

NATS En-route Limited (“NATS”) Price Determination

Representations to the Competition and Markets Authority (“CMA”) on Provisional Findings

15 April 2020

Introduction

This paper sets out Yorkshire Water’s comments on the CMA’s provisional calculation of NATS’ cost of capital.

We focus on the generic inputs to the cost of equity calculation, on the grounds that there is a read-across from the CMA’s provisional findings in the NATS appeal to the estimates that the CMA will need to make in our PR19 redetermination.

Total market return

The CMA’s provisional estimate of the total market return (“**TMR**”) is between 5% and 6% in real, RPI-stripped terms. This range compares to a point estimate of 6.5% that the CMA used in most of its recent inquiries and investigations.

We note that the lower range comes solely from technical adjustments that the CMA has made to established TMR benchmarks rather than any new market evidence. In particular, the CMA has changed the way that it deflates measures of nominal historical UK stock market returns into a useable reference for the real rate of return that investors might reasonably expect to make in future years. This switch from COLI/RPI deflators to CED/CPI deflators results in a one percentage point reduction in the CMA’s estimate of the TMR.

We are concerned that the CMA has suddenly introduced technical changes of this magnitude into its work. We also think that the evidence that the CMA presents in its provisional findings, regarding the switch from a COLI¹/RPI deflator to a CED²/CPI deflator, is not sufficiently strong to warrant the kind of step-change that has been proposed.

Pre-1948 inflation: COLI vs CED

One of the most striking features of the CMA’s work is that approximately one third of the downward shift in the CMA’s range for the TMR comes from revisions that the CMA is making to very old inflation data from during and immediately after World War 1 and World War 2 (annex 1 highlights the variances between COLI and CED, with CED being on average 1.4% higher over the period, resulting in a lower real return).

¹ Cost of Living Index

² Consumption Expenditure Deflator

Our understanding of the evidence is that all of the available pre-1948 inflation series are significantly lower quality than contemporary inflation metrics. This means that estimates of pre-1948 real realised returns come with very wide margins of error. Given the data constraints, we think that the CMA is overstating the ability that anyone has to pin down the level of real returns for World War 1 and World War 2 with the level of accuracy that it asserts to be able to achieve in its provisional findings.

1948-88 inflation: RPI vs CPI

The rest of the downward adjustment to the CMA's previously established estimate of the TMR stems from a switch in the measure of inflation from RPI to CPI that the CMA is using for the years 1948 to 1988.

Again, we think the data for this period is nowhere near strong enough to bear the weight that the CMA is asking it to carry.

In particular, we note the Office of National Statistics ("**ONS**") identified last year that there are errors in the 1948-88 CPI series and that it was working to issue a corrected data set by the end of this year:³

In the course of producing the CPIH series for 1988 to 2004, the ONS identified an error in the modelled Consumer Prices Index (CPI) historical series ... The ONS previously published indicative modelled estimates for the CPI between 1947 and 1987. These estimates are for analytical purposes only and are not intended for official uses. The models used were based on the subsequently revised CPI modelled data for 1988 to 1996. The ONS will therefore produce new indicative estimates for the CPI between 1947 and 1987 alongside the planned CPIH estimates, based on the corrected CPI data. This will give users a consistent set of modelled indices. These new estimates will be published by the end of 2020.

Pending the release of the new data, we would expect the CMA to treat estimates of real, CPI-stripped returns in the 1948-88 period with considerable caution. This is not apparent to us in the language that the CMA uses in its provisional findings. Instead, the CMA appears to be content to make a large downward adjustment to the TMR on the basis of data that is known to be faulty.

Conclusions

In effect, the CMA is saying to individuals and institutions that have invested more than £150 billion of capital in the UK's regulated industries that equity returns need to come down

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<https://www.ons.gov.uk/news/statementsandletters/developingcpihandcpihistoricalestimatesbetween1947and1987>

because the CMA and regulators now have a different academic take on the returns that investors earned approximately 75 to 80 years ago and 100 to 105 years ago. We hope the CMA will understand that this causes genuine concern.

Before issuing a final decision in the NATS inquiry, the CMA should perform a clean evaluation of the robustness of its new CED/CPI-stripped returns series. Following this assessment, it needs to determine its level of confidence in the evidence for a lower TMR.

Our assessment is that the CED/CPI inflation series is a very low-quality statistical series. As such, the new work that the CMA has tabled in its provisional findings looks to us more like noise in the data than a compelling and convincing explanation as to why expected returns are likely to be much lower than previously thought.

In the circumstances, we are far from persuaded that there is compelling reason for the CMA to adjust its previous TMR estimate. We think the CMA should be very wary about using a range of 5% to 6% and should look with particular scepticism at the lower half of that range.

Where the CMA needs directly or indirectly to use a point estimate for the TMR in its cost of equity calculations, our strong view is that the CMA should be selecting from the very top end of its range so as to give more weight to the RPI-stripped evidence that the CMA and its predecessors have relied upon in numerous inquiries over the past 30 years, with corresponding less weight to the CED/CPI-stripped reformulation of that work.

