filtered through regulatory treatment. Furthermore, as noted in the recent government policy paper on economic regulation, there is a need for greater consistency across regulated sectors to ensure the UK continues to maintain a stable and predictable environment for investment.[35] It is therefore useful to consider wider regulatory precedent when setting the notional gearing level for PR24. In our view the evidence from other regulatory precedent is less relevant than the direct market evidence on gearing or the credit rating agency criteria, nevertheless it is still useful to consider.

We agree that water companies may face more uncertainty in the future arising from the impacts of climate change or new environmental statutory requirements. However this is not unique to the water sector. The energy sector is directly responsible for decarbonising electricity by 2035 as well as the open question of the role of hydrogen. Beyond utilities, aviation is one of the sectors that has been hardest hit by the pandemic. Ofgem and the CAA's approach to addressing uncertainty in the recent RIIO-ED2 and H7 Final Proposals are valuable sources of regulatory precedent.

We have summarised recent decisions on regulatory gearing in Great Britain (GB) in Figure 8 below. This shows that a notional gearing level of 60% remains consistent with wider UK regulation, including the RIIO-ED2 draft determination and CAA H7 Final Proposals, both of which were published in summer 2022.

[32] Tideway (2021). Reconnecting London with the River Thames. Annual report 2020/21

[33] Ofwat (2015). Ofwat guidance on approach to the economic regulation of the Infrastructure Provider for the Thames Tideway Tunnel

[34] Frontier (2022)

[35] Department for Business, Innovation and Skills (2011) The Principles for Economic Regulation

Figure 8 Recent GB regulatory precedent

SECTOR	DETERMINATION	DATE	NOTIONAL GEARING
Energy	Ofgem GD2 and T2	December 2020	60%*
	Ofgem ED2 (draft determination)	June 2022	60%
Aviation	CAA H7	June 2022	60%

Source: Frontier Economics

*Note: * Ofgem used a notional gearing assumption of 60% for gas distribution networks. For the electricity transmission companies it set notional gearing to 55% for financeability but used 60% for calculation of allowed return on capital. The UKRN, which includes Ofgem, report a notional gearing level of 60% for GD2 and T2.*[36]

We recognise that Ofgem's proposed notional gearing level of 60% is in fact a reduction compared to the 65% assumption used in ED1. However we do not consider this to be strong evidence to reduce the notional gearing level in the water industry. First, Ofgem's proposed gearing level is 60% which is in line with the current notional gearing level in PR19. Furthermore, Feedback from network companies found that 'in general, networks were content with [Ofgem's] proposed notional gearing of 60% and the decrease in notional gearing from RIIO-ED1 was reasonable', possibly because this roughly reflects the actual gearing levels of the networks. This is not the case in water where 'companies were universally opposed to a reduction in notional gearing from 60%'. Finally, several companies argued that reducing notional gearing below 60% was not practical which echoes feedback from water companies to Ofwat.

[36] UKRN (2022) Cost of capital – annual update report, Table 2

3.1.4 Case study: Heathrow H7 final proposals

Aviation has been one of the hardest hit sectors by the pandemic and there remains uncertainty on future trends in passenger numbers. It is therefore a particularly relevant case study on both the efficient level of actual gearing in the face of market shocks and how to address future uncertainty in the regulatory regime.

Heathrow has remained resilient with a gearing level that is higher than 60%

Prior to the pandemic in 2018 Heathrow (SP) had a class A gearing of 68.2% and a class B gearing of 76.6%. Whilst its class A gearing has fallen marginally to 64.9% by March 2022, its class B gearing remains largely unchanged at 76.5%.[37] Importantly, Heathrow remained resilient to the largest shock to hit aviation in its history at gearing levels above 60%.

Today Heathrow Funding Ltd has a S&P credit rating of BBB+ and BBB- for its class A and class B debt respectively, and a Fitch rating of A- and BBB for its class A and class B debt respectively.[38] It has maintained an investment grade rating at its current gearing level even in the face of further uncertainty around passenger numbers and environmental policy.

The CAA has recognised that notional gearing is not the right tool to manage future uncertainty

In setting its recent H7 Final Proposals the CAA recognised the higher level of uncertainty facing Heathrow. This includes greater uncertainty around passenger forecasts as well as the need to address future pandemic risks. It has addressed this risks with targeted adjustments to the Traffic Risk Sharing (TRS) mechanism and a standalone revenue allowance for low probability but significant events.

Notably, it did not consider it necessary to reduce the notional gearing ratio in order for the notional company to be financeable. It chose to maintain the 60% notional gearing level it used in Q6.

