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Assessing the fair bet

At a meeting on 10 November between BT/Openreach and the WLA case team (including Ofcom economists), it was suggested that the framework for assessing the fair bet set out by Oxera (supported by Julian Franks) is only one way of assessing the fair bet, and that there are other “regulatory rules” that may be relevant.

We understand from the discussion that Ofcom remains of the view that forbearance from price regulation until the date of expected payback would be consistent with the fair bet in the sense that, had investors known that Ofcom would regulate in this way, they would have proceeded with the investment.

This is the position set out in the March consultation. Ofcom supports this position with the following reasoning:

- *“we consider that an investment is a “fair bet” if, at the time of investment, expected return is equal to the cost of capital”.*¹ We agree. The cost of capital must be the project specific cost of capital, which Oxera estimates to be at the upper range of 11.4% to 12.8%.

¹ March Consultation, para A8.4

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- *“in order for an investment to be a fair bet, the firm should be allowed to enjoy some of the upside risk when demand turns out to be high (i.e. allow returns higher than the cost of capital) to balance the fact that the firm will earn returns below the cost of capital if demand turns out to be low.”² We agree The firm must be allowed to earn sufficiently high returns in the upside scenarios to compensate for downside risks at project inception (this encompasses all risks, not just demand risks).*
- *“Equivalently, the expected Net Present Value (NPV) of the investment, after having taken account of the risks, including assumptions of future regulation, would be equal to zero.” We agree that if, at the time of the investment, expected return is equal to the project specific WACC, this is equivalent to an expected NPV of zero, provided that the investors have the opportunity to earn NPV above zero in the upside scenario, to compensate for the risk of NPV below zero in the downside scenario.*
- *“The expected discounted payback period – that is, that length of time that BT originally expected it would take to break even on the investment (in NPV terms) in the absence of regulation - serves as a useful reference point for assessing whether a period of pricing flexibility has been sufficient. If BT knew that it would not be subject to price regulation in the expected payback period, then it would expect to earn an NPV of at least zero and would therefore choose to invest.”³*

We do not agree If BT had known that price regulation would be imposed at the point of expected payback, it may well have chosen not to go ahead with the investment, given the risks associated with the FTTC investment. We explain below why we think this, and why we think the Oxera framework is more consistent with assessing whether or not regulation would undermine investor expectations about the returns they could get, given the risks they were taking at project inception. We also explain why the Oxera framework does not amount to a rate of return regulatory approach as was suggested at the meeting

Intervening after expected payback does not necessarily comply with the rule that the investment would have gone ahead if investors had anticipated this approach

Implicit in the principle of the fair bet is that investors bear the full risks of the downside scenarios (there is no regulatory compensation for losses, for example) Investors will not accept these unmitigated risks unless they can be confident that regulation will not unduly truncate the realisation of better than average returns which are needed by way of compensation.

Turning this principle (which Ofcom agrees with) into a test of when intervention to constrain pricing (and project returns) may be appropriate, requires information on how much risk investors have taken and, by implication, how much upside opportunity must be preserved in order not to undermine incentives to proceed at project inception

² March Consultation, para A8 4

³ March consultation A8 5

Oxera's framework specifies and applies such a test. It asks, what is the level at which project returns can be capped such that, if investors had known about, and factored in, this intervention at project inception, they would still have gone ahead – because, allowing for the cap on upside outcomes, they would still have expected the return over the life of the project to be (at least) equal to the project-specific cost of capital.

Ofcom has an alternative test, namely investors can be assumed to have gone ahead if they had known about, and factored in, an intervention after expected payback because they can expect to earn (at least) a project return equal to the cost of capital. Ofcom also allows the possibility of intervening before payback if it can justify this by reference to the downside risks taken by investors.

The analytical framework underpinning Ofcom's position is not specified. We assume, however, that Ofcom envisages the expected payback to be a probability weighted average of paybacks in upside and downside scenarios. For example, an expected payback of 10 years might be a weighted average of: (i) payback at 7 years, with a probability of 80%; and (ii) payback at 21 years, with a probability of 20%.

Ofcom seems to think that, by reference to the example above, intervening after 10 years (i.e. the date of expected payback) would leave the opportunity to earn upside (i.e. a positive NPV at 10 years) if payback occurs earlier. It is assumed that investors would proceed on this basis – i.e. they would accept the "bet" offered – because they have the opportunity to earn upside (i.e. a positive NPV), and at least NPV equal to zero before intervention occurs.

