OFFICE OF COMMUNICATIONS

A New Pricing Framework for Openreach

Developing new charge controls for wholesale line rental, unbundled local loops and related services

Consultation

Publication date: 30 May 2008

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Contents

Section 1

Summary

Introduction

1.1 On 22nd September 2005, BT Group plc ('BT') [1] offered and Ofcom accepted a set of undertakings ('the Undertakings') pursuant to Section 154 of the Enterprise Act 2002 in lieu of a reference of certain markets to the Competition Commission.

1.2 The Undertakings included the commitment to establish a new organisation, Openreach, which is separate from the rest of BT. Openreach is required to provide:

- Wholesale Line Rental ("WLR");
- Local Loop Unbundling ("LLU") which includes fully unbundled lines (Metallic Path Facility or "MPF") and shared unbundled lines (Shared MPF or "SMPF"); and
- Ethernet services.

1.3 These services are provided under Significant Market Power ("SMP") conditions.

1.4 The current charge ceilings for WLR and LLU services were set as follows:

- For WLR, in the 24 January 2006 Statement, "Wholesale Line Rental: Reviewing and setting charge ceilings for WLR services" [2] (the "WLR Statement");
- For MPF, in the 30 November 2005 Statement, "Local loop unbundling: setting the fully unbundled rental charge ceiling and minor amendment to SMP conditions FA6 and FB6" [3] (the "LLU Statement"); and
- For SMPF, in the 16 December 2004 Statement "Review of the Wholesale Local Access Market [4]" (the "WLA Statement").

1.5 The current charge ceilings for the WLR, MPF and SMPF rentals are set out in Table 1.1.

[1] Openreach is a division of BT. All legal obligations are placed on BT, including regulatory remedies for significant market power determinations, and BT is the legal entity in any contracts with third parties. Throughout this document, we refer to BT when discussing legal obligations and the provision of financial information to Ofcom. We refer to Openreach when discussing the operational activity and performance of the division.

[2] http://www.ofcom.org.uk/consult/condocs/wlrcharge/statement/statement.pdf

[3] http://www.ofcom.org.uk/consult/condocs/llu/statement/llu_statement.pdf

[4] http://www.ofcom.org.uk/consult/condocs/rwlam/statement/

Table 1.1

Service	Current charge ceilings for annual rental
Residential WLR	£100.68
Business WLR	£110.00
MPF	£81.69
SMPF	£15.60

1.6 These charge ceilings are fixed in nominal terms and do not change over time. When they were set, we explained that it would probably be appropriate to review the charges within the first few years of operation[5]. Since then, BT has held the charges at the ceilings, with the exception of the MPF Rental which BT has priced at £80. However, BT announced on 29 April that, with effect from 1 August 2008, it would be setting the MPF charge at the ceiling of £81.69.

1.7 Since these charges were set, there have been significant developments in the relevant markets. Communication Providers have invested heavily in LLU and there are now more than four million unbundled lines. Meanwhile, Openreach and other Communication Providers are facing important decisions including those relating to potential investment in unbundling further local exchanges and other new infrastructure investment.

1.8 Openreach has also presented evidence to Ofcom which indicates that, due to cost pressures, the prevailing level of the regulated charges may not be sustainable, and that there may be a case for increasing the price of MPF relative to WLR.

1.9 In light of these we have decided to review certain aspects of the current regulatory regime. The purpose of the review is to determine whether there is a need to change the existing level and structure of charges for the regulated wholesale access services and, if so, to put in place a new, forward looking, price control framework for those services.

1.10 The review will consider all regulated access network prices other than those backhaul services covered by the separate Business Connectivity Market Review[6], which will be addressed in the upcoming Business Connectivity Charge Control review. We are conscious of the need to consider the total impact of both reviews on BT and the Communications Providers and we are coordinating the reviews such that Stakeholders will be able to comment on the overall implications of any changes.

[5] See paragraph 1.16 of the WLR statement and paragraph 3.17 of the LLU statement.
[6] http://www.ofcom.org.uk/consult/condocs/bcmr/

1.11 This consultation will be held in two stages, followed by a Statement which we plan to issue before the end of 2008. The purpose of this, the First Consultation, is to obtain Stakeholder views on a range of issues relating to the review, including the objectives, our proposed approach and the potential implications of different outcomes. The Second Consultation will set out a range of proposals for new price controls. These proposals will be informed by responses to the First Consultation and further financial and economic analysis.

Approach to the review

1.12 The new framework should continue to encourage efficient, sustainable competition in access services. It should also provide appropriate incentives for future improvements in the quality, innovation and investment in existing and next generation services. It should enable Openreach to charge prices which reflect costs, promote efficient competition, and provide Openreach with the opportunity to cover efficiently incurred costs, including the cost of capital[7]. In conducting the review we will therefore need to:

- Analyse and, where relevant, benchmark Openreach's cost structure and efficiency levels and assess aspects of Openreach's service costing methodology;
- Develop cost projections for Openreach – overall and at the the level of individual services;
- Consider how price controls for the regulated services should be determined given the overall, and service specific, cost projections for Openreach; and
- Consider if and how the contribution made by other services to the total cost base should be taken into account.

1.13 This will require detailed cost modelling similar to that used to set price controls in the past. It will also require a decision on the appropriate scope of the review.

1.14 The modelling will draw on a range of evidence, including that generated by Ofcom and received in response to this consultation. It will also take account of cost projections provided by BT, described in more detail in this document. This will be balanced by other evidence on costs and pricing, including international benchmarking data.

1.15 Financial modelling provides only part of the overall evidence to be taken into account in determining how the existing pricing framework should evolve. Other evidence, including, for example, the impact price changes might have on demand, competition, consumers and future investment decisions must also be taken into account.

Seeking Stakeholders' views

1.16 Stakeholders' responses are invited on our early views that:

- Infrastructure competition has been working well and is delivering substantial benefits to consumers;

[7] Throughout the document references to Openreach's cost of capital refer to the cost of capital for the main existing Openreach business.

- Openreach overall has to date made a reasonable rate of return based on the prevailing regulated access prices;
- This is likely to change if the impact of cost inflation cannot be mitigated, thus potentially bringing into question the sustainability of the current price ceilings (which are fixed in nominal terms);
- There is evidence to support a case for increases in the prices of the current regulated services;
- The strength of this evidence is critically dependent on a number of key assumptions which will be subject to further analysis during the course of this review, including
    - The potential for efficiency gains within Openreach;
    - The consistent treatment of costs in line with previous regulatory reviews ;
    - Openreach's cost of capital;
    - The scope of services which should be encompassed by the review;
    - Future demand for services; and
    - How Openreach's fixed and common costs should be recovered through individual service charges.
- The foregoing must be considered alongside other evidence, including international benchmarking and the impact price changes might have on infrastructure competition, consumers and future investment decisions.

Preliminary Conclusions

1.17 BT has provided evidence that the current, regulated prices for wholesale access services (WLR, MPF and SMPF) are out of balance with the underlying costs. BT has also provided projections which suggest that the costs of these services will increase over the next few years, even after allowance is made for improvements in efficiency levels. The implications of these projections are that the charges for these services overall may need to rise and, potentially, that the price of MPF in particular may need to increase relative to the price of WLR.

1.18 As we set out in this document, we consider that Openreach may have adopted a conservative approach in projecting future costs. We also believe that there is a need to look at Openreach's current efficiency levels (given the evidence on comparative MPF price levels across Europe) and at a range of other cost related factors which will have a bearing on the need to raise prices overall, and on the appropriate balance of those prices – these include the scope of services which should be encompassed by the review, potential adjustments to the cost base, the cost of capital, and the appropriate method for recovering Openreach's fixed and common costs. Besides the evidence on costs we will also need to consider the impact of any changes on competition and on consumers, particularly bearing in the mind the benefits that the current regime has brought to consumers over the past two years in terms of new services, choice and reduced retail prices.

1.19 Our conclusions will be based on the evidence received, and the analysis we will undertake, during the course of the review. Nonetheless, the evidence we have reviewed to date suggests that there is likely to be a case for some increases in the charges for the regulated access services – prices fixed in nominal terms do not appear to be sustainable indefinitely. However, we do not currently believe that the increases need to be as significant as is implied by the projections provided by BT. We have not yet formed a view on the case for an increase in the price of MPF relative to WLR; however, the analysis of this issue will be a core element of the preparation for the next consultation.

Structure of this document

1.20 This document is set out as follows:

- Section 2 sets out the background to this review, including a summary of relevant regulation, and an explanation of our powers to review and make changes to the current regime, where appropriate;
- Section 3 provides some context for this review by considering recent market developments;
- Section 4 provides further context by considering Openreach's recent financial performance;
- Section 5 sets out our overall approach to this review;
- Section 6 summarises the evidence provided by BT to support the case for changing the current level of charges, our views on this evidence and other factors that will need to be taken into account in establishing a new pricing framework;
- Section 7 considers the relationship of the Pricing Framework to Openreach performance and quality of service; and
- Section 8 looks at how a new framework might be implemented.

Section 2

Introduction

Introduction

2.1 This section sets out:

- The background to the review;
- The objectives for the review;
- Links to other projects; and
- The legal framework for this review.

Background

2.2 On 22nd September 2005, BT offered and Ofcom accepted a set of undertakings pursuant to Section 154 of the Enterprise Act 2002 in lieu of a reference of certain markets to the Competition Commission.

2.3 The Undertakings were the culmination of a period of extensive consultation with BT and industry that was structured around the Telecommunications Strategic Review[8] (the "TSR"). The TSR sets out the key regulatory goals for the regulation of certain of BT's enduring bottleneck assets.

2.4 The Undertakings included the creation of a new organisation, Openreach, which was designed to provide functional separation of the management of BT's core regulated access network from BT's other wholesale and retail operations. Openreach provides wholesale access services in which BT has SMP (WLR, LLU and Ethernet access) to all Communications Providers (including BT and its competitors) on an equivalent basis.

2.5 Openreach remains a major part of the BT Group business. In the year to 31 March 2008, Openreach generated around 40% of BT's profit from 25% of its revenues, while BT remains, by a large margin, Openreach's largest customer. In the year to March 2007, around two thirds of Openreach's revenues came from WLR services (mainly from within BT) and a further fifth was from LLU services.

