BT’s Regulatory Profitability

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EY

Building a better working world

1. Introduction

1.1 In its Strategic Review of Digital Communications Discussion Document ("DCR discussion document")[1], Ofcom reports that some stakeholders have expressed concern about the level of BT's returns in regulated markets. Ofcom references a report by Frontier Economics[2] ("Frontier") which asserts that BT's profitability has been consistently above its cost of capital.[3] Frontier claims that over the nine years to March 2014, BT's Regulatory Financial Statements ("RFS") report aggregate returns, in terms of revenues less costs before a return on capital of around £17bn and that the RFS suggests that this is around £5.5bn more than would have been earned at the benchmark cost of capital set by Ofcom.

1.2 Frontier uses the RFS as the start point for its analysis and then makes adjustments in order to calculate the returns above the benchmark cost of capital.

1.3 Ofcom discusses the adjustments that Frontier made to BT's published returns, and concluded that, in its view, the gap between BT's returns and the benchmark cost of capital had been around £4bn over the nine years to March 2014. Ofcom further estimates that one third of this total can be attributed to BT's performance against the price controls put in place, and two thirds due to the policy choice that Ofcom made when deciding on the form of regulation to apply to those services subject to regulation other than a price control.

1.4 In 2015 Frontier updated its analysis[4] to include the financial year 2014/15 and in doing so concluded that the returns above the benchmark cost of capital totalled £6.5bn from 2005/06 to 2014/15.

1.5 BT commissioned EY to consider the Frontier claim, and to set out the facts about returns where BT had been subject to regulation. In particular, we were asked to:

(i) carry out a quantitative assessment of Frontier's analysis;

(ii) consider the consequences of the type of regulation faced by BT over the last decade; and

(iii) assess the competitive conditions in the telecoms market and how Ofcom's regulation has evolved in this context.

[1] Ofcom, Strategic Review of Digital Communications Discussion Document, July 2015
[2] Frontier Economics, The relationship between BT profitability and charge controls, March 2015
[3] The cost of capital refers to the level of returns expected by those who provide capital to a business (through either debt or equity). Where a mix of debt and equity is used to fund a business, the cost of capital is expressed as the "Weighted Average Cost of Capital" ("WACC")
[4] Frontier Economics, Assessment of BT's regulated profitability between FY 2006 and 2015, October 2015

2. Summary

2.1 We do not consider that Frontier's claim that BT has made £6.5bn of excess returns on regulated services over the last 10 years stands up to scrutiny. Measuring the profitability of BT's regulated services over the last decade by calculating the returns above the cost of capital is overly simplistic and potentially misleading since it includes both services that were price regulated as well as those that, for policy reasons, were deliberately not. It also includes charges for services sold to the downstream retail operations of BT rather than directly to its customers.

2.2 Our estimate is that the returns above the cost of capital for sales of price regulated services was circa £1.1bn over the period, of which £240m was directly to external customers equivalent to, on average, £110m a year or 2.2% of sales and £24m a year or 1.3% of external sales only.

2.3 In addition to this, the Frontier analysis does not consider the reasons why UK telecoms regulation has permitted charges to be above costs, an issue which Ofcom discusses in the DCR discussion document. As we explain in this report, both where there are price controls in place and where regulation is imposed without direct price controls, outcomes for consumers can be superior under a regime which allows for the potential of returns to be above the benchmark cost of capital compared to one which anchors pricing to a fixed rate of return. Price controls have well-known incentive properties which can result in lower prices in the long-run and they avoid the problem of regulated firms over-spending due to inefficiencies, over-investing and over-engineering (known as "gold-plating"). In circumstances where price controls have not been applied, this has primarily been to encourage entry and investment for the long term benefit of consumers, consistent with Ofcom's duties under the Communications Act 2003.

2.4 Our analysis shows that, by removing the incentives to reduce the costs covered by the last decade of regulation, the prices of regulated services could have been higher. Since the incentive based approach was introduced in recognition of the weaknesses of price regulation that is tied to a fixed rate of return, we model a counterfactual scenario in which we assume higher operational and capital costs. Our scenario would have led to revenue over the past 10 years being higher by around £450m (0.7%) than that BT actually earned over the period. That is, a plausible scenario exists that even though incentive regulation allowed higher returns than the cost of capital, prices were still lower than would otherwise have been the case because increased efficiency incentives led to a lower cost base.

2.5 This report therefore:

(i) sets out the results of our quantitative analysis;

(ii) explains the benefit of incentive-based regulation epitomised by "RPI minus X" charge controls; and

(iii) describes the policy considerations in play when conditions do not support the imposition of direct charge controls.

3. Quantitative Assessment

3.1 In this section we set out the results of our quantitative assessment of the profitability of BT's regulated services. We first describe the basic building blocks of our analysis before going on to explain the results.

What are "regulated services"?

3.2 The services that Frontier has included in its analysis are in markets where Ofcom has determined that BT has Significant Market Power ("SMP").[5] Where this is the case, the regulation that Ofcom imposes falls into three different categories:

- charge controls – where Ofcom sets a ceiling for prices over a fixed period;
- cost orientation – where Ofcom sets upper and lower price thresholds and in the event of breaching these BT is required to provide justification; and
- reporting obligation – where Ofcom requires BT to report the profitability of services but no price control or thresholds are set.