But this must imply that this opportunity will balance the risk of NPV being negative at 10 years if payback occurs later (i.e. at 21 years). However, it is impossible to know whether regulating from expected payback will result in an NPV of at least zero, as claimed by Ofcom, without an analysis of the level of returns associated with different scenarios – i.e. Ofcom's approach cannot be applied in a way that is consistent with the fair bet without knowing the overall expected profitability of the project, and the shape of the distribution of returns around this. As set out in the Annex, it is quite possible that regulation from the point of expected payback (meaning the probability weighted average date of payback) will mean that the ex-ante NPV which factors in such regulation will be negative. Using the simple metric of average payback does not adequately capture risk.

A project will go ahead if investors expect that the fair bet will allow them an upside opportunity commensurate with the risks taken; it will not go ahead if intervention to reduce prices at the point that expected payback is reached curtails that opportunity. As a result, intervening at expected payback may result in actual project returns being capped such that (had this been known) expected project lifetime returns would be below the project specific WACC. The analysis undertaken by Oxera indicates that this is, in fact, the case, because the project lifetime return estimated by Ofcom post regulation (i.e. 11.8%) is below Oxera's estimate of the project specific WACC (at the top end of the range 11.4% to 12.8%).

Ofcom accepts that an analysis of project risk is necessary if it were to intervene before the date of expected payback is reached, stating "*[t]he fair bet would still be met if we intervened before expected payback, but only when returns are significantly above the benchmark cost of capital. We*

would have a greater tolerance for higher returns where the downside risk is greater.”⁴ But there is a need to assess project risk in considering intervention at any point post-investment. Without this analysis, there is a risk that the point at which Ofcom chooses to intervene (whether before, or after, expected payback) will prevent BT from earning returns which investors must expect to be able to earn in order for them to have the incentive to invest.

Secondly, to our knowledge, the fair bet was not specified by reference to expected payback in any of Ofcom’s comments on the subject of the fair bet prior to the March 2017 consultation. For example.

- in Ofcom’s March 2009 Statement, *“Delivering super-fast broadband in the UK. Promoting investment and competition”*, Ofcom stated that prices and rates of return must reflect the level of risk when investments are made, and that pricing approaches should take into account the level of demand uncertainty.⁵ It was explained that such an approach was required to create efficient incentives to invest and to provide clarity for potential investors.⁶ (emphasis added)
- In Ofcom public presentations, it was also explained that investors require compensation for systematic risk and, in addition, that regulation of prices should reflect upside profit offsetting downside loss, on average [i.e. as an ex-ante expectation].⁷ It was also stated that regulated prices need to be high enough to generate expected returns equal to WACC so that “excess” returns in a successful outcome pay for losses of unsuccessful outcomes.⁸
- More recently, in the DCR, Ofcom said that, *“we may also wish to promote investment by allowing regulated firms to make relatively high returns in the case that risky investments turn out to be more successful than expected i.e. when demand turns out to be high. This approach is described as allowing firms a “fair bet”. The potential for higher returns balances out the possibility of returns below the cost of capital if demand turns out to be low. Our approach does not guarantee that the regulated firm will recover its costs and works on the principle that, at the time of investment, the expected return should be equal to the cost of capital.”*⁹

No mention is made of expected payback as a relevant metric in assessing whether a period of pricing flexibility has been sufficient. It cannot now be right to regulate *as if* BT had understood this policy when the investment was made.

These statements do, however, make clear that whilst Ofcom should not intervene in such a way that guarantees cost recovery, it should ensure that the opportunity to earn sufficient upside is

⁴ Para A8.8

⁵ Para 8.10

⁶ Para 8.50

⁷ Pricing Access Networks in the Transition to NGA Promoting Efficient Investment, IIR Telecoms & Technology Conference William Godfrey, Director Economic Analysis, 5 December 2012, Slide 15

⁸ Pricing Access Networks in the Transition to NGA, Promoting Efficient Investment, ECTA Conference, Peter Culham, Chief Economist, 28 November 2012, Slide 8

⁹ Strategic Review of Digital Communications Discussion document, Ofcom 16 July 2016, para 4.60

preserved and this must reflect the level of risk when the investment was made. It cannot be assumed that intervening after expected payback strikes the appropriate balance such that, at project inception, expected return would be equal to the cost of capital. This must be established by assessing the risks involved, and using this to establish at what point it is safe to cap returns such that investors, anticipating this regulation, would still expect returns equal to the cost of capital. This is the Oxera approach (applied by reference to the 2008 FTTC case) and it is entirely consistent with the statements above.

The Oxera approach does not entail rate of return regulation or shield BT from losses

We wish to be clear that the Oxera approach seeks to provide an *opportunity* for BT to keep some upside in the event that BT makes a successful investment. It does not try to shield BT from losses or, in any way, guarantee cost recovery. In the event of a poor outcome, the Oxera approach simply implies that there is no need for price regulation – the investment, in these circumstances, was a poor one in hindsight, and it is for BT's shareholders to bear the cost.