2.6 With respect to the WLR and LLU services, Openreach operates under controls that were introduced following SMP determinations in the wholesale narrowband and broadband access market reviews conducted by Ofcom and Oftel. These include:

- charge ceilings for the key LLU and WLR services;
- cost orientation obligations for the remaining LLU and WLR services (with the exception of ISDN 30); and
- broader SMP remedies requiring no undue discrimination, price publication and the public provision of audited regulatory accounts.

[8] http://www.ofcom.org.uk/consult/condocs/telecoms_p2/

2.7 The regulations which currently apply to Openreach's services are set out in Annex 6.

2.8 For ease of reference in this document, we have divided the services provided by Openreach into four categories, as follows:

1. "Core Rental Services", which include the WLR, MPF and SMPF rentals;

2. "Ancillary Services", which include the related services in the markets where SMP has been found. These can be further divided between 3 sub-categories, as follows:

    a. SMP services that are subject to price controls;

    b. SMP services that are subject to cost orientation obligations; and

    c. SMP services that are not subject to cost orientation obligations.

3. "Non-Regulated Services", which include the related services that are not subject to a finding of SMP; and

4. Services covered by the Business Connectivity Market Review (which are outside the scope of this review).

2.9 The table below provides examples of the key services in each category.

Figure 2.1

1	2. Ancillary services			3	4
Core Rental Services	**a. SMP with price controls**	**b. SMP with cost orientation obligations**	**c. SMP with no cost orientation obligations**	**Non-Regulated services**	**Services covered by BCMR**
Residential WLR rentals Business WLR rentals MPF rentals SMPF rentals	some WLR transfers, MPF transfers, connections and network interventions, some SMPF connections	WLR connections, takeovers and some transfers, network services, ISDN 2 rentals, connections and transfers, MPF connections, room build and hostel rentals, some SMPF connections	ISDN 30 rentals, connections and transfers	Time related charges, and other non-SMP services	e-PPC links and WES/BES rentals

2.10 The current charge controls predate the creation of Openreach. Fixed charge ceilings for WLR and LLU services were set as follows:

- For **WLR**, in the 24 January 2006 Statement, "Wholesale Line Rental: Reviewing and setting charge ceilings for WLR services";
- For **MPF**, in the 30 November 2005 Statement, "Local loop unbundling: setting the fully unbundled rental charge ceiling and minor amendment to SMP conditions FA6 and FB6"; and
- For **SMPF**, in the 16 December 2004 Statement "Review of the Wholesale Local Access Market".

2.11 As a result of these reviews, the charges for core rental services were set as follows:

Figure 2.2

Service	Charge before reviews in 2005 and 2006	Charge ceiling for annual rental, post 2005 and 2006 reviews	Current charge for annual rental by Openreach
Residential WLR	£104.92 (following a voluntary reduction from £110.08)	£100.68	£100.68
Business WLR	£119.40	£110.00	£110.00
MPF	£80.00 (following a voluntary reduction from £105.09)	£81.69	£80.00*
SMPF	£53.00	£15.60	£15.60

*** Openreach have announced that the MPF rental will increase to £81.69 with effect from 1 August 2008**

2.12 These services are also subject to BT's commitments under the Undertakings to ensure equivalence of inputs.

2.13 The other regulated services set out in Figure 2.1 are subject to a range of regulatory controls including non-discrimination, price publication and the publication of audited accounts (which is also required in respect of the core rental services). Full details are provided in Annex 6

Objectives

2.14 We consider that the objectives for the new Pricing Framework for Openreach should be to:

- Promote efficient, sustainable competition in the delivery of both broadband and traditional voice services;
- Prevent excessive charging and the abuse of SMP by Openreach;
- Provide regulatory certainty for both Openreach and its customers;
- Ensure that the delivery of the regulated services is sustainable, in that the prevailing prices provide Openreach with the opportunity to recover all of its relevant costs (where efficiently incurred), including the cost of capital.

2.15 The framework also needs to be practicable and consistent with the objectives of the TSR. These were to:

- Encourage competition at the deepest level of infrastructure where it can be achieved and sustained;

- Ensure equality of access to enduring bottleneck assets - BT's access and backhaul network;

- Reduce regulation downstream from these bottleneck assets once effective competition develops;

- Incentivise timely and efficient investment in new infrastructure deployments by promoting certainty in the market through a stable and consistent regulatory framework.

2.16 These objectives are designed to sustain a market which best serves consumers' interests. However, in pursuing these objectives, a balance has to be struck. For example, customers may benefit from lower charges in the short run, but, without an opportunity to earn a reasonable rate of return, Openreach would have no incentive to invest in and maintain the local access network. A low return on existing infrastructure might also discourage new infrastructure investment by both BT and other parties if it were seen as a signal that returns on new investment would be unduly limited. This would be to the detriment of consumers in the longer term

Question 2.1: What do you consider to be the appropriate goals for a new Pricing Framework?

Question 2.2: To what extent do you think that the existing framework has supported the achievement of these goals, and when has it worked against them?

Links to other projects

2.17 We have recently undertaken, or are currently undertaking, reviews which are closely linked to the market for narrowband and broadband access, including the following:

- *Service Level Guarantees (SLGs).* On 20 March 2008, Ofcom published a statement entitled *Service level guarantees: incentivising performance*[9]. The statement included three Directions that required Openreach to amend its SLGs for certain wholesale access services to more closely align compensation with service performance and to help incentivise improved service performance. This statement and broader performance improvement issues are discussed in Section 7;

- *The Business Connectivity Market Review.* In this review, Ofcom is considering the markets for wholesale symmetric broadband origination services, including Ethernet-based (or "alternative interface") services. These include WES and BES services which are the key backhaul products supporting LLU. Ofcom is currently consulting on a finding that BT has SMP in the relevant market for these services and on a proposal to make them subject to a charge control (they are currently subject to a cost orientation obligation). Subject to the consultation, the forthcoming Business Connectivity charge control review will make proposals for the appropriate charges for these services.

[9] http://www.ofcom.org.uk/consult/condocs/slg/slg.pdf

Legal framework for this review

2.18 Our general duties in performing our functions are set out in section 3 of the Communications Act 2003 (the "Act") and section 4 of the Act sets out our duties for the purposes of fulfilling community obligations.

Section 3 – Ofcom's general duties

2.19 Section 3(1) of the Act sets out the principal duty of Ofcom:

- To further the interests of citizens in relation to communications matters; and
- To further the interests of consumers in relevant markets, where appropriate by promoting competition.

2.20 When carrying out our functions we also need to consider, amongst other things, the requirements in section 3(2) of the Act to secure the availability throughout the UK of a wide range of electronic communications services and section 3(4) of the Act, namely that in performing our duties we must also have regard to such of the following as appears to be relevant in the circumstances, in particular:

- The desirability of promoting competition in relevant markets;
- The desirability of encouraging investment and innovation in relevant markets; and
- The desirability of encouraging the availability and use of high speed data transfer services throughout the United Kingdom.

Section 4 – European Community requirements for regulation

2.21 Section 4 of the Act requires us to act in accordance with the six European Community requirements for regulation. In summary these requirements are to:

- Promote competition in the provision of electronic communications networks and services, associated facilities and the supply of directories;
- Contribute to the development of the European internal market;
- Promote the interests of all persons who are citizens of the European Union;
- Not favour one form of or means of providing electronic communications networks or services, i.e. to be technologically neutral;
- Encourage the provision of network access and service interoperability for the purpose of securing;
    - Efficient and sustainable competition; and
    - The maximum benefit for customers of Communications providers; and
- Encourage compliance with certain standards in order to facilitate service interoperability and secure freedom of choice for the customers of communications providers.

Sections 49 – Tests for giving and modifying directions

2.22 It is possible that, in order to implement the proposals relating to the new Pricing Framework, we will need to modify directions setting price controls under existing SMP conditions – FA3.1 and FA9.2 concerning LLU and AA3.1, AA10.3(a)(ii) and AA10.3(f) in relation to WLR. This means that we will have to satisfy the tests under section 49(2) of the Act showing that modifying the directions is:

- Objectively justifiable in relation to the networks, services, facilities, apparatus or directories to which it relates;
- Not unduly discriminatory against particular persons or against a particular description of persons;
- Proportionate to what it is intended to achieve; and
- Transparent in relation to what it is intended to achieve.

Sections 47 – Tests for setting and modifying conditions

2.23 We may also need to modify some existing SMP conditions in order for us to have the ability to set price controls, should this be the result of the consultations. This means that we would have to satisfy the tests under section 47(2)) of the Act. These are the same as those for 49(2) set out above.

2.24 We are empowered under section 86 of the Act to modify existing SMP conditions without carrying out a market review. However to do so, Ofcom must be satisfied that there has been no material change in the markets identified since the condition was set or last modified. We last modified the SMP conditions in relation to LLU services in November 2005, following a 'no material change' assessment and last undertook a market review of the fixed narrowband wholesale exchange line markets in November 2003.

2.25 We have reviewed the market definition and SMP determinations for markets for which changes are proposed. These markets are:

- wholesale local access in the UK excluding the Hull Area;
- wholesale residential analogue exchange line services in the UK excluding the Hull Area; and
- wholesale business analogue exchange line services in the UK excluding the Hull Area.

2.26 We have provisionally concluded that there have been no material changes in any of these markets. In the event that changes to existing SMP conditions subsequently prove to be appropriate, this review will be updated and the conclusions shared in the Second Consultation.

New European Commission Recommendation

2.27 Under Article 15(3) of the Framework Directive and section 79(3) of the Communications Act, Ofcom is required to take account of all relevant guidelines and recommendations published by the European Commission in making or revising a market power determination in a services market.

2.28 Under Article 16(1) of the Framework Directive and section 84(3) of the Communications Act, Ofcom is also under the duty to carry out further analysis of a services market as soon as reasonably practicable after recommendations are made by the European Commission that affect matters that were taken into account or could have been taken into account, when Ofcom last undertook a market analysis of that services market.

2.29 When the previous market reviews for the wholesale local access market and the fixed narrowband wholesale exchange line markets were undertaken, we took full account of the first version of the European Commission's recommendation on relevant product and service markets, which was published in February 2003 (the "2003 Recommendation").

2.30 On 17 December 2007, the European Commission's replaced the 2003 Recommendation with a revised recommendation on relevant product and service markets (the "2007 Recommendation"), to reflect developments in the relevant markets since 2003. In the assessment of whether or not there have been any material changes, we intend to, therefore, take full account of the 2007 Recommendation.