BT as a whole is not a regulated entity in the sense that not all of its services are regulated; in fact 68%[6] of BT's revenues are free of any direct form of regulation, and those services which are regulated do not all have the same regulation applied to them.

3.3 Ofcom deliberately specifies a range of different forms of regulatory intervention depending on the prevailing and prospective market conditions in the markets where BT operates. None of these measures are designed to bring BT's prices in line with the benchmark return in the immediacy since this would not be consistent with Ofcom's need to balance policy objectives and to maintain the incentive effects of its regulation. We explain this more fully in Sections 4 and 5 of this report.

How does Frontier measure BT's returns?

3.4 Frontier has not provided a detailed specification of its methodology, but it is our understanding that Frontier uses BT's RFS to calculate the profit BT makes on all of the services it considers to have been regulated which includes all three of the categories of regulation listed above. The calculation of "returns" is simply the revenue for these services, less the operating cost (including depreciation) incurred in providing them. The amount of "excess return" on the assets BT has employed in the provision of the services is calculated by comparing the RFS returns to those consistent with BT covering its costs, including covering the benchmark cost

[5] For markets in which BT has been found to have SMP, BT is required to publish financial data at a service and market level in its RFS

[6] The 2014/15 RFS (page 25) shows total revenue of £18bn, £5.7bn of which is within SMP markets

of capital applicable for each year (which is set by Ofcom) on its Mean Capital Employed ("MCE")[7].

3.5 In its calculations, Frontier has made a significant adjustment to BT's reported numbers which has the effect of increasing the returns compared to those published. This is referred to as the Regulated Asset Value ("RAV") adjustment, which reduces the value of the asset base that BT uses to provide regulated services. This adjustment therefore has the effect of boosting the calculated return on capital employed since it shows returns produced with lower capital employed.

3.6 Using this measure Frontier concluded that, over the period covering 2005/06 to 2014/15, BT has made returns above the benchmark cost of capital of £6.5bn.[8]

Our analysis on a like-for-like basis

3.7 In our view, Frontier is not using the right measure to assess the degree of "excess return" on BT's regulated services. Later in the report, we explain why the measure adopted by Frontier is misleading, but as a first step in our analysis we have sought to replicate Frontier's methodology and produce our own view of the returns above the benchmark cost of capital on a like-for-like basis (i.e., on the same basis as Frontier).

3.8 For the 10 years of the analysis, data for SMP markets published in BT's RFS shows that it has earned £61.9bn in total revenue and incurred £44.7bn of operating costs (including depreciation). This is a difference of £17.2bn.

3.9 Deriving a "benchmark" rate of return, by applying the relevant Weighted Average Cost of Capital ("WACC")[9] to MCE for each market and producing a weighted average, shows that the "benchmark" return for the period is £13.7bn. The difference between BT's reported returns and this benchmark for all SMP markets, using published RFS data, is therefore £3.5bn for the period.

3.10 Frontier defines this amount as representing "excess returns" and calculates, following its application of the RAV adjustment, that the total increases to £6.5bn.

3.11 We consider there to be issues with both Frontier's calculation and application of the RAV adjustment and in its calculation of the benchmark rate of return which we consider, together,

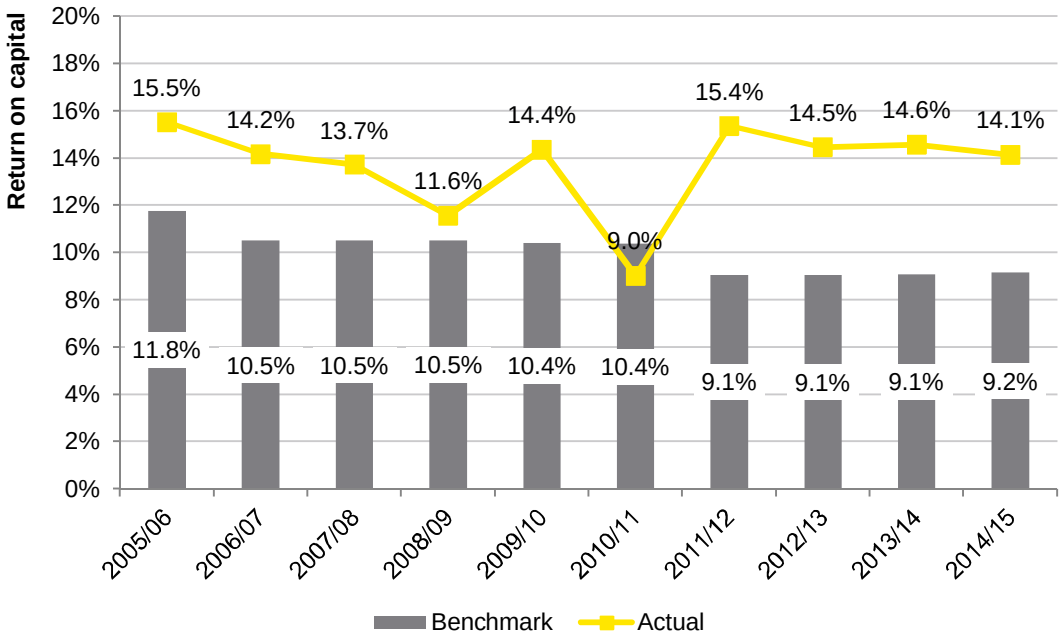
[7] Mean Capital Employed is a measure of the size of the asset base, taking a straight average of the opening and closing balance. Applying the benchmark cost of capital to MCE gives the benchmark level of return
[8] Frontier Economics, Assessment of BT's regulated profitability between FY 2006 and 2015, October 2015, page 3
[9] The applicable WACC for components for each financial year is shown in the 'Network Activity Statement' in BT's RFS. Analysis of this schedule shows that services in markets for WFAEL, WLA, ISDN2 and ISDN30 predominantly use components with lower WACC and other markets use components where the higher WACC is applicable