Relevance to PR24

Heathrow's resilience throughout the pandemic despite a higher gearing level than the majority of water companies does not support Ofwat's view that lower gearing levels are required to address future uncertainty. Furthermore, rather than simply assuming that reducing the notional gearing is the most efficient way to address financeability concerns, Ofwat should consider its full range of options for addressing this uncertainty, including more targeted interventions, and move forward with the optimal mix. Ofwat's preferred approach to addressing asymmetric risks is to manage these at the source which is inconsistent with its approach to notional gearing.[39]

3.1.5 Summary of market evidence on gearing

Given the range of factors that influence notional gearing, and the band for rating agency expectations, the level of notional gearing was historically stated as a range, which left a choice of point estimate within that range. Evidence from credit rating agencies suggest that the range of reasonable gearing levels for a BBB+/Baa1 rating is 65% - 72%. Actual company gearing levels typically exceed 60%, with exceptions limited to companies with non-standard capital structures and are therefore poor comparators for the notional

[37] Heathrow (2022) Heathrow Investor Update

[38] Heathrow (2022) Credit ratings

[39] Ofwat (2022) Creating tomorrow, together: consulting on our methodology for PR24. Appendix 10 – Aligning risk and return

company. Recent regulatory precedent in energy and aviation have used 60% as the notional gearing level. We therefore conclude that the current notional gearing level of 60% already lies at the lower bound of the reasonable range and there is no evidence that either the range or point estimate has changed from PR19.

3.1.6 Is there a case to set gearing at a different level?

The second question of this part of the assessment is to consider whether there is reasonable case to set gearing at a level different to that implied by market data, bearing in mind the challenges to doing so outlined in section 2. Two possible motivations have been put forward by Ofwat in recent publications.

- First, that the private optimal level of gearing is higher than the social optimal level and therefore the market evidence should be adjusted downwards (see Mason and Wright (2021)).
- Second, that the sector faces increased risk posed by climate change and greater regulatory service performance risk.

On the first point we have argued above in section 2 that there are social costs and benefits from gearing and there is no reason to believe, in principle, that the social optimal is below the private optimal. Specifically in the context of water, the sector has shown a high degree of financial resilience over the past 15 years in the face of severe financial, economic and other shocks. Furthermore, analysis of gearing and performance data does not identify a causal relationship between higher gearing and lower performance. Finally, the sector regulations include several mechanisms to protect customers and incentivise service improvements including re-openers, cost sharing, and incentive sharing. Even in event that a default did occur, the impact on consumers is minimised via ring-fencing conditions and the Special Administration regime The view that the social costs of gearing are managed by existing regulations was supported by the CMA[40]:

> *"The examples of Wessex and Dŵr Cymru discussed in paragraph 9.1168 show that these tools – specifically ring fence measures – have been successfully deployed without obvious harm to either customers or taxpayers."*

Therefore there is no evidence base on justify diverging from the market evidence on this ground.

On the second point, that the sector faces increased risks, there are two observations we make.

a. To the extent that Ofwat has identified increases in the risk profile, we have not seen any rating agencies update their criteria to suggest lower gearing levels are required to address risk in the sector.
b. To the extent that underlying risks are increasing there are a number of regulatory options for how the risk should be allocated between companies and customers. It would not be appropriate for the regulator to conclude that a downward adjustment to notional gearing is the right solution without proper consideration of the other options.

This second observation is addressed below.

[40] CMA; Anglian Water Services Limited, Bristol Water plc, Northumbrian Water Limited and Yorkshire Water Services Limited price determinations, Final report, March 2021, para 9.1201.

3.2 Is notional gearing the right tool?

As we set out in section 3.1 we see no evidence in the market to suggest that additional headroom on the notional gearing metric is required in order to maintain the target credit rating for the notional company.

Ofwat recognises the inconsistency between its target notional gearing rate and the credit rating criteria in its draft methodology, stating that as the credit rating is an in the round assessment, they do not consider that each financial ratio for the notional company needs to fall within the guidance range for BBB+/Baa1. It also considers a stronger gearing ratio to provide a buffer to manage the impact of other risks that may impact the credit rating. However, we identify two issues with this line of reasoning.

First, the current gearing level of 60% is already below both Fitch and Moody's target threshold for a Baa/BBB+ rating. This means that a notional gearing level of 60% already provides headroom for managing other risks.