Section 3

Context: Recent market developments

Introduction

3.1 Any review of the existing pricing framework must be considered in light of the current market environment.

3.2 As set out in this section, since the implementation of the Undertakings and the creation of Openreach, access service competition has increased substantially and consumers have benefited from innovation in services and reductions in retail prices.

Market developments since the creation of Openreach

3.3 The creation of Openreach, and the associated Undertakings and charge controls, have helped transform infrastructure-based competition. Communication Providers including Carphone Warehouse, Tiscali, Orange and Sky have invested heavily in Local Loop Unbundling. There are now more than 4 million LLU lines in total, composed of 3 million SMPF lines and over 1 million MPF lines, as illustrated in Figure 3.1. It took six years to achieve take-up of the first million LLU lines; take-up of the second million took only 6 months.

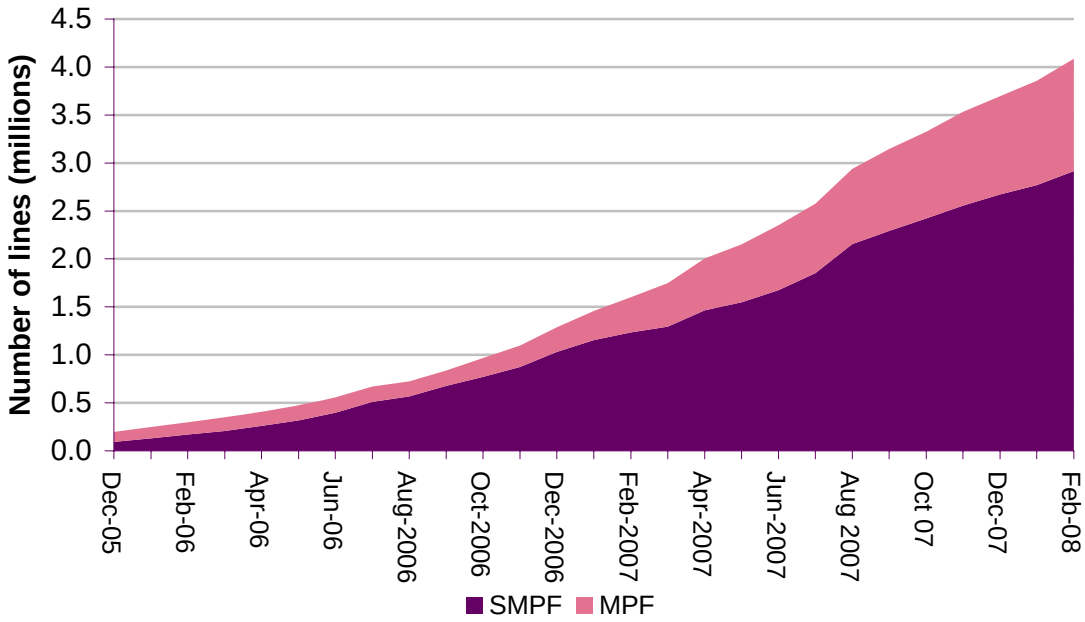
3.4 By January 2008, there were almost 1,800 unbundled exchanges in the UK. This represents nearly a third of all exchanges and provides over 80% of the UK population with a choice of at least two providers. Around 60% of the UK population now has a choice of four or more network providers (excluding cable). Around 60% of homes now have broadband access, up from 7% in 2002. The UK now has the fifth highest number of broadband lines per person in Europe[10].

3.5 MPF largely substitutes for WLR as there are few 'new build' MPF installations. The number of WLR lines/channels has declined from 28.2 million at the end of 2005 to 26.9 million at the end of 2007. The move to MPF has been one of the core drivers of this decline accounting for over 1 million lines.

3.6 In addition to MPF substitution there are other long term factors influencing BT's access line numbers. These include the reduction in the number of homes served by two or more lines (due to their replacement by broadband), the increase in mobile only households, and cable substitution; the volume of SMPF lines does not affect the volume of WLR lines as shared unbundling also requires the provision of WLR.

[10] European Commission Progress Report on the Single European Electronic Communications Market 2007(13th Report) 19 March 2008 (the report defines penetration in terms of lines per person) http://ec.europa.eu/information_society/policy/ecomm/library/communications_reports/annualreports/13th/index_en.htm

Figure 3.1 Growth in MPF and SMPF lines since December 2005



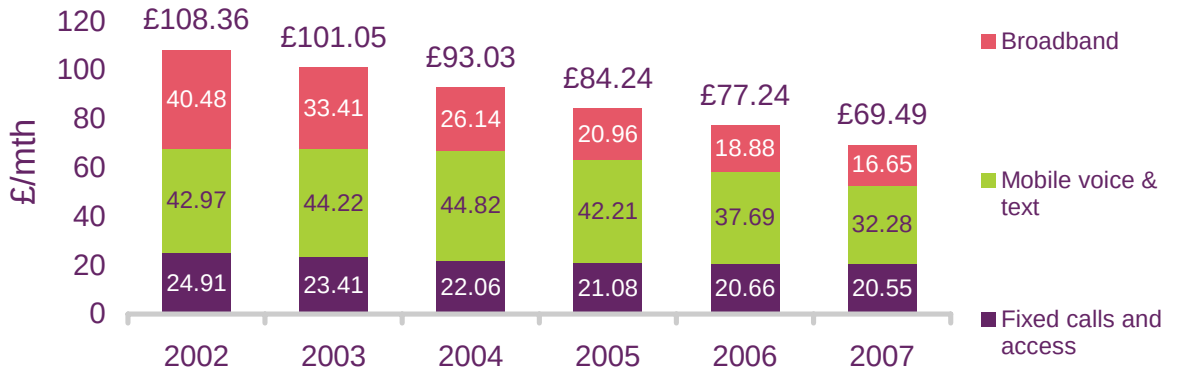
Source: Ofcom / operators

3.7 Increased wholesale access competition has supported substantial changes at the retail level. Headline connection speeds continue to increase and retail broadband prices have also fallen over the same period. At the end of 2006 the average headline[11] broadband speed across all residential and SME connections was 3.6Mbit/s, more than twice the speed at the end of 2005. By the end of June 2007, this had risen to 4.6Mbit/s, prior to the move by BT to upgrade to a headline speed of 8 Mbit/s. LLU has also allowed some operators to use speed as a point of differentiation.

3.8 We have also seen the development of a much greater choice of services. The past three years have seen the growth of new service bundles combining fixed line, broadband, television and, in some case, mobile services, offering significant benefits to consumers. Also emerging, in this new competitive environment, are IPTV based offerings (from, for example, Tiscali and BT) and new voice over broadband services. Very significant reductions in real prices have also occurred over this period as is illustrated in Table 3.2 below.

[11] Actual user experienced speeds can be substantially below headline speeds

Figure 3.2 Real cost of a basket of residential telecoms services

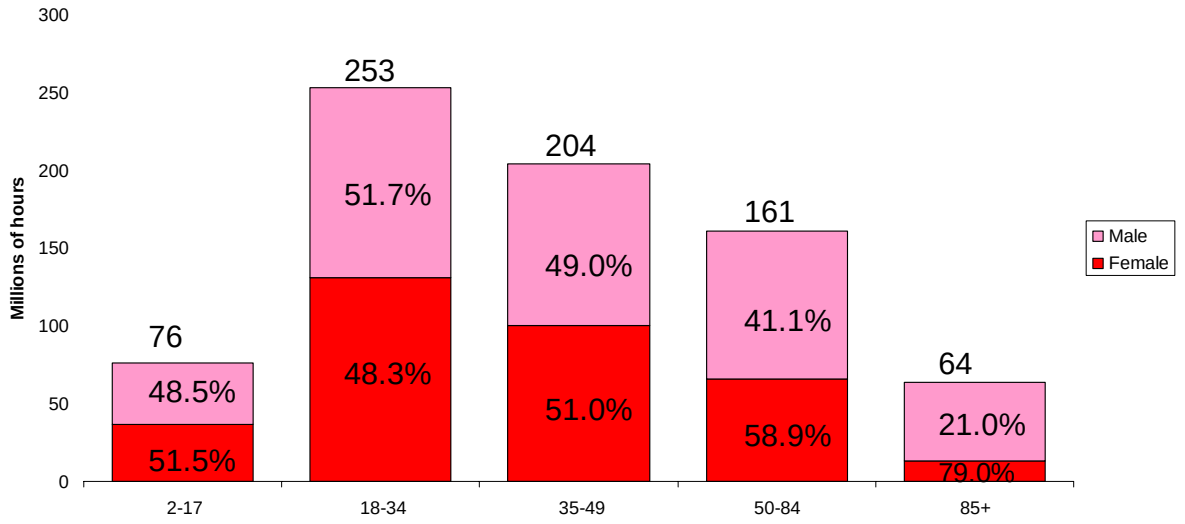


Source: Ofcom / operators (Note: Includes VAT; excludes NTS)

3.9 The ability of Communications Providers to compete at the infrastructure level has been a key driver of the nature and extent of competition. LLU has given operators the flexibility to offer differentiated services to their customers, allowing true diversity in service offerings. In particular, the reductions in LLU and WLR charges in November 2005 and January 2006 (described in Section 2) clearly provided a major stimulus to competition. The significant expansion of choice and, consequently, take up have been attributable in large part to the changes in the wholesale pricing regime and the implementation of the Undertakings entered into by BT.

3.10 As internet penetration has grown to around two-thirds of UK households, there have been substantial impacts on society. Increasingly, services are structured to offer web-based interaction, with clear benefits to consumers and society at large as the internet is now being used by a far broader cross-section of society. Nielsen//NetRatings data from April 2007 show that women in the 18-34 age range are the most active internet users by time spent (Figure 3.3). Over 50s now account for nearly 30% of all time spent on the internet, with over 65 'silver surfers' spending more time online per active user, at nearly 42 hours per month, than any other age group.