materially overstate the "excess returns" presented in its analysis. We discuss these issues further in Appendix A.

3.12 We have derived our own calculation of the RAV adjustment and applied this to the historic RFS data.[10] Our calculation of the "excess returns" following the application of the RAV adjustment is £4.7bn, not £6.5bn as calculated by Frontier. We note that our calculation is close to the £4bn that Ofcom refer to in their DCR discussion document after adjusting for the fact that we included one further year.[11]

3.13 Our calculation of the RAV adjusted weighted average "benchmark" return, and return earned by BT over the 10 year period for all SMP markets, on a like-for-like basis to the Frontier analysis is shown in Figure 1 below:

Figure 1: EY view of RAV adjusted return and RAV adjusted "benchmark" return on capital on a like-for-like basis[12]



How should the existence of revenue above the benchmark rate of return be interpreted?

3.14 We have just explained that, on a like-for-like basis, our calculations show that the total returns above the benchmark rate of return are £4.7bn over the last decade, rather than the £6.5bn shown by Frontier.

3.15 To characterise the whole of this £4.7bn as an "excess returns" is misleading since it is the result of applying Frontier's measure in an aggregate fashion, therefore ignoring the different

[10] We have also used the latest version of BT's "RAV model" which BT use to model the impact of the RAV adjustment
[11] In our analysis to March 2014 we calculate returns above the benchmark cost of capital of £4.1bn
[12] NB: the return in 2010/11 is low due to large current cost accounting ("CCA") adjustments in this year

types of regulation that have resulted in these revenues. In particular, it includes many services that were not subject to price controls.

3.16 Over the last decade, BT has been subject to different forms of regulation in the different markets in which it operates and at different stages during its services' lifecycles. Much of this regulation was specifically formulated to avoid BT's prices being in line with full cost in the immediacy, since this would not have served Ofcom's objectives. In fact, even price controls are not designed to do this. BT's profitability in each of the markets in which it operates needs to be considered in this, wider, context. We explain this further in section 4 and 5 of this report.

3.17 This is also set out by Ofcom in the DCR discussion document, where it suggests around two thirds of the estimated gap of £4bn is accounted for by "policy choices" and one third being due to performance where BT was subject to a price ceiling.[13]

3.18 We largely agree with Ofcom's analysis, and indeed looking at what Ofcom has formally price controlled compared to those markets where regulation was based on a wider range of policy considerations, allows us to see where the returns above the benchmark cost of capital were made (see Table 1 below).

Table 1: Revenue above benchmark cost of capital 2005/06 to 2014/15 inclusive

£bn	All Sales	External Sales only
All SMP services	4.7	1.5
All price controlled services	1.1	0.2
All Openreach price controlled services	0.7	0.0

3.19 Table 1 shows that by excluding services that were not price controlled the total amount of return above the benchmark cost of capital falls to £1.1bn – on average £110m a year or a 2.2% margin above sales.[14] Of this, £240m was sold directly to external customers (i.e., after

[13] Ofcom, DCR discussion document, paragraphs 4.57 to 4.58
[14] £1.05bn divided by £48.6bn = 2.2%

excluding sales from to BT's downstream retail operations) – that's around £24m per year on a revenue base of £18.2bn, equivalent to a margin above sales of 1.3%.[15]

3.20 Looking solely at those services provided by Openreach, the part of BT that is responsible for most of BT's regulated wholesale access services, we see that services sold to external customers were in fact almost exactly at cost.[16]

Conclusion

3.21 Frontier's calculation of returns above the benchmark rate of return is made using an aggregated measure whereas over the last decade different markets each had their own unique competitive conditions. This approach ignores the fact that many of these services were at various times either intentionally not price regulated or were not sold to external BT customers. This illustrates the difficulty of drawing simple conclusions with data that is inherently complex. In this regard we agree with Ofcom that *"[t]he returns reported in the RFS provide only part of the picture."*[17] Furthermore, even if one were to accept this measure as sound, the calculations appear to overstate the results by a material £1.8bn.