Second, Ofwat has not justified why reducing the notional gearing level is the most efficient way to provide additional headroom. As it has recognised, credit ratings are based on multiple factors and regulatory gearing only has a weighting of 10% in Moody's methodology. Ofwat's 2021 discussion paper recognises that other changes including the likely reduction in cost of embedded debt and proposed move to full CPIH indexation of the RCV may generate more headroom at PR24.[41] Other changes such as the introduction of long-term delivery strategies (LTDS), which include climate change adaptive planning scenarios, have also been introduced to mitigate risk.

Before deciding on an appropriate response Ofwat aim to understand both the root cause, scale, and balance of additional uncertainty and use this to assess potential solutions in the round. Creating more notional gearing headroom cannot address cashflow or interest cover (ICR) risks arising from factors such as extreme weather events, environmental pressures, or an increase in bad debt due to changes in the wider economic climate. Other regulators have recognised where these risks are better managed through other regulatory mechanisms and provision of revenues to manage this risk. For example, Ofgem's draft determination for RIIO-ED2 includes a severe weather 1-in-20 funding mechanism that allows companies to recover the efficient costs incurred directly incurred as a result of severe weather. It is also considering other options such as a severe weather 'use it or lose it' allowance and severe weather re-openers.[42]

Figure 9 Regulatory precedent on risk management mechanisms

SECTOR	RISK	MECHANISM
Energy (ED2)	Severe weather events	Severe weather 1-in-20 funding mechanism. This would act as an ex-post cost pass-through with efficient costs associated with the event reported and trued-up in the next charging period.

[41] Ofwat (2021) PR24 and beyond: Discussion paper on risk and return

[42] Ofgem (2022) https://www.ofgem.gov.uk/sites/default/files/2022-06/RIIO-ED2%20Draft%20Determinations%20Core%20Methodology.pdfRIIO-ED2 Draft determinations – Core methodology document

SECTOR	RISK	MECHANISM
Energy	Severe weather events and other exceptional events	Performance under the interruptions incentive scheme in these circumstances are discounted to recognise the impact of these events
Aviation	Low frequency, high impact shocks that only result in downside risk to passenger volumes e.g. storms, pandemics	Up-front revenue allowance for expected loss of profit
Aviation	Bad weather	Heathrow is not liable to pay rebates for disruption due to bad weather to airlines (unless it occurs alongside a failure on Heathrow's part)

Source: Frontier Economics

Given the importance of setting notional gearing on an objective basis, and the complexity of factors that determine the appropriate gearing range, any decision to make an adjustment to the objective assessment should be take carefully and with an appropriate impact assessment. To apply an adjustment based on a qualitative assessment of a sub-set of risk factors itself runs the risk of introducing greater uncertainty into the regulatory environment without any actual benefit to consumers.

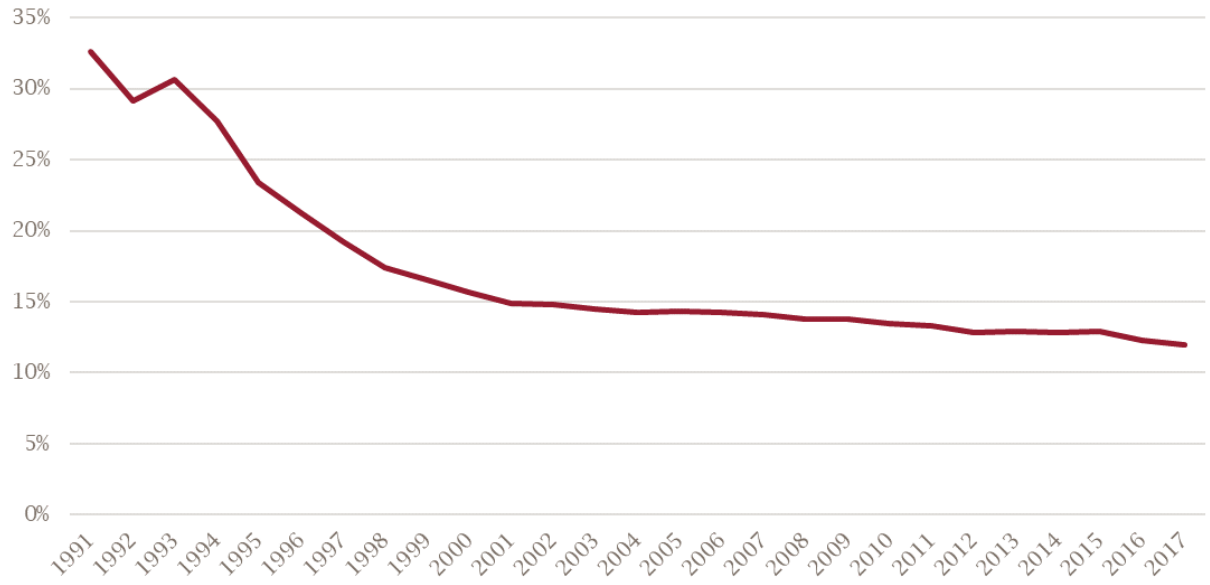
3.3 Is it in line with wider regulatory best practice?