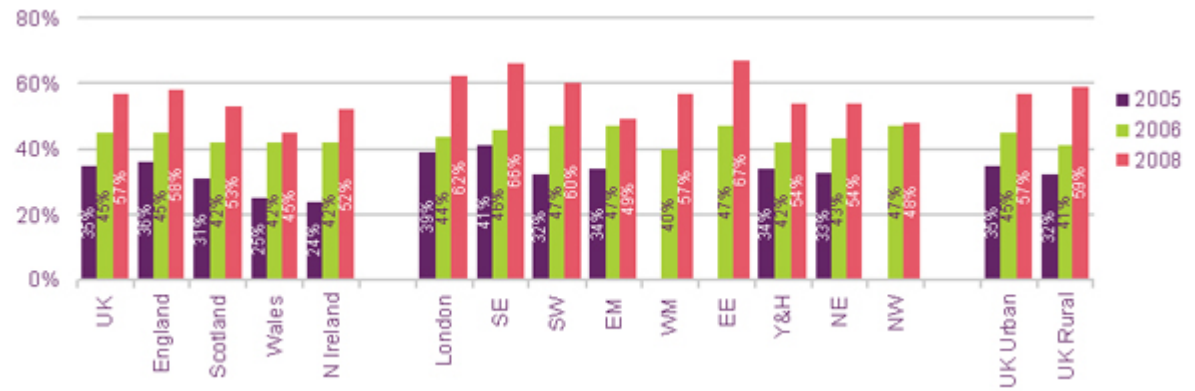
Figure 3.3 Total internet use by age, April 2007



Source: Nielsen//NetRatings, April 2007 – 'At home' data including internet applications

3.11 Widespread broadband access also ensures that all of the UK (urban and rural) can benefit fully from the development of new commercial web based services (such as IPTV, on-line gaming, social networking) and the many new services which will result from future innovation. The extent and geographic spread of take up is illustrated by Ofcom's most recent survey of broadband adoption across the UK, the results of which are illustrated in figure 3.4

Figure 3.4 Growth in broadband by region



Source: Ofcom research, 2008

Summary

3.12 The foregoing points to the considerable benefits that have been delivered by the industry as a whole under the prevailing regulatory framework (including the associated charge controls). Against this background, we are cautious in considering making changes to the current regime. However, for the reasons given below and in subsequent chapters, we consider that it is appropriate to review the current Pricing Framework for Openreach at this point – in particular, to ensure that it continues to promote the competition and innovation that has been fostered over the past two to three years, and to ensure that it provides a sustainable basis for the continued evolution of this important segment of the communications market.

3.13 As noted above, the current controls on WLR and MPF prices predate the creation of Openreach and are fixed in nominal terms. At the time they were set, Ofcom explained that there would probably be a need to review the charges within the first few years of operation[12].

3.14 At the same time, Openreach and other Communication Providers are facing important medium and long term decisions relating to changes in network and access infrastructure. Significant changes in network infrastructure are likely in the move to next generation networks (NGN), based on converged IP based services. BT and other Communication Providers are also considering decisions regarding investment in Next Generation Access (NGA).

[12] See paragraph 1.16 of the WLR statement and paragraph 3.17 of the LLU statement

3.15 In the shorter term, Communication Providers face decisions on the further unbundling of exchanges and on which service portfolio and delivery model to adopt (decisions which are influence by the level and structure of charges for WLR, MPF and SMPF). In these circumstances it is incumbent on Ofcom to provide clarity on the future course of regulated access charges for both Communications Providers and BT.

Question 3.1: What do you see as the key developments in the provision of access and line rental services since 2005 and how have these affected customers and consumers?

Question 3.2: Within the context of the overall package of changes instituted by the TSR, to what extent has the current pricing structure for LLU and WLR contributed to market developments and how sensitive do you believe future developments will be to changes in the pricing of those wholesale access services?

Section 4

Context: Openreach financial performance

Introduction

4.1 As explained in Section 3, since the implementation of the Undertakings and the creation of Openreach, access service competition has increased and consumers have benefited from innovation in services and reduced prices.

4.2 During the same period, Openreach has operated profitably and, based on our estimates, has delivered overall rates of return which have exceeded Ofcom's determined cost of capital[13]. However, the combination of regulated prices that are fixed in nominal terms, rising costs and the shift from WLR to MPF means that Openreach's returns are falling and appear likely to continue to do so if prices remain unchanged. There is also evidence to suggest that the relative balance of prices (WLR versus MPF versus SMPF) may not reflect the underlying structure of costs.

4.3 The structure of regulated access prices needs to be designed to encourage competition in access services and help create and maintain an appropriate environment for future improvement in quality of service, innovation and investment in the network. It is important, therefore, to ensure that the pricing framework is efficient, sustainable and drives appropriate investment.

Openreach's Performance under the existing framework

4.4 To date, Openreach's rate of return on assets employed appears to have exceeded Ofcom's previous estimate of Openreach's cost of capital, although the evidence also suggests that those returns are now falling. Within this overall picture, the regulated Core Rental Services (WLR, MPF, SMPF) are, on average, less profitable than is the case for Openreach as a whole, and their overall profitability exhibits a steeper rate of decline. This appears to reflect a combination of factors, as follows:

- Revenues per line are fixed in nominal terms under the current charge ceilings;
- The underlying costs of providing and maintaining these lines are subject to inflation, which has not been offset fully by efficiency gains;
- WLR has historically provided a higher contribution to Openreach's fixed and common costs than MPF and the recent growth of MPF has largely substituted for WLR lines.

4.5 The growth of MPF, and the substitution of MPF for SMPF and WLR, appears likely to continue, judging from recent trends. This suggests that there is a need to consider whether the current structure of regulated charges continues to provide the correct signals from an efficiency perspective. We also need to consider whether they ensure that Communications Providers have the appropriate information when deciding whether to invest and which wholesale access products to adopt when they

[13] As set out in Annex 10 paragraphs 10.5 and 10.6 our previous assessment of the cost of capital estimated a value of 10% for the WACC of BT's 'copper access network business' which maps onto the dominant part of Openreach's existing business.

do invest. In addition, we need to consider whether the overall structure of charges is sustainable. The latter issue - sustainability - is partly reflected in Openreach's ability to cover its efficiently incurred costs given the prevailing level and structure of the regulated charges.

4.6 When the current charge ceilings were set, Ofcom determined that the cost of capital was 10% (on a pre-tax nominal basis). This figure was taken into account in setting the current charges for the relevant regulated access services. The cost of capital estimate provides a key reference point for assessing Openreach's financial performance under the current charge control regime.

4.7 There are several sources of financial information available to inform our understanding of Openreach's financial performance, including BT's statutory accounts and its current cost financial statements.

4.8 This section considers Openreach's financial results on three bases, as follows:

- On an **Historical Cost** basis – for Openreach as a whole;
- On a **Current Cost** basis – again, for Openreach as a whole; and
- For the **Key Rental Services** (WLR, MPF and SMPF), on a current cost basis.

Openreach returns on a historical cost basis

4.9 BT's results for the year ended 31 March 2008 were published on 15 May. These show BT's results prepared under the normal (historical cost accounting (HCA)) convention and include separate disclosure of Openreach's financial performance. It is difficult to conduct a precise assessment of Openreach's rate of return based on this information. Openreach, as reported in the statutory accounts, does not map exactly onto the regulatory functional definition of Openreach.[14]

4.10 Nonetheless, the segmental analysis summarised below suggests that Openreach is profitable and that profits have increased in each year since 2005/06. While total operating profits have increased, it is apparent that the rate of return has fallen slightly over this period: Openreach's capital expenditure has consistently exceeded its depreciation charge over the last three years and the net value of Openreach's assets and liabilities has increased more quickly than profits.

[14] For example, the accounts include revenues and returns made in Northern Ireland (which for reasons of practicality was not included within Openreach in the Undertakings). Also, the summary in the accounts is provided is at a high level and, for example, includes unallocated assets and liabilities

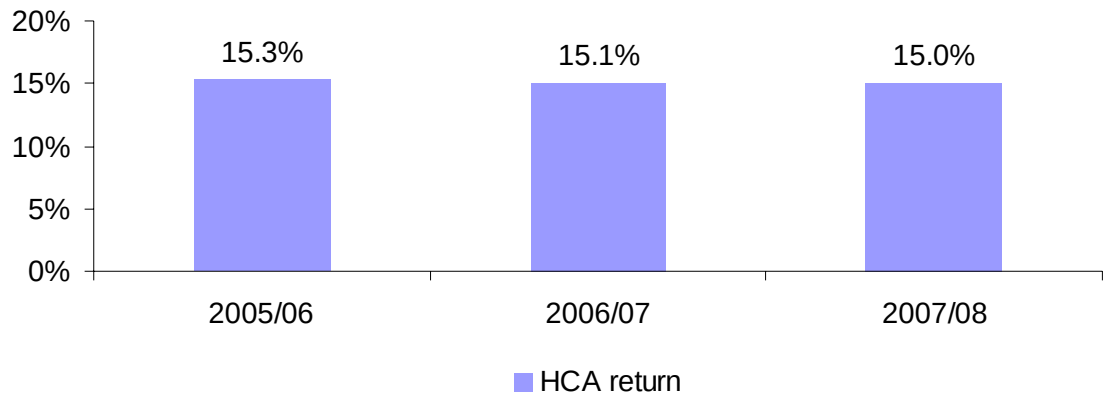
Figure 4.1

	Year ended 31 March 2006 (based on post Openreach structure) £m	Year ended 31 March 2007 £m	Year ended 31 March 2008 £m
External revenue	318	685	886
Internal revenue	4,824	4,538	4,380
Total Revenue	5,142	5,223	5,266
Operating Costs	3,156	3,292	3,328
Depreciation and amortisation	800	707	689
Operating Profit	1,186	1,224	1,249
Assets less liabilities	7,711	8,109	8,300*
Capital Expenditure	1,038	1,108	1,100*

*Source: BT results/ *BT estimate*

4.11 The graph below sets out the returns made by Openreach based on the profit and net assets set out in the HCA data in the table above.

Figure 4.2 Openreach returns indicated by statutory accounts



Source: Ofcom analysis based on BT results

Openreach returns on a current cost basis

4.12 The historical cost information is relevant in any assessment of Openreach's financial performance. However, for the reasons set out in Ofcom's Statement on valuing copper access, published in August 2005[15], we consider that financial data prepared on the basis of Current Cost Accounting ("CCA") principles provides the appropriate basis for valuing BT's copper assets for the purpose of determining charge controls for WLR and LLU[16]. For similar reasons, we consider that the current cost financial statements provide the most relevant basis for considering Openreach's financial performance in the context of this review.