3.22 The headline overcharge drops from £4.7bn to £1.1bn when looking at price controlled services sold both internally to BT's retail operations and to external customers. When we look specifically at external sales, we find very little margin above cost (around 1%) where price controls were in place – and this falls well within reasonable expectations of an incentive based regulatory mechanism.

[15] £0.24bn divided by £18.2bn = 1.3%
[16] We calculate a small loss of £20m, rounded to £0.0bn in Table 1
[17] Ofcom, DCR discussion document, paragraph 4.56

4. The consequences of incentive-based regulation

The regulation of BT's prices since privatisation

4.1 BT's prices are not, and have not ever been, set with reference to the return on capital being the upper limit of returns that the whole regulated business could make (rate of return regulation), or as the upper limit of returns that BT can make for individual regulated services.

4.2 Rate of return regulation was considered for BT when policy makers chose the regulatory regime to apply to BT's prices following its privatisation in 1984. In Professor Stephen Littlechild's 1983 report to the Secretary of State[18] regarding the regulation of BT following privatisation, he references concern that a maximum rate of return had many of the characteristics of a 100 per cent tax rate and that it would have undesirable consequences for cost control and enterprise.[19]

4.3 Littlechild also highlighted that research on rate of return regulation in the US had shown that it resulted in wasted investment and a costly bureaucracy. Such regulatory models provide limited incentive for regulated entities to optimise their capital investments and seek operating cost efficiencies. This can lead to what is known as the Averch–Johnson effect, whereby regulated companies over-invest (or 'gold plate' their asset base) in order to expand the volume of their profits, resulting in weakened efficiency incentives and an inefficient capital base.

4.4 In the period following the privatisation of BT, price regulation was focussed on BT's retail charges, i.e., the prices BT charged to business and residential customers. The first price control imposed on BT in 1984 was based on the "RPI minus X" model of incentive regulation. Littlechild's recommendation of an RPI minus X mechanism has since become a fundamental of telecoms regulation and widely used in other UK and international utilities.

4.5 A RPI minus 3% price cap was imposed under the first price control for the period 1984 to 1989. This price cap was applicable to line rental and local and national calls comprising between 55% and 60% of revenues at that time.[20]

4.6 This price control was not explicitly based on a detailed model of BT's costs of providing the relevant services, but implemented the pre-privatisation recommendations of Stephen Littlechild.

4.7 From 1989 onwards, RPI minus X retail price controls imposed by Oftel[21], and later Ofcom, were based on a more detailed and explicit assessment of BT's expected future unit costs of providing regulated services, based on Oftel/Ofcom volume forecasts and an assessment of the scope for efficiency savings.

[18] Regulation of British Telecommunications' profits, Report to the Secretary of State, February 1983
[19] Regulation of British Telecommunications' profits, Report to the Secretary of State, February 1983, paragraph 2.2
[20] See British Telecom, company report, Citicorp, July 1984
[21] The Office of Telecommunications (Oftel) was the predecessor to Ofcom, but was responsible solely for the regulation of the telecommunication sector

4.8 In 2006, Ofcom concluded that there was sufficient competition in retail markets, and did not impose retail price controls on BT following the expiry of these controls at 31 July 2006. Ofcom therefore is now exclusively focused on the regulation of wholesale markets for services that BT sells through Openreach and BT Wholesale to competing telecoms operators as well as to other parts of BT.

Our simple counter-factual

4.9 It is difficult to speculate how BT would have evolved under an alternative form of regulation (rate of return regulation) following its privatisation in 1984.

4.10 What is clear, however, is that under the form of RPI minus X charge controls which BT has been subject to, prices have fallen in real terms for over 30 years. In order to maintain profitability, BT has had to increase efficiency and reduce wastage.

4.11 Over the years since privatisation BT has undertaken significant cost transformation exercises and has made large efficiency improvements. For example, in 1989, BT employed around 240,000 employees which reduced to around 150,000 employees by the end of 1994[22] and to around 100,000 by 2005.[23] BT currently employs around 88,000 employees, a reduction of over 10% over the period in which we have conducted our analysis.

4.12 Over the past 10 years, BT has made operating expense ("OPEX") savings of around 5% per annum. The level of efficiency which BT has achieved includes both the efficiency targets set by Ofcom, which BT would have to meet in order to ensure costs are in line with prices, and additional efficiency which BT has realised which has meant it "outperformed" charge controls. The benefits of these efficiencies affect all of BT's costs, not just charge control costs, due to shared platforms and activities.

4.13 In order to show a simple demonstration on the path of prices and BT's costs without the incentive effects of RPI minus X regulation, we have modelled a scenario in which BT is subject to rate of return regulation from 2005/06 (the start of the period in question). Our model assumes that in this scenario regulation would have had the effect of constraining BT's overall returns to a level consistent with its cost of capital.

4.14 We believe that our counterfactual is conservative in that it assumes a starting point in 2005/06 consistent with that presented in the RFS. In fact it is probable that, under rate of return regulation, BT's cost base and capital base would have been significantly higher in 2005/06 than that shown in the RFS due to the lower efficiency incentives over the preceding 20 years.