Risk-free rate

The stand-out feature of the risk-free rate section of the provisional findings report is the CMA's resolute belief that it is possible to ascertain the prevailing level of the risk-free rate by referencing current UK index-linked gilt yields.

Previous CMA inquiries

In previous inquiries, the CMA has cast a very critical eye on data coming out of the index-linked gilt market. In the table below, we have set out the values that the CMA has selected for the risk-free rate in cases between 2007 and 2015 and compare these estimates to then-prevailing returns for 10 and 20-year index-linked gilts. In all cases, it is noticeable that the CMA placed the risk-free rate a distance above prevailing yields.

CC/CMA risk-free rate estimates

Inquiry	10-year index-linked gilt yield	20-year index-linked gilt yield	CAPM risk-free rate
Heathrow/Gatwick, 2007	1.96%	1.31%	2.5%
Bristol Water, 2010	0.86%	1.05%	1.0% to 2.0%
NIE, 2014	-0.30%	0.01%	1.0% to 1.5%
Bristol Water, 2015	-0.91%	-0.86%	1.25%

Source: CMA publications; Bank of England website.

Distortions in the gilt market

The CMA's reasons for this stance were as follows:

A number of observers, including the Bank of England, have ... [pointed] to distortions in the market for longer dated gilts, particularly as regards the effect of Minimum Funding Requirements and FRS17/IAS19 accounting requirements on pension funds' demand for long-term government bonds. This is seen as creating a mismatch between supply and demand, increasing demand at the long end of the market and depressing yields on long-term gilts (Heathrow/Gatwick, 2007)

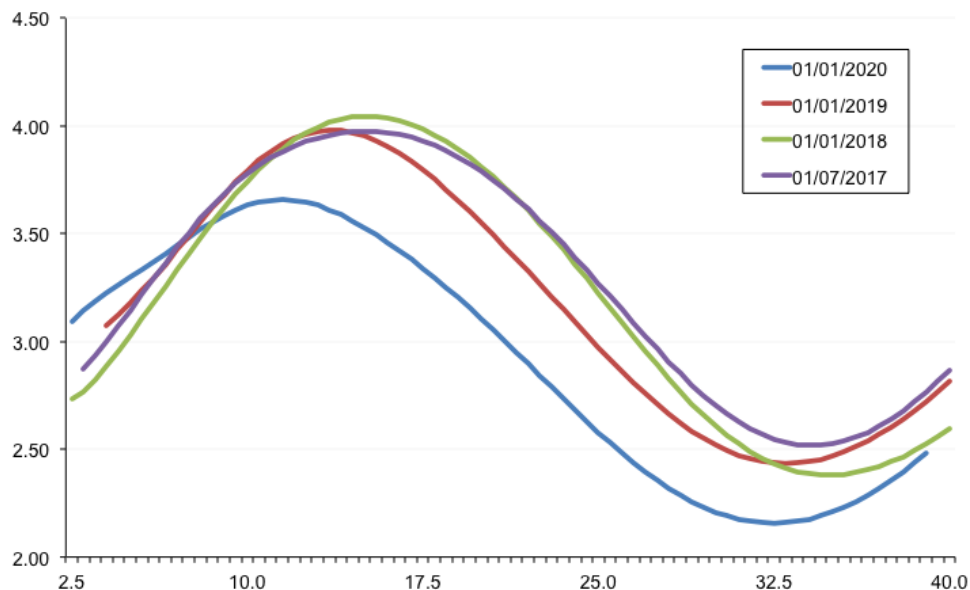
*... we continue to see merit in the argument that distortions (associated, for example, with pension fund dynamics) continue to affect longer-dated index-linked yields.
(Bristol Water, 2010)*

*The CC has, however, considered that long-dated index-linked gilt yields have been affected by distortions (associated, for example, with pension fund dynamics) and that these need to be corrected in estimating the RFR applicable to the cost of equity.
(NIE, 2014)*

It is noticeable that there is no comparable discussion of possible sources of market distortions in the CMA's provisional findings, suggesting this matter was not given the consideration that was deemed necessary in previous cases. This is an omission that should be corrected before the CMA issues its final decision.

Evidence that there are external factors driving current gilt prices away from economic fundamentals is shown in the chart below. This chart plots the Bank of England's calculation of the difference between the yields on nominal and index-linked gilts translated into an instantaneous forward RPI inflation curve (i.e. the chart shows the RPI inflation that investors are expecting at any given point in the future if one assumes that the difference between yields on nominal and index-linked gilts is attributable solely to RPI inflation expectations).

Instantaneous forward inflation curve (%)



Source: Bank of England website.

Neither the shape nor the level of this curve makes economic sense when one considers that the Bank of England's inflation target should translate to RPI inflation of circa 2.8% per annum. It follows that there is strong a priori evidence that there must be other factors in the gilt market driving yields artificially up and/or down.