The recent Government review and consultation on economic regulation has highlighted the importance of stability in the regulatory regime to support long-term investment. This is more important than ever as the water sector moves to address risks such as climate uncertainty, new environmental regulation, and net zero. Lowering the notional gearing rate without compelling evidence of the need to do so will reduce investor confidence and undermine Ofwat's original intentions to support investment in the face of greater uncertainty and is inconsistent with Ofwat's duties.

Ofwat states that the notional gearing rate has varied with each price control from PR99 onwards and has fluctuated within the 50% - 62.5%. This is used as evidence to argue that a change of up to 5% would not be unprecedented. We do not agree that comparisons of notional gearing decision over time are meaningful in this context. Notional gearing levels at any one point in time need to be taken in the context of the wider financial and regulatory environment which has changed significantly since PR99. Over this period of time the scale of the regulatory asset base (RCV) has increased materially compared to the size of the companies' operations. This means that the companies are better able to absorb many of the cost and operational risks at a higher level of gearing than previously.

This is illustrated in Figure 10 which shows that annual operating and capital costs as a percentage of RCVs have fallen over time, demonstrating a change overall risk profiles. This means that relying on historical gearing rates alone is not sufficient to argue a change today is precedented, particularly as Ofwat has presented no empirical data to justify moving away from 60%.

Figure 10 Annual costs as a % of RCV



Source: Frontier Economics

3.4 Impact of a reduction of notional gearing

We have shown that there is no compelling empirical evidence to justify reducing the current notional gearing level of 60%. We now consider the impact on companies and consumers of such a reduction. .

While companies are free to set their actual capital structures, changes in the notional gearing level will affect actual company decisions over time. Ofwat recognises this in its draft methodology and uses the notional gearing to 'signal to companies changes in the level of risk which companies may need to consider in their actual capital structures'.[43] If these changes means companies adjust actual capital structures away from the efficient level observed in the market, this could lead to several adverse impacts on companies and consumers.

As we discuss in section 2 the choice of gearing level impacts several factors including the pre-tax WACC, behavioural factors, external factors, and societal costs and benefits. Distorting actual gearing from the optimal level risks negatively impacting some or all of these factors. For example, if companies lower actual gearing rates, this could push up the WACC (assuming that companies are already at or below the optimal gearing from a WACC perspective) and undermine the ability of companies to invest for the future. This would result in significant consumer harm.

We note that this was a key consideration in the redetermination appeals following PR19 where the CMA concluded that: [44]

[43] Ofwat (2022) Appendix 10 Aligning risk and return

[44] CMA; Anglian Water Services Limited, Bristol Water plc, Northumbrian Water Limited and Yorkshire Water Services Limited price determinations, Final report, March 2021,

> *"The effects on customers if there is an actual reduction in investment over time are likely to be higher, because investment can bring additional wider benefits."*

It therefore accounted for the need to promote investment and address the risk of exist of capital from the sector when choosing a point estimate for the cost of equity. A similar line of reasoning applies to the notional gearing level. If Ofwat sets its point estimate for the notional gearing level outside the reasonable range this could risk underinvestment at a key time for the industry.

Additionally, a lower gearing rate could soften the discipline imposed on management or regulators to make the appropriate decisions in relation to risk and long-term planning. It could also lead to a shift away from the optimal mix of financing. If lower notional gearing rates pressure companies into reducing actual gearing rates, this will increase reliance on equity financing compared to the mix of financing that had been determined by the market. This impact would be exacerbated during a period of investment and RCV growth. Capital markets are deep and may well be able to absorb this with minimal impact. Nevertheless, this factor should be part of any impact assessment.

Finally, reducing actual gearing is not costless even if there are no issues in terms of access to capital. Historically regulators have allowed 5% for equity issuance costs (RIIO-2[45], ED2[46], and PR09)[47]. However, these only focus on direct costs, so are likely to be an underestimate of the full cost of issuing equity, since carry costs have not been considered. This is an additional cost for consumers that would need to be set against the benefits, if any, of the gearing reduction.