[22] http://www.independent.co.uk/news/business/disconnecting-staff-to-reach-the-right-number-bts-aim-to-be-the-worlds-leanest-telecoms-company-1373839.html

[23] BT Annual Report and Accounts 2007

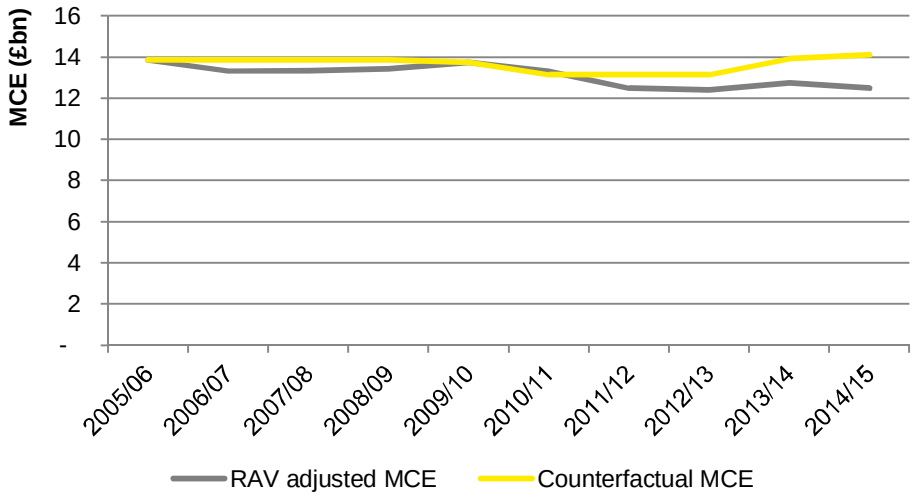
Modelling our counter-factual

4.15 Our counterfactual assumes that, under an alternative rate of return regulatory regime, BT would not have had the same incentives to improve operational efficiency below any efficiency targets set by the regulator; and that these efficiency targets would not have been set as high as those under the current RPI minus X regime, due to them being, in part, informed by historic efficiency improvements. In our counterfactual of reduced efficiency incentives and a less efficient BT, we have assumed that, over the 10 year period, Ofcom would have used an efficiency reduction of 2% per year which is broadly consistent with economy wide efficiency measures such as "Total Factor Productivity"[24], which has not been higher than 2% over the period. We have therefore estimated the levels of OPEX in our model to reflect this lower level of efficiency over the period.

4.16 In addition to lower OPEX efficiencies, rate of return regulation would have incentivised BT to maintain as high a capital base as reasonably possible in order to maximise the allowed level of returns. In our counterfactual, we therefore assume that BT would seek to invest in capital at levels where capital expenditure is greater or equal to the level of depreciation, thus maintaining the size of the capital base.[25]

4.17 In Figure 2 below, we show our revised MCE compared to the MCE used in the quantitative analysis from section 3 of this report.

Figure 2: comparison of MCE

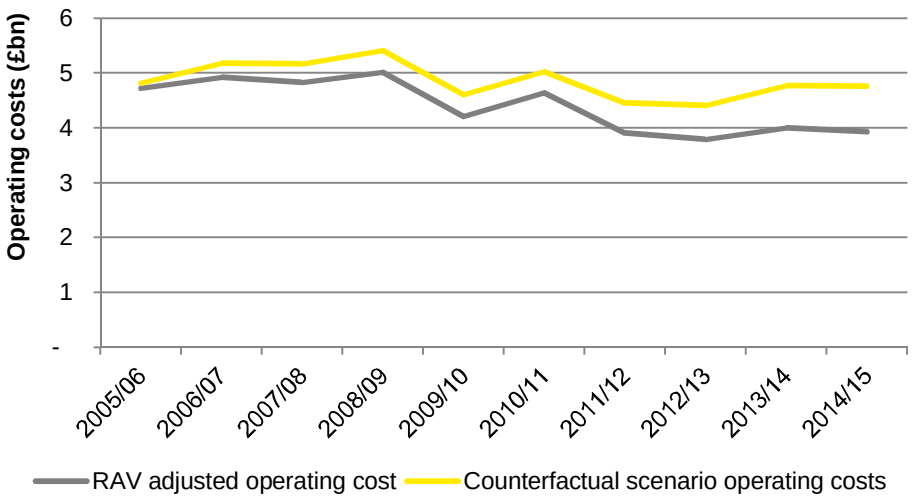


[24] Use of Total Factor Productivity ("TFP") growth rates to measure changes in efficiency in the context of price cap regulation is a widely accepted practice. For example, the US communications regulator, the Federal Communications Commission ("FCC"), uses a TFP indexation approach to measure annual productivity changes for US local exchange carriers and to inform the efficiency factor in its charge controls

[25] To implement this assumption we have kept MCE flat from 2005/06 in our scenario but have adjusted it downwards to reflect markets which were deemed by Ofcom to no longer have SMP (local tandem conveyance, Wholesale Broadband Access Market 3 etc.) and have adjusted it upwards where services have been deemed to have SMP, i.e., NGA in the 2013/14 restated RFS, which moved from residual markets to SMP markets

4.18 As we have a higher capital base in our counterfactual, we have also assumed higher levels of depreciation, using the same relative proportion of depreciation to MCE as the pre-adjusted numbers. In Figure 3 below, we show our revised operating cost (OPEX plus depreciation) compared to the operating costs used in our quantitative analysis.