4.13 BT produces current cost financial statements as part of its regulatory financial reporting obligations. They differ from the statutory accounts in that the values attributed to BT's network assets are based on how much it would cost to replace those assets at today's prices (their 'current cost') rather than on the basis of HCA, which reflects how much BT paid for them at the time of acquisition.

4.14 The current cost financial statements include segmental information on the costs, returns and mean capital employed for various markets where BT is deemed to have SMP, including Openreach's markets. Since 2007, the current cost financial statements have also included a current cost profit and loss statement and mean capital employed statements for Openreach, reconciled back to the historic cost data published in the Annual Report.

4.15 BT's current cost financial statements for the year to 31 March 2008 will be published later this year and will inform the subsequent stages of this review. The most recent financial statements are, therefore, for the year 31 March 2007. The 2007 current cost financial statements report a return on mean capital employed of 7.7% for Openreach in that year, which is lower than the 10% cost of capital estimated by Ofcom at the time of the last review.

4.16 However, this figure is not necessarily representative of Openreach's underlying rate of return as it reflects a significant write off of duct assets in the year following a change in asset lives (which depresses the reported return), offset to some extent by unusually large holding gains on the copper access assets.

4.17 In order to assess underlying profitability, we have adjusted for these factors, by

- Eliminating the write off;
- Replacing the actual holding gain with an assessment of a more representative holding gain, based on the underlying rate of inflation; and
- Removing other one-off items and making certain other changes to the accounts to ensure consistency with the approach adopted previously by Ofcom, including

[15] http://www.ofcom.org.uk/consult/condocs/copper/value2/statement/statement.pdf

[16] For the purpose of setting charge controls, we use an adjusted CCA value for BT's copper assets. As explained in the statement on valuing copper access, the regulatory asset value ("RAV") for assets acquired before August 1997 is based on the closing historical cost accounting value, increased each year by the Retail Price Index to ensure it is not eroded by inflation. Over time the RAV adjustment will gradually disappear as the pre-1997 assets are replaced.

the approach to asset valuation as set out in the statement on valuing copper access.

4.18 On this basis, we estimate that the normalised rate of return made by Openreach in the year to March 2007 was around 13%, measured on a CCA basis. Assuming our adjustments are broadly correct, and assuming similar CCA versus HCA differences for 2007/08, we would conclude that, overall, Openreach's returns, measured on a CCA basis, have exceeded the estimated cost of capital (ie 10%) over the past two years.

Returns across the Core Rental Services on a current cost basis

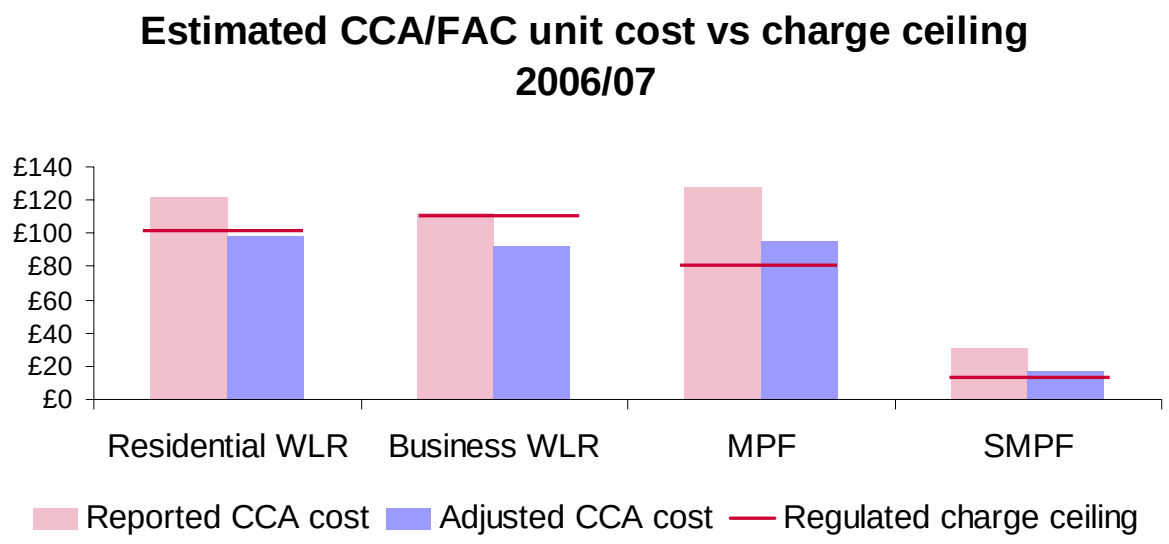
4.19 Openreach has also provided us with an assessment of the returns made on the individual Core Rental Services (WLR, MPF and SMPF). Based on this analysis, we estimate that aggregate CCA/FAC returns on the Core Rental Services were around 12% in 2006/07; ie slightly less than for Openreach as a whole.

4.20 BT's has also provided estimates of unit costs for each of the core services. We understand the costs presented by BT to be based on cost attribution methods that are consistent with those adopted in BT's regulatory accounts, and set out in the supporting "accounting documents". At this stage we have not yet undertaken a detailed review of the appropriateness of these attribution methods, or considered potential alternatives.

4.21 However, figure 4.3 compares the current charge ceilings for each of the Core Services to two different estimates of unit costs:

- The CCA Fully Allocated Cost (FAC) unit cost of providing each service, as reported in the 2007 current cost financial statements; and
- The CCA FAC unit cost of providing each service, as reported in the 2007 current cost financial statements, adjusted on a similar basis to that described above for the overall returns, and taking account of additional analysis provided to Ofcom by BT.

Figure 4.3



Source: 2007 Current Cost Financial Statements and BT

4.22 The data in Figure 4.3 suggest that in the year to 31 March 2007, the charge ceilings on the WLR services were in excess of their normalised FAC but were below the normalised FAC for the MPF and SMPF rentals. This is not sufficient, however, to allow us to conclude that the charges for MPF services are currently too low. As we note in Section 6, the international benchmarking data for MPF services across Europe would seem to suggest that the relevant charges in the UK are either at, or above, the level of the European average. If correct, this would suggest the need to examine Openreach's efficiency levels - or possibly, costing methodologies - relative to those of other European operators, Equally, Fully Allocated Cost is not the only, or necessarily most appropriate, cost measure to employ when setting efficient charge control regimes. We consider these issues in further detail in Section 6.

Summary

4.23 The evidence on Openreach's financial performance indicates that overall financial returns (measured on a CCA basis) have exceeded Openreach's cost of capital over the past two years. The HCA evidence also suggests that returns have declined somewhat as MPF has grown in importance in the service mix. The Fully Allocated Cost data also suggests that only WLR currently covers its fully allocated cost. It is also probably reasonable to conclude from this data that WLR makes a more substantial contribution towards fixed and common costs (in percentage terms) than either MPF or SMPF.

4.24 In light of these considerations, and given the expected continued shift from WLR to MPF services, we accept that there is a need to consider whether the current charge control regime needs to be modified to ensure that it continues to promote efficient and sustainable competition. However, before reaching definitive conclusions on these issues it will be appropriate to consider and assess a variety of factors which are likely to have a significant bearing on the eventual outcome of the review. These include Openreach's efficiency levels, costing approach and the basis on which charges should be set given the underlying cost data for the services in question. It will also be important to take account of the likely future course of demand for WLR and MPF as well as the potential impact of inflation on Openreach's costs. These factors are discussed in greater detail in Section 6, below.

Question 4.1: Do you accept that the evidence presented by BT on movement in costs provide a compelling case for a review of the price controls? Are the cost movements consistent with broader industry trends?

Section 5

Approach to charge determination

Introduction

5.1 Sections 3 and 4 provide the context for this review and illustrate why we consider it appropriate to review certain aspects of the current pricing framework for Openreach.

5.2 This section sets out our proposed approach to the review.

Approach to the review

5.3 As explained in Section 2, we consider that the objectives for the new Pricing Framework for Openreach should be to:

- Promote efficient, sustainable competition in the delivery of both broadband and traditional voice services;
- Prevent excessive charging and the abuse of SMP by Openreach;
- Provide regulatory certainty for both Openreach and its customers; and
- Ensure that the delivery of the regulated services is sustainable, in that the prevailing prices provide Openreach with the opportunity to recover all of its relevant costs (where efficiently incurred), including the cost of capital.

5.4 A new pricing framework therefore needs to take account of:

- Openreach's costs, overall and for the specific services subject to the charge controls; and
- The impact of price changes on demand, competition and the evolution of the market.

5.5 The creation of Openreach has provided a level of cost transparency which was not available when the current regime was established. To understand costs and cost drivers, we will:

- Analyse and, where relevant, benchmark Openreach's cost structure and efficiency levels and assess aspects of Openreach's service costing methodology;
- Develop cost projections for Openreach – overall and at the level of individual services;
- Consider how price controls for the regulated SMP services should be determined given the overall, and service specific, cost projections for Openreach; and
- Consider if and how the contribution made by other services to the total cost base should be taken into account.

5.6 This will require detailed cost and economic modelling similar to that employed to set price controls in the past. It will also require a decision on the appropriate scope of the review.

5.7 This modelling is underway and the conclusions will be set out in the Second Consultation. The modelling will draw on a range of evidence, including that generated by Ofcom and received in response to this consultation. It will also take account of cost projections provided by Openreach, described in more detail in Section 6. We anticipate that our analysis will include an assessment of:

- Future volumes (and their impact on costs);
- The potential for efficiency gains;
- Potential adjustments to costs, such as those necessary to ensure regulatory consistency and the appropriate treatment of common and fixed costs;
- The share of BT group costs borne by Openreach;
- Asset depreciation determined on a current cost basis, as adjusted to reflect the Regulatory Asset Value; and
- Holding gains or losses on the value of those assets.

5.8 We will also need to determine the cost of capital relevant to the main existing Openreach business (as discussed in Section 6 and Annex 10).

5.9 Having established a clear view of costs for the Openreach business, it will be necessary to consider how the explicit price controls for regulated SMP services should be derived from this overall set of projections.

5.10 Financial and economic modelling will provide only part of the overall evidence to be taken into account in determining how the existing pricing framework should evolve. Other evidence, including, for example, international benchmarks data, the impact price changes might have on demand, competition, consumers and future investment decisions must also be taken into account. This is considered in more detail in Section 6.