[45] Ofgem (2021) RIIO-2 Final Determinations – Finance Annex (REVISED)

[46] Ofgem (2022). RIIO-ED2 Draft Determinations – Finance Annex. Para 10.86

[47] Ofwat (2021) PR24 and beyond: Discussion paper on risk and return

4 Conclusion

Ofwat has not provided any evidence to support its proposals to reduce the notional gearing level nor has it carried out analysis to understand whether notional gearing is the right tool and the net impact any reduction will have on consumers.

The assessment of notional gearing is closely related to Ofwat's statutory financing duty (and is also likely to impact on both the customer objective duty and the resilience duty). It is well established that carrying out the financeability assessment on notional gearing is consistent with regulatory principles, and that actual capital structure decisions are a matter for a company and its investors. Therefore Ofwat's assessment of notional gearing should be assessed on an independent an objective basis. Adjusting the notional gearing level away from this objective level in order to address financeability issues would not be consistent with satisfying the financing duty.

We have set out the conceptual framework for assessing the optimal range for notional gearing. We first establish that the relevant metric for assessing notional gearing is the regulatory gearing level rather than gearing metrics based on EV. Company cashflows are determined by their RCV not their EV and therefore regulatory gearing is the relevant metric. This is reinforced by credit rating agency criteria which all refer to the proportion of net debt to the RCV in their credit rating methodologies.

We then conclude that the best way of implementing this conceptual framework is to draw on the available market data and empirical evidence to estimate the reasonable range of notional gearing and review the current notional gearing level in this context.

Ofwat recognises the need for market evidence in its own notional gearing framework which requires the notional gearing level to take into account a range of appropriate benchmarks and evidence. However, its proposals are not consistent with its own framework.

Figure 11 Assessment against Ofwat notional gearing framework

OFWAT REQUIREMENT	EVIDENCE	
Incentivises efficient financing choices given the balance of risk faced by water companies	✗	The most recent credit rating criteria for regulated utilities have not increased the target gearing range for any given credit rating, even in the face of greater uncertainty. This suggests the market considers the equity buffer at 60% gearing to be sufficient to address supply-side or demand-side shocks.
Reflects the scale and nature of investment needs	✗	We agree that companies are likely to face greater investment needs in the future to address challenges of climate change, environmental standards, and other pressures. However, there is no evidence to suggest that companies are unable to borrow efficiently at the current level of notional gearing. In fact, recent large projects such as the Thames Tideway Tunnel are highly geared and achieved a low cost of capital by doing so.

OFWAT REQUIREMENT	EVIDENCE
Takes account of a range of appropriate benchmarks and evidence	✗ We have not found any empirical evidence from either actual gearing levels, credit rating agency criteria, or regulatory precedent to suggest the notional gearing level should fall below 60%.
Allows the regulator to set a price control that is in the best interest of current and future customers	✗ From a theoretical standpoint the gearing level that is optimal for society could be higher or lower than the private optimal level. However, this is extremely complex to assess and Ofwat has not provided any evidence to demonstrate that the social optimal is lower. Adjusting the notional gearing level in a way that could undermine investor confidence or make it more difficult for companies to invest in the long-term is not in the best interest of current and future customers.

Source: Frontier Economics

We have assessed Ofwat's proposals against our own recommended approach for assessing notional gearing in practice which considers four questions:

- What is the market evidence on gearing? Is there a case to set notional gearing at a different level?
- Is notional gearing the best tool to provide additional headroom for risk?
- Is the treatment of notional gearing in line with regulatory best practice?

We conclude the answer to each of these questions is no. The review of market evidence consistently shows that the current notional gearing level of 60% already lies at the lower bound of the reasonable range for gearing. In fact, credit rating agency criteria suggests the lower bound of the reasonable range lies at 65% and the majority of water companies have gearing levels well above 60% while maintaining an investment grade credit rating.

Furthermore, Ofwat have not shared any analysis to show that it has considered financeability in the round and that adjusting the notional gearing level is the best option for providing greater headroom. Other regulators have chosen other solutions to address uncertainties associated with climate change, for example via re-opener mechanisms or specific allowances. Its approach to notional gearing is inconsistent with its preferred approach to address asymmetric risk at its source.

We also observe a wider point on consistency across PR24. Ofwat emphasises the need to rely only on market data for other aspects of cost of capital including its beta analysis. At the same time it has not relied on any market data to justify its proposals for notional gearing. Ofwat should adopt a consistent and evidence based approach to its cost of capital proposals.

We conclude that Ofwat's proposed reduction in notional gearing is neither consistent with its own notional gearing framework nor with our framework for estimating national gearing in practice. A review of market evidence shows the current notional gearing level of 60% already lies at the bottom of the reasonable range. There is no evidence to justify reducing it below current levels.