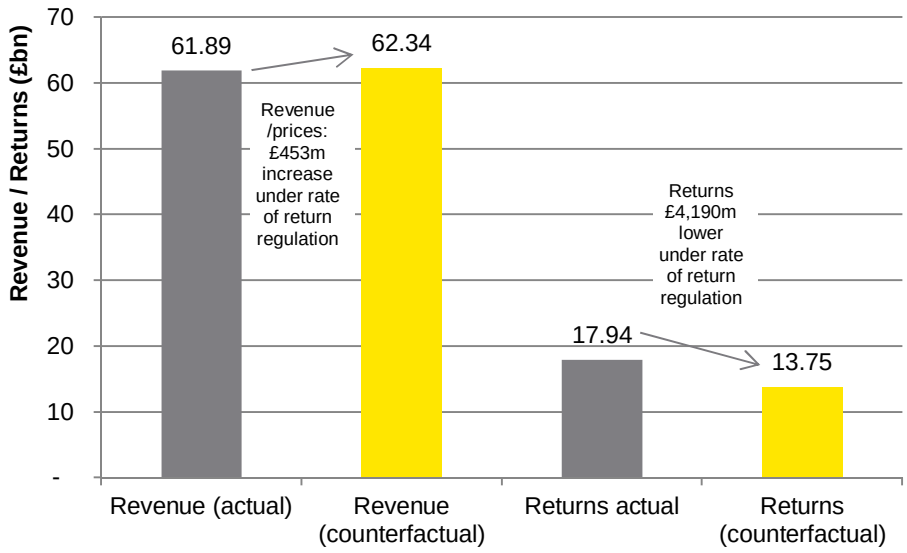
Figure 3: comparison of operating costs



4.19 Under this counterfactual, the higher operational and capital costs that would have likely followed as a result of the removal of incentives lead to revenue over the past 10 years being higher by around £450m than the revenue which BT actually earned over the period. That is, a plausible scenario exists that even though incentive regulation allowed higher returns than the cost of capital, revenues (and hence prices) were still lower than would otherwise have been the case. Incentive regulation could have been good for customers whilst allowing BT to earn returns above the benchmark rate of return. Such an outcome is consistent with the "Littlechild philosophy" set out above.

4.20 As shown in Figure 4 below, our counterfactual results in returns which are lower for BT than those actually earned over the period (by over £4bn) but this is accompanied by revenue which is higher overall (higher prices). The "excess profitability" has been removed, but consumers would have been worse off.

Figure 4: Comparison of revenues and returns under actual and counter-factual (10 year sum)



Conclusion

4.21 Our counterfactual demonstrates the benefits of incentive based regulation versus a rate of return based alternative. Using what we consider to be assumptions that fall well within reasonable boundaries, under rate of return regulation, BT's returns would have been lower but revenues (and hence prices) would have been higher.

5. Regulation beyond price controls

The UK regulatory framework

5.1 The current regulatory regime for telecommunications in Europe is the "new regulatory framework for electronic communications networks" set out in five European Commission ("EC") directives[26] of 2002. These directives were, amongst other things, designed to promote effective competition while preserving incentives for efficient investment and innovation, and came into force in the UK in 2003 under the Communications Act.

5.2 The Communications Act sets out in law the principal duty of Ofcom, in carrying out its functions to: (i) *"further the interests of citizens in relation to communications matters"*; and (ii) *"further the interests of consumers in relevant markets, where appropriate by promoting competition".*[27] It states that in performing its duties Ofcom must have regard to *"the desirability of encouraging investment and innovation in relevant markets."*[28]

5.3 The Communications Act states that Ofcom should not set an SMP condition except where its market analysis highlights a relevant risk of adverse effects arising from price distortion and it appears to Ofcom that the setting of the SMP condition is appropriate for the purposes of: (i) promoting efficiency; (ii) promoting sustainable competition; and (iii) conferring the greatest possible benefits on end-users.[29]

5.4 Not all of BT's prices are subject to explicit price regulation. Ofcom applies a range of different remedies on BT's SMP markets depending on the outcomes of its market reviews, and hence, the prevailing and prospective market conditions in these markets.