Section 6

Review of the evidence

Introduction

6.1 As explained in Section 4, BT has provided evidence that MPF and WLR prices are unbalanced with respect to costs. Looking ahead, cost inflation may move the charges further out of balance with the underlying costs, save to the extent to which these can be offset by efficiency gains. Given that MPF largely substitutes for WLR, the potential disparity between costs and prices may distort incentives for both BT and other Communication Providers and drive inefficient market outcomes. The sustainability of the current charge controls may also come under pressure if there is continuing significant migration towards MPF based services given that MPF appears to make a lower contribution to fixed and common costs than WLR. Against this background it is appropriate to consider whether there is a case for adjusting the existing charge controls and, if so, how.

6.2 This section considers the evidence as follows:

- BT's cost and volume forecasts;
- Our views on these forecasts;
- Other factors that should be taken into account in reviewing the appropriateness of the existing charge controls;

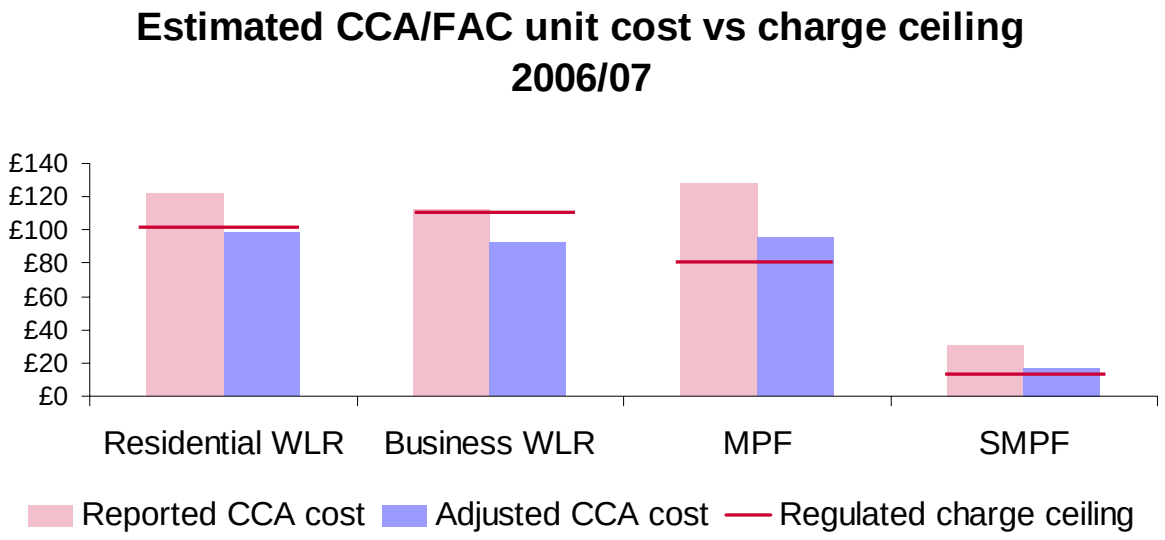
Openreach's cost and volume forecasts

Openreach's forecasts of unit costs

6.3 At our request, Openreach has provided projections of service unit costs for the period to March 2012. The detailed projections are shown in Annex 7. Key extracts are summarised below.

6.4 The unit costs provided by Openreach are calculated on a fully allocated current cost (CCA FAC) basis, and include a 10% return on capital employed. The projections assume general inflation of 3% on non-pay costs and 4% on pay costs. These projections, therefore, provide an indication of Openreach's view on how the unit costs set out previously in Section 4 (and reproduced below in Figure 6.1) will evolve over time.

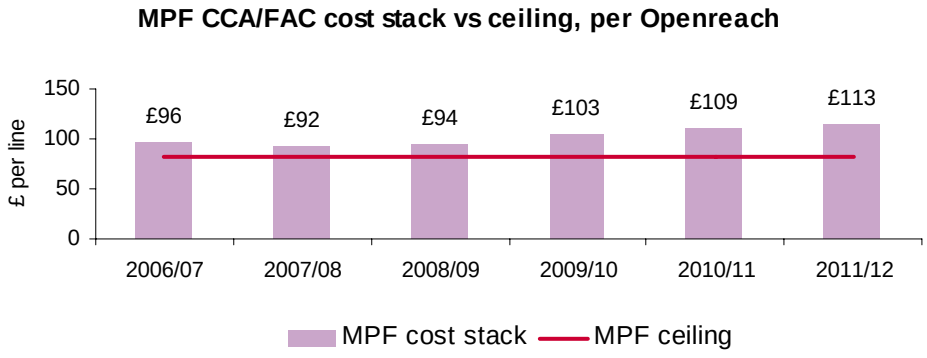
Figure 6.1

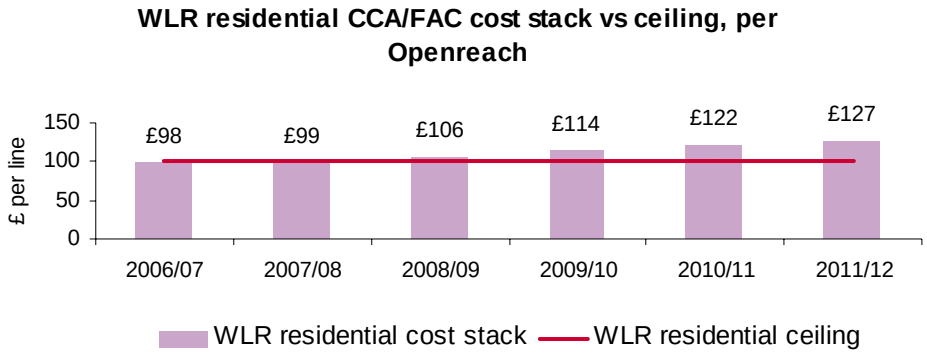


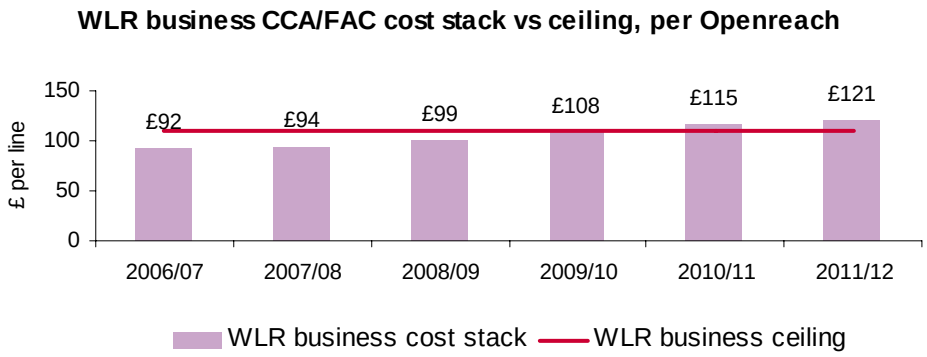
Source: 2007 Current Cost Financial Statements and BT

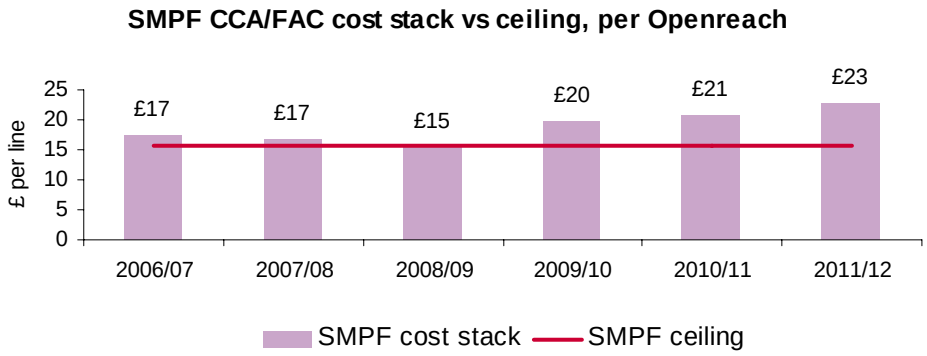
6.5 Openreach's projections for the future (FAC) unit costs of providing the Core Rental Services are set out below in Figure 6.2.

Figure 6.2









Source: BT

6.6 As illustrated above, Openreach estimates that, by 2011/12, the cost of providing an MPF line will have increased from about £92 in 2007/08 to about £113 in 2011/12. These figures compare with the current charge ceiling of £81.69. Thus, if the current ceiling was to be adjusted to cover Openreach's estimate of the unit cost of £113 per line in 2011/12, it would need to increase by £31.

6.7 In simple terms, this increase consists of the apparent current difference £10 between the charge ceiling and current costs, and £21 of forecast cost inflation over the four year period to 2012. The cost inflation includes both "normal" inflation and an additional element of cost inflation due in part to the unwinding of earlier regulatory adjustments, as described below.

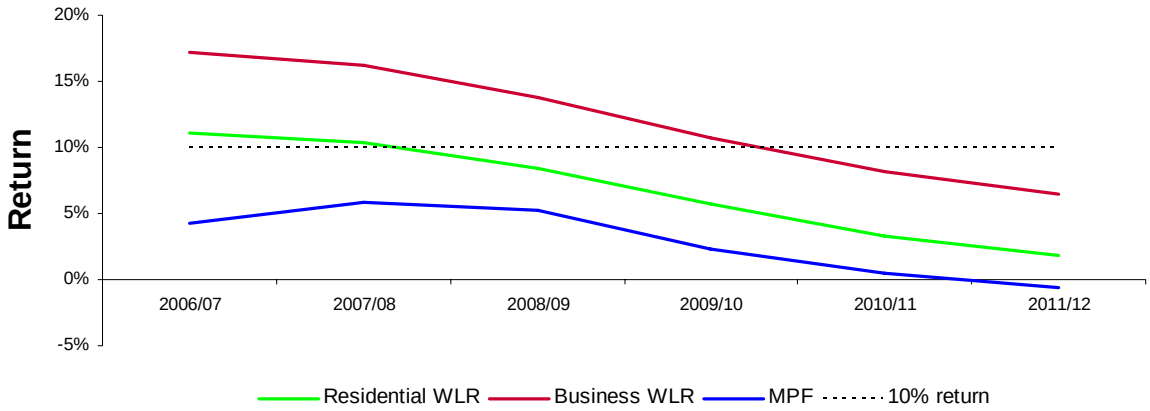
6.8 Similarly, Openreach estimates that the cost of providing a residential WLR line will have increase from about £100 in 2007/08 to approximately £127 by 2011/12. These figures compare with the current charge ceiling of £100.68.Therefore, if the current

ceiling was adjusted to cover Openreach's estimate of the cost of £127 per line in 2011/12, it would need to increase by £26. This difference consists of £27 of forecast cost inflation to 2011/12, less the £1 of apparent difference in today's price relative to the costs. The cost inflation includes "normal" inflation, a further element due to the unwinding of earlier regulatory adjustments, and other changes such as the inclusion of the costs of 21CN line cards as components in the WLR cost base.