Pension fund demand and market segmentation

One such factor is pension fund demand for index-linked gilts. As solvency ratios have improved in recent years, schemes have been under pressure to de-risk future investment returns, leading to what some commentators have described as a 'preferred habitat' for low-risk, inflation-indexed bonds.⁴ This, in turn, has resulted in significant and highly inelastic demand from pension funds for UK index-linked gilts.⁵

⁴ Bank of England (2019), How does the gilt curve react to demand shocks?

<https://bankunderground.co.uk/2019/07/22/how-does-the-gilt-curve-react-to-demand-shocks/>

⁵ <https://www.ft.com/content/004ffbc2-f4e4-11e9-bbe1-4db3476c5ff0>

This is a relevant factor for the CMA to take into account in its cost of equity analysis, since the marginal equity investor in a regulated firm may not now be an active purchaser of index-linked gilts. Such segmentation in the financial markets would mean that the return that the marginal equity investor looks for in a riskless asset can sit above the return that pension funds are willing to tolerate on UK government bonds.

Interpretation of a negative real risk-free rate

Corroboration for this point of view comes from thinking through what a negative real risk-free rate means in economic terms. It implies that global equity investors are investing money with an acceptance that their purchasing power in future will be lower than purchasing power today. This is the exact opposite of the economist's normal assumption that rational economic actors prefer consumption today over consumption tomorrow.

We can accept that there may be short periods of market turbulence where investors will make this kind of trade-off. However, the CMA's provisional findings imply that the risk-free rate will be (very) negative from 2016 through to the end of 2024. This would be an unprecedented period of voluntary wealth destruction that is almost impossible to rationalise in economic terms.

Conclusions

For the reasons outlined above, we think that there are ample grounds for the CMA to revisit its one-for-one, mechanical mapping between index-linked gilt yields and the risk-free rate.

We agree with Professor Alan Gregory's expert opinion that the CMA should, as a minimum, widen the pool of evidence to include international reference points for forward-looking riskless rates of return, recognising that the marginal investor in UK regulated companies is nowadays likely to be a global investor.

Our sense is that it would be logical, after reflecting on this evidence, to position the risk-free rate close to zero on a real, CPI-stripped basis and to provide for a trajectory to a normal positive real risk-free rate in the later years of the five-year periods that the CMA is looking at in the NATS appeal and in the PR19 inquiries.

Relationship between gearing, beta and WACC

The provisional findings document contains a number of observations about the linkages between gearing, beta and the cost of capital. While much of the discussion is specific to NATS (i.e. as regards the unusually wide range of admissible gearing figures that the CMA could use in its calculations), it might be helpful to the CMA to highlight that the root cause of the counter-intuitive relationships that the CMA identifies appears to us to be the very low value of the risk-free rate and not any fatal flaw in the CAPM formulae.



We note that if the CMA were to use a risk-free rate of, say, -1.0% (in real, RPI-stripped terms), the CMA will see a broadly flat relationship between gearing and the vanilla cost of capital provided that it: (a) focuses in its analysis on the marginal cost of equity and marginal cost of debt; and (b) uses a sensible debt beta value.

	Change in vanilla WACC 60% vs 30% gearing
Risk-free rate = -2.25%	+39 bps
Risk-free rate = -1.0%	+3 bps

Note: in the above calculations, all of the WACC parameters in the CMA's PFs are held constant except for gearing and the risk-free rate.

In our view, this provides further corroboration for the points we make above about the importance of setting an intuitively sensible risk-free rate value.

Annex: Annual Inflation Measures, 1915 to 1947

Note: the final column of the table highlights years in which the COLI and CED inflation measures differ by more than 3 percentage points.

	COLI	CED	Difference CED vs COLI
1915	14.8%	12.5%	
1916	18.4%	18.1%	
1917	21.0%	25.2%	+4.2%
1918	15.2%	22.0%	+6.8%
1919	6.4%	10.1%	+3.7%
1920	15.7%	15.4%	
1921	-9.2%	-8.6%	
1922	-19.2%	-14.0%	+5.2%
1923	-4.9%	-6.0%	
1924	0.6%	-0.7%	
1925	0.5%	0.3%	
1926	-1.9%	-0.8%	
1927	-2.8%	-2.4%	
1928	-1.1%	-0.3%	
1929	-1.0%	-0.9%	
1930	-3.8%	-2.8%	
1931	-6.5%	-4.3%	
1932	-2.7%	-2.6%	
1933	-2.7%	-2.1%	
1934	1.1%	0.0%	
1935	1.1%	0.7%	
1936	2.9%	0.7%	
1937	5.1%	3.4%	
1938	1.3%	1.6%	
1939	1.1%	2.8%	
1940	16.3%	16.8%	
1941	8.2%	10.8%	
1942	0.6%	7.1%	+6.5%

1943	-0.5%	3.4%	+3.9%
1944	0.9%	2.7%	
1945	1.3%	2.8%	
1946	0.1%	3.1%	+3.0%
1947	-0.1%	7.0%	+7.1%
Arithmetic average	2.3%	3.7%	+1.4%

Source: Bank of England millennium data set.