5.5 Market reviews are conducted every three years in line with the process recommended by the EC.

The goal of effective regulation

5.6 When considering which form of regulatory intervention or remedy is most appropriate for each market, regulators need to weigh several – often conflicting – factors. In particular, Ofcom considers:

(i) **allocative efficiency:** allocative efficiency is promoted by setting prices which reflect the resource cost of providing each product or service. An important feature of allocative

[26] Directive 2002/19/EC - on access to, and interconnection of, electronic communications networks and associated facilities (the Access Directive); Directive 2002/20/EC - on the authorisation of electronic communications networks and services (the Authorisation Directive); Directive 2002/21/EC - on a common regulatory framework for electronic communications networks and services (the Framework Directive); Directive 2002/22/EC - on universal service and users' rights relating to electronic communications networks and services (the Universal Service Directive) and; Directive 2002/58/EC - concerning the processing of personal data and the protection of privacy in the electronic communications sector (the Privacy Directive)
[27] Communications Act 2003, page 3
[28] Communications Act 2003, page 3
[29] Communications Act 2003, page 86

efficiency is the extent to which prices are determined in line with Ofcom's principle of cost causality (whereby costs are attributed to products or components in a way that reflects the way that products cause or drive the costs to be incurred);

(ii) **productive efficiency:** productive efficiency refers to minimising the costs of production. Productive efficiency is maximised when industry-wide costs are minimised; and

(iii) **dynamic efficiency:** dynamic efficiency refers to efficiency improvements over time as innovation drives the development of new products and services, and as technological advances and investment allows the production of current and future products and services at lower resource cost. Dynamic efficiency can be enhanced by promoting competition and by regulating in a way which is stable over time, in order to encourage investment.

5.7 There is often a trade-off between these efficiency considerations. For example, allocative efficiency is achieved where prices are equal to marginal cost, but this will have a negative impact on dynamic efficiency if pricing at this level results in lower investment in the longer-term. Hence Ofcom must prioritise which efficiency consideration is most important to encourage.

5.8 The regulation that Ofcom has applied has varied over time and reflects the different competitive conditions in the different markets in which BT operates. The remedies that have resulted from this regulation have therefore been much more varied than simply ensuring that prices are reflective of costs. For example, Ofcom has considered the *relative* pricing between different services, and sought to maintain prices that are significantly above the fully allocated cost ("FAC") reported in the RFS in certain markets to ensure consistency with wider policy objectives such as those referred to in paragraph 5.2 above.[30]

5.9 The UK telecoms market is a truly dynamic and varied landscape. Firstly, BT's regulated services were offered across a variety of different markets, each facing unique competitive conditions (e.g., Broadband has been very different to the situation regarding ISDN lines). Secondly, the competitive conditions in these markets changed over time (e.g., nascent services are typically not subject to full price regulation until they become established and regulatory intervention is warranted). Thirdly, communication providers' business models and priorities have changed over time – they have not always argued for lower prices on all of BT's

[30] For example, Ofcom has been mindful of the relative pricing of Wholesale Line Rental ("WLR") and Local Loop Unbundling ("LLU") lines in order to promote competition through the uptake of LLU lines

regulated services (e.g., WLR and ISDN30). All of which means that no one form of regulation is likely to be appropriate.

A brief review of BT's non-price controlled SMP services

5.10 Table 1 in section 3 of this report shows that around three quarters of the return above the cost of capital was earned on services when they were not subject to RPI minus X price controls. It is therefore informative to review regulation where direct price controls were not imposed.

5.11 Revenues above the benchmark cost of capital over the last decade were principally earned from services in five markets, these being ISDN30, ISDN2, Wholesale Broadband Access ("WBA"), Wholesale Trunk Segments and AISBO. An over-riding reason not to apply price controls in these markets was that Ofcom, consistent with its duties under the Communications Act, was seeking to encourage entry investment, and hence competition, and so avoided pressing industry prices down to BT's cost of provision.

5.12 For example, Ofcom's approach to WBA (where there has only been a price cap in rural parts of the UK) was designed to promote infrastructure competition in as much of the UK as possible, a policy which has been successful in achieving this particular objective (90% of the UK has now been found to be competitive).[31]

5.13 ISDN services were towards the end of their product lifecycle over the period covered by our analysis (with ISDN30 being launched in the 1980s). When a charge control was introduced on ISDN30 in 2012, Ofcom recognised that the reported costs did not reflect the forward-looking costs of an on-going network and that pricing down to this level could undermine incentives to invest in replacement services. Ofcom also recognised that low prices could stimulate demand which would lead to a need for further investment by BT in ISDN, the costs of which would not be recovered through the low prices. In taking this approach, and not regulating down to cost, Ofcom was supported by some of BT's customers and, in particular, by C&W who urged Ofcom to take a "cautious approach" to setting an ISDN charge control.

5.14 Ofcom's decision not to impose RPI minus X controls on Wholesale Trunk Segment and AISBO services was also made deliberately in order to encourage competition in the belief that this would later enable regulation to be removed. Charging for these services was subject to disputes, Ofcom Determinations and subsequent Competition Appeal Tribunal ("CAT") Judgments which have extensively discussed the issues surrounding these charges. Not just Ofcom but also the CAT agreed with the use of a price ceiling above the benchmark cost of capital[32] where cost orientation was imposed rather than a charge control.

5.15 It is also relevant to recognise that the RFS only ever shows a partial picture regarding profitability. For example, the period covered by this analysis excludes the investment that BT

[31] Ofcom, Review of the wholesale broadband access markets, July 2013, paragraph 1.5
[32] Based on the Distributed Stand Alone Cost ("DSAC") which is an output of BT's Long Run Incremental Cost ("LRIC") model

made during the start-up phase in providing WBA, incurred before 2005/06, and the returns made in the period will be recovering such previous investments.