6.9 The graph below summarises the returns on the MPF and WLR Residential and Business Services, as indicated by Openreach's estimates. Given the relatively small asset base associated with the SMPF, returns for that service have been excluded from the graph.

Figure 6.3

Estimated CCA returns for Core Rental Services assuming current prices



6.10 As will be clear from Figure 6.3, Openreach estimates that the returns on the core services will fall steadily over this period if the regulated charge ceilings remain at their current levels.

6.11 Openreach's analysis also suggests the need for bigger price rises on MPF rentals than on WLR rentals. Under the current ceilings, the residential WLR rental charge is £18 higher than the MPF rental charge; Openreach's analysis indicates that the differential by 2011/12 may need to fall to £14.

6.12 Similar unit cost and aggregate cost analysis is set out in Annex 7 for WLR business rentals, SMPF rentals and certain other Openreach services.

Openreach's forecasts of aggregate returns

6.13 To understand the context in which these unit cost forecasts have been prepared, we have also set out below the estimated CCA returns which have been provided to us by Openreach. Two summary schedules are shown. The first illustrates the projections for Openreach as a whole (Figure 6.4). The second illustrates the estimated returns for the Core Rental Services – WLR, MPF and SMPF (Figure 6.5).

6.14 Openreach's forecasts suggest that the overall business will continue to earn in excess of a 10% return at least into this financial year. However, the rate of return is estimated to fall to below 10% if prices remain at current levels, potentially reaching

4.5% by 2011/12. The returns on the Core Rental Services are estimated to decline more rapidly, from 11.3% in 2007/08 to less than 1% by 2011/12.

Figure 6.4 Openreach overall estimated CCA returns assuming current prices[17]

	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
Revenue (£'m)	5,143	5,193	5,147	4,984	4,866	4,649
Mean Capital Employed (£'m)	9,088	9,491	9,924	10,279	10,535	10,717
ROCE	13.5%	13.0%	11.6%	8.6%	6.6%	4.5%

Source: BT

Figure 6.5 Openreach estimated CCA Returns on Core Rental Services assuming current prices[14]

	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
Revenue (£'m)	2,671	2,686	2,682	2,519	2,452	2,343
Mean Capital Employed (£'m)	6,674	7,007	7,315	7,590	7,764	7,867
ROCE	12.0%	11.3%	9.4%	5.3%	2.7%	0.8%

Source: BT

6.15 The drivers behind the trends in the aggregate Openreach forecasts can be summarised as follows:

- The regulated rental charge controls are assumed to remain fixed in nominal terms;
- The aggregate number of lines in service is expect to reduce slightly;
- The mix of services is expected to change, with a significant shift from WLR to MPF (as noted earlier, MPF appears to make a lower contribution to fixed and common costs than WLR);
- The costs of providing and maintaining all services are subject to inflation;
- The application of previous regulatory cost adjustments adds further inflationary pressure (this is discussed below); and
- Future efficiency gains will offset some of the upward pressure on costs but will not do so completely.

6.16 If we were to accept the Openreach forecasts, and set prices so as to achieve full cost recovery by 2012, we estimate that, overall, the Core Rental prices would need to increase by more than 4% above the rate of inflation for four years: expressed as a 'price cap' this would imply average annual increases in the order of RPI+4% across the regulated services overall..

[17] The announced increase in the MPF rental charge would increase revenues by around £20 million in 2011/12. The above data do not recognise this increase.

Ofcom's views on BT's forecasts

6.17 We are of the view that operators using the network should act on the basis of input prices that are efficient and sustainable. Thus, if the evidence provided by Openreach – and set out above – is robust, and the forecasts represent the efficient costs of delivering these services, there is then a case for considering increases to the current regulated charge ceilings. A key consideration for this review is, therefore, the extent to which Openreach's view on unit, and aggregate, cost trends is well founded and represents the efficient provision of services.

6.18 Before setting out our initial views on the forecasts provided by Openreach, it is appropriate to consider BT's unit cost forecasts with other evidence in this area.

6.19 Set out below - in Figures 6.6 and 6.7 - are comparisons of the prices of unbundled copper access services across Europe. These are based on data published by the European Commission and compare, firstly, the basic monthly rental tariff that prevails in each country. As the first chart illustrates, Openreach's tariff for MPF rental is close to the European average, but in the upper half of the range. Openreach's tariff sits in the middle of the range of charges for the "Big 5" European nations.

6.20 The second chart (Figure 6.7) illustrates a more complex comparison. This attempts to compare the average monthly cost of connecting to, and renting, an unbundled service for three years. This chart indicates that Openreach's charges are significantly higher than the average and lie towards the upper end of the range.

Figure 6.6

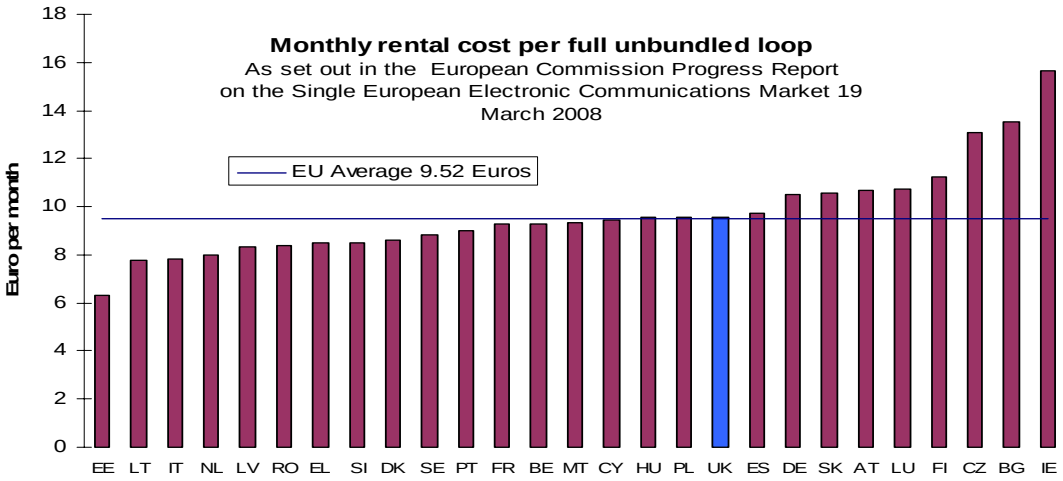
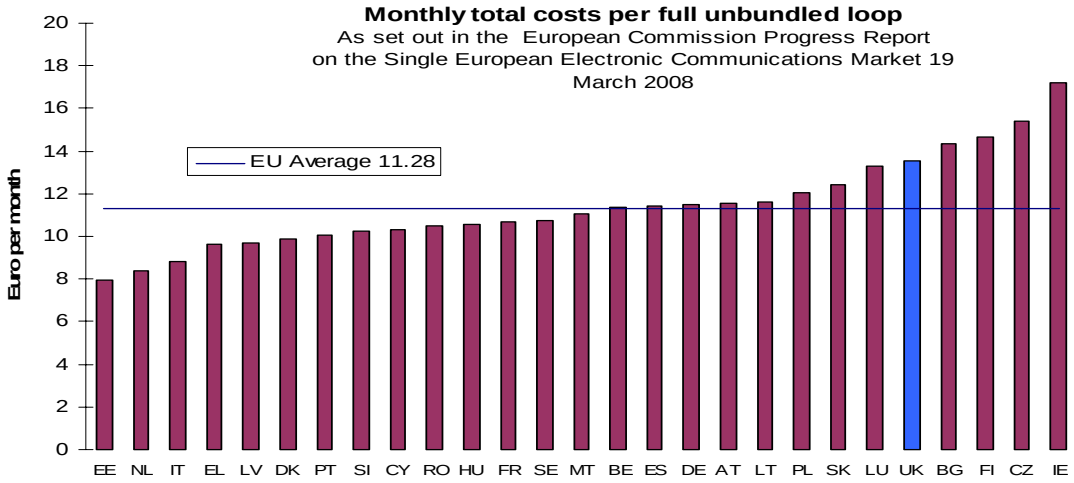


Figure 6.7



6.21 It is difficult to draw clear and detailed conclusions from such comparisons. For example, the complexities of comparing tariffs that are structured differently and denominated in different currencies are widely understood. Moreover, there are obvious differences in the operating conditions (eg population density) for operators in different countries which cannot readily be taken into account in simple tariff comparisons.

6.22 However, this evidence is of clear relevance to the review and somewhat contradicts the cost evidence set out by BT. The benchmarking data would suggest that other regulators (and operators) have agreed tariffs for LLU services that may be significantly below the costs indicated in the Openreach forecasts. Given that other European regulators are operating within the same regulatory framework and have a similar obligation to provide access at "cost oriented" tariffs, this evidence would appear to suggest that the costs indicated by BT may be in excess of other regulators' estimates of efficiently incurred costs.

6.23 We will be conducting a full analysis of the evidence set out above and looking further into the international tariff and cost benchmarking evidence as a part of this review.

Question 6.1: What weight would you give to international benchmarks in comparing LLU prices? What other factors should we take into account in considering the comparison of prices?

Ofcom's review of the evidence on costs

Aggregate cost forecasts

6.24 In respect of the aggregate cost projections provided by Openreach, we consider that these have been prepared following a logical, documented and transparent approach. We set out the basis for this initial view in Annex 7.

6.25 However, we do not necessarily accept all of the underlying assumptions incorporated in the Openreach cost projections. Among those which will need to be considered in detail in the course of this review are:

- The scope of the services that should be encompassed by the review (Annex 7).
- The appropriate treatment of relevant costs (Annex 7);
- The Regulatory Asset Value (Annex 7);
- The appropriate Cost of Capital (Annex 7 and 10); and
- The potential for efficiency gains (Annex 8);
- Future demand for services (Annex 9).