Nor should the Oxera approach be read as implying rate of return regulation. It is true that the framework sets a minimum rate of return consistent with the risk of the project, but this rate of return ("Y") is then, in effect, akin to the position of the WACC in price controls set for established products. That is, price caps are set on the basis of a "target" rate of return, and Openreach might make more or less than this over the review period just as under any normal price control. We note that in the DCR discussion Document, Ofcom recognised there could be a role for price regulation based on risk-adjusted rates of return.¹⁰

Even if Ofcom's approach is valid, it has been mis-applied using contemporaneous information

Even if Ofcom's approach was sufficient in principle and consistent with previous statements (which it is not), the Base Case payback of 14 years (which Ofcom attaches weight to) does not have the status of a weighted average payback viewed ex ante, in the way that the expected project return is the weighted average return seen ex ante. For this to be the case, there would need to be a notional distribution of payback durations, such that the 14 years could be viewed as the probability-weighted average.

But this is not the case. In fact, in half the scenarios shown in the 2008 Board paper the payback is much longer than 20 years, whilst in contrast in only two is it shorter than 14 years. The latter therefore has no status even as a weighted average payback.

For the avoidance of doubt, even if 14 years was the weighted average payback this itself would not mean that the upside potential (positive NPV at intervention date with early payback) will compensate for the downside risks (negative NPV at intervention date with late payback).

¹⁰ Strategic Review of Digital Communications Discussion document, Ofcom 16 July 2016, para 1.54

Summary

In summary, we do not understand how Ofcom's approach – where the opportunity to earn an upside is given by a "window" before price regulation is to be applied – provides appropriate incentives to invest, nor how it can be considered to be consistent with how the fair bet has always been described by Ofcom (which has conditioned our expectations).

Regards

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Cc [✂]

Illustrative cases of using payback as honouring fair bet

This Annex shows 3 projects which are assumed all to have positive lifetime E (NPV)s in the absence of regulation, and hence ought to proceed, but which have different distribution of returns. For each project, ex ante there are assumed to be 4 possible outcomes. Regulation is assumed to cap returns at cost from the point of intervention which is based on the date of expected payback.

In Table 1 below, there are 4 possible outcomes which are assumed equally likely. The average date of payback in this case is 16.75 years $(7+10+20+30)/4$. We have for illustrative purposes assumed certain NPVs at 16.75 years, and in this case the expected NPV is 0 - returns are equal to the assumed discount rate.

| Table 1 | | | | | |
|--------------|----------|----------|---------|------------|------------|
| | Upside 1 | Upside 2 | Average | Downside 1 | Downside 2 |
| Payback | 7 | 10 | | 20 | 30 |
| Likelihood | 25% | 25% | | 25% | 25% |
| Average | | | 16.75 | | |
| NPV at 16.75 | 500 | 200 | | -300 | -400 |
| NPV at 16.75 | | | 0 | | |

In Table 2 below, we have different outcomes and probabilities, and we can again calculate the average (expected) date of payback and, as in Table 1, the E(NPV) at this point is zero.

| Table 2 | | | | | |
|-------------|----------|----------|---------|------------|------------|
| | Upside 1 | Upside 2 | Average | Downside 1 | Downside 2 |
| Payback | 7 | 10 | | 20 | 30 |
| Likelihood | 10% | 10% | | 40% | 40% |
| Average | | | 21.7 | | |
| NPV at 21.7 | 700 | 300 | | 20 | -270 |
| NPV at 21.7 | | | 0 | | |

Tables 1 and 2 are examples of scenarios where using the average payback as a regulatory rule would be consistent with a fair bet since investors would expect to earn an E (NPV) of zero. However, this result relies upon the specific NPVs that were assumed in creating these scenarios.

If, on the other hand, a more detailed analysis of the NPVs were to show that the NPVs in Table 2 actually look more like those shown in Table 3, then it is no longer the case that $E(NPV) = 0$ at the point of average payback, but is negative. Hence, regulating from the average payback date would not provide investors with a fair bet.

| | Upside 1 | Upside 2 | <i>Average</i> | Downside 1 | Downside 2 |
|-------------|----------|----------|----------------|------------|------------|
| Payback | 7 | 10 | | 20 | 30 |
| Likelihood | 10% | 10% | | 40% | 40% |
| Average | | | 21.7 | | |
| NPV at 21.7 | 600 | 250 | | 10 | -300 |
| NPV at 21.7 | | | -31 | | |

This stylised example clearly shows that it would be impossible for Ofcom to know whether regulating from expected payback will result in an NPV of at least zero without an analysis of the level of returns associated with different scenarios – i.e., without knowing the shape of the distribution of returns.