Conclusion

5.16 Backward-looking accounting analysis omits any proper recognition that regulatory decisions are forward-looking economic decisions, intended to balance both shorter-term and longer-term objectives. Setting prices in line with costs as shown in the RFS does not reflect any such balance. In particular, Ofcom has at various times given weight to encouraging dynamic efficiency – requiring investment and successful entry. The extent to which Ofcom struck the optimal balance between short-term and long-term objectives is beyond the scope of this report, but the UK's record for encouraging competition has been good, which suggests that this policy has largely been successful in terms of meeting requirements of the European framework and the Communications Act.

6. Appendix A – Frontier's errors in calculation

6.1 We consider that Frontier has understated the "benchmark" return in both 2005/06 and in 2010/11. In addition to this, we believe that Frontier has made three key errors in its calculation and application of the RAV adjustment.

Benchmark rate of return

6.2 As can be seen in Figure 1 on page 5 above, the "benchmark" rate of return is higher in 2005/06 than in 2006/07, and the next material reduction occurs in 2011/12. This is based on data for the applicable WACC published in the RFS.

6.3 In its analysis of returns in Figure 1 of its October 2015 report, Frontier shows the same benchmark return in 2005/06 as in 2006/07 with a material reduction occurring in 2010/11. This Figure is inconsistent with the WACC shown in the RFS for these years.

6.4 We therefore consider that Frontier has understated the "benchmark" return in both 2005/06 and in 2010/11. The impact of this error using the data from our analysis is £177m in 2005/06 and £171m in 2010/11, a combined overstatement of return of £348 million (approximately 20% of the difference between Frontier's view of returns above the benchmark cost of capital and our calculation on a like-for-like basis).

Calculation and application of the RAV adjustment

6.5 Although we have not seen details regarding the RAV adjustment calculated by Frontier, following analysis of its RAV adjustment compared to our own calculation and the published RFS, we consider Frontier has made three key errors in its calculation and application of the RAV adjustment, namely:

(i) double counting of the RAV adjustment in 2013/14 and 2014/15;

(ii) not adjusting the data in the RAV model to reflect the RAV adjustment applying to access duct only; and

(iii) applying the RAV adjustment to services which were not subject to the RAV adjustment.

Double counting of the RAV adjustment in 2013/14 and 2014/15

6.6 The RFS published in July 2015 was the first set of Current Cost Financial Statements to include the RAV adjustment which is applied to both Current Cost Accounting ("CCA") operating costs and MCE and for financial years 2014/15 and 2013/14 restated.

6.7 Comparison of Figure 4 (BT SMP Markets operating costs) and Figure 5 (BT SMP Markets MCE) of the October 2015 Frontier report to published RFS data for "Total SMP Markets"

suggests that Frontier has applied a RAV adjustment to CCA operating costs and MCE in 2013/14[33] and to MCE in 2014/15. As noted above, the RAV adjustment had already been applied to this data. This has a material impact on the calculated returns: in 2013/14 Frontier suggests the return on MCE for SMP markets is approximately 17% whereas the RFS shows that, for "Total SMP Markets", the return is 14.6%.

Not adjusting data to reflect the proportion of access duct

6.8 The RAV model outputs, namely the RAV adjusted duct and copper asset base, associated depreciation charges and holding gains/losses, are inputs to a cost allocation model. The allocation is first to activities, and then to products according to a set of allocation rules and usage factors.

6.9 The RAV adjustment is only applicable to access duct, whereas the published RAV model calculates the difference in CCA and RAV valuation for the Local Distribution Duct ("LDD") lead Class of Work ("CoW") which contains non-access duct, comprising approximately 21% of the total. It is not appropriate to use outputs from the publicly available RAV model without adjusting for this proportion of non-access duct. The magnitude of the RAV adjustment applied by Frontier suggests that this has not been adjusted for in its calculation.

Applying the RAV adjustment to non-applicable services

6.10 The RAV adjustment is only applicable to services where Ofcom has made a policy decision to apply the RAV adjustment. The magnitude of the RAV adjustment applied by Frontier suggests that the RAV adjustment has been applied to services which Ofcom did not deem that the RAV adjustment was applicable.

6.11 A particular issue arises in 2005/06. Frontier has adjusted published MCE for 2005/06 by approximately £1.5 billion. However, the price change to services in the markets for analogue exchange line services (and which reflected the decision to adopt the RAV) only came into effect on 1 March 2006[34], i.e., one month before the end of the financial year, implying a low adjustment as an annual effect over the whole year. Second, whilst prices for LLU had changed earlier (half way through 2005/06), volumes were small and the Mean Capital Employed low, which again implies a non-material RAV adjustment. The £1.5bn adjustment for 2005/6 used by Frontier should therefore be reduced significantly. Our calculation of the applicable RAV adjustment for this year is £70m.

[33] Frontier references in footnote 2 of its October 2015 report that it has used restated data for 2013/14
[34] http://stakeholders.ofcom.org.uk/consultations/wlrcharge/statement/