6.26 To inform our assessment of the financial evidence, we seek the views of Stakeholders on the appropriate assumptions to be taken into account in our review of Openreach's prospective costs. These assumptions are, therefore, considered individually, and our current views on each set out in the Annexes as indicated above.

6.27 Key assumptions used by Openreach in their projections are summarised in the table below.

Parameter	BT Assumption
Inflation: Pay costs	4% p.a.
Inflation: Non-pay costs	3% p.a. (with some exceptions)
Annual efficiency gains: Pay	1% p.a.
Annual efficiency gains: Non-pay	1% p.a.
Annual efficiency gains: other	0% -1% p.a.
Cost of Capital	10%
Volumes	Per Annex 10

6.28 Our current view is that Openreach has adopted a set of assumptions that are likely to overstate the magnitude of cost increases. A detailed consideration of the assumptions and underlying data are set out in the Annexes 7–10. A summary of our initial views on the impact of alternative assumptions is set out below:

- **The potential for efficiency gains:** Openreach assumes that efficiency gains will be delivered at a rate of 1% per annum. This would appear to be conservative and, indeed, the data in Openreach's own projections would seem to suggest that efficiency improvements in the recent past have been more significant that is anticipated in the future. We estimate that efficiency gains of between 1% and 4% a year could be achievable. This would have a significant impact on the outcome and could, for example, reduce costs by up to £150 million per annum by the end of the period;
- **Scope:** The contribution to costs made by Cost Oriented and other SMP Services cannot be ignored. We estimate, for example, that these services could contribute up to £100 million (per annum by the end of the period) to Openreach's common costs in excess of those required to allow Openreach to meet its cost of capital. To the extent this is allowed for in setting the charge controls for the

regulated rental services, it will reduce the contribution required from those services and thus moderate the need for price increases;

- **Relevant costs:** At this stage, our best estimate is that the adjustments required to ensure consistency with previous regulatory approaches, and appropriate cost recovery, would reduce the projected costs of the rental services by between £100 million and £150 million (per annum by the end of the period) compared to Openreach's projections; again, this would have a material impact on the scale of any projected price increases ; and

- **The cost of capital:** Openreach's projections assume a cost of capital of 10% which is consistent with Ofcom's estimate at the time of the previous review. Employing the same methodology, the cost of capital might now be in the range 9-10%. An estimate at the lower end of this range would reduce total annual costs by up to £70 million by 2011/12.

6.29 The **Future Demand for Services** - both the overall level of demand and the mix between the different wholesale access services – will have an important impact on our analysis. The forecasts used for the purpose of determining the final level of charges under this review will be informed by responses to this consultation and further research by us. Openreach's current projections imply that there will be a major shift in the relative balance of WLR v MPF v SMPF over the next few years: WLR lines, for example, are projected to fall from around 17.7 million in 2007/08 to 11.6 million by 2011/12; MPF lines are projected to increase from 1.1 million lines to 10.6 million lines over the same period. Such a substantial shift in underlying volumes reinforces the need to ensure that the balance of the respective wholesale charges is efficient and promotes the right choices by Communications Providers and consumers. We will, therefore, particularly welcome stakeholders' views on the future demand for services, including perspectives on Openreach's projections, alternative scenarios and views on those factors that are most likely to influence the future trend in demand for wholesale access services.

6.30 It would be premature to anticipate the net impact of alternative assumptions and related potential adjustments on the outcome of the review as they remain to be tested against the evidence. They will also be informed by the current consultation process. However, it is also clear that alternative assumptions to those proposed by BT may have a very significant bearing on the case for and size of any adjustments to the current charge ceilings.

Question 6.2: Our initial analysis on the potential for efficiency gains is set out in Annex 8. Please provide your views on the appropriate efficiency projections that should be assumed for Openreach over the period, given the evidence collected so far and your own experience in this sector. Please provide any additional evidence that may be relevant in assessing these projections.

Question 6.3: In Annex 7 we discuss the options with respect to the scope of services to be included within this review. Please provide your views on the appropriate scope for consideration within this review and the appropriate treatment of non core services.

Question 6.4: Should we consider greater or lesser use of price controls for SMP non-core services? How should price controls deal with this in terms of charge controls and recovery of common costs?

Question 6.5: To what extent should we incorporate the revenues and contributions to costs from non-SMP services in the review?

Question 6.6: Please review the other cost assumptions set out in Annex 7. What are your views on the assumptions made and adjustments proposed?

Question 6.7: Please review the volume assumptions set out in Annex 9. What are your views on future MPF and WLR growth? What factors are likely to be most important in determining the future level balance of demand for wholesale access services?

Question 6.8: Is it appropriate to update our assessment of Openreach's cost of capital? If so, what are your views on the key parameters that should inform that review and what account should be taken on the current uncertainties in corporate and global financial markets? To what extent should we take account of the implications of (and for) new infrastructure investment?

Service unit cost forecasts

6.31 We have not, as yet, undertaken detailed analysis of Openreach's unit cost projections for individual services. We understand these to have been prepared according to the cost apportionment and allocation principles as set out in BT's regulatory accounting documents.

6.32 As part of this consultation – and as set out earlier - Ofcom intends to review the basis on which costs are attributed to services. The purpose of this review is to ensure that the attribution of costs – including the fixed and common costs of running the Openreach network – is based on methods which reflect cost causation and create appropriate incentives for efficiency. Based on the current cost financial statements, we estimate that the common costs of the access network account for over 30% of the total and the appropriate treatment and recovery of these costs will therefore be an important element in this review.

6.33 A review of cost attribution methods can be undertaken now more readily than was the case at the time of the previous charge control review. The transparency of financial information available on Openreach represents a significant enhancement on the information previously available through the regulatory financial statements. Moreover, the growth in MPF and SMPF lines, coupled with the implementation of equivalence lends greater credibility to the information now reported.

6.34 As explained in the TSR, telecoms regulation aims to mimic a fully competitive market in achieving the three forms of economic efficiency, as described below:

- 'Allocative efficiency' is achieved when prices are close to cost. This ensures that all consumers who value a product at more than its cost are able to purchase it;
- 'Productive efficiency' means that the costs of production are minimised; and

- 'Dynamic efficiency' means that firms have the correct incentives to invest (e.g. in new infrastructure) and to innovate (e.g. to generate new products). Greater reliability and other quality improvements, and the creation of new products and services, are critically-linked to investment and innovation.

6.35 However, regulation typically involves trade-offs between the three. Importantly these considerations must be borne in mind in the review of unit costs and cost attribution methods – which should drive efficient behaviours.

Question 6.9: In the context of the current markets for WLR and LLU what do you consider to be the key challenges for ensuring allocative, productive and dynamic efficiency in the context of the revision of charges?

Other considerations

6.36 Prior to the creation of Openreach, it was not possible to predict the implications of the Undertakings on the broadband access market and there was only limited evidence on the likely impact on the market of the new MPF and WLR prices. In the absence of other evidence, the charges were informed to a significant extent by cost information. Two year on, we have significantly better and broader evidence on the impact of the revised charging regime. Therefore, while unit cost data continues to provide a critical and important source of information, it needs to be evaluated alongside other evidence when considering how best to determine charges.

6.37 In section 2 of this document we set out some of key indicators of performance in the broadband market. In our view, this market is performing well and delivering substantial benefits for consumers. The creation of Openreach, and the associated Undertakings and charge controls, have helped transform infrastructure-based competition. Broadband prices have fallen, headline connection speeds have increased and the choice of services has expanded. Over 80% of the UK population has a choice of at least two network providers; around 60% of the UK population now has a choice of four or more.

6.38 At this point, it is appropriate to consider how any changes to prices may affect this position. We consider that these market developments, and how such developments may be affected by the pricing regime, should be taken into account in weighing up the case for changes in the prices of the regulated access services.

6.39 A key objective for this first stage of the first consultation is, therefore, to seek Stakeholder views on the impact that price changes would have - in particular regarding changes to the MPF rental charge.

Impact on LLU operators

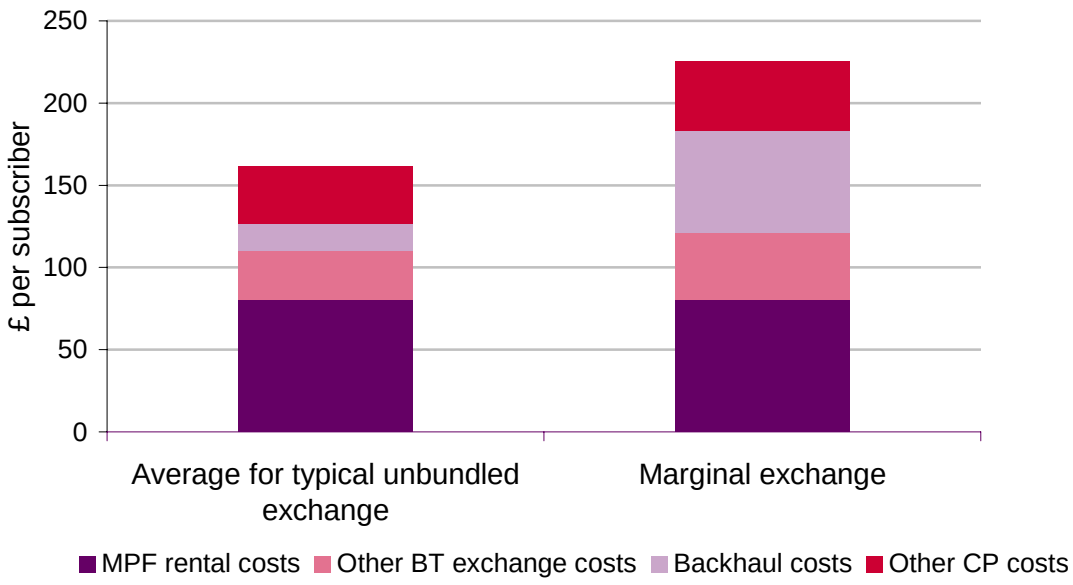
6.40 Any increase in the price of wholesale services will increase costs for Communication Providers. The extent to which any increase may impact on profitability will depend on a number of factors. These include the extent to which any cost increases will be passed through to consumers. This may depend on the extent of competition from providers who do not use BT's inputs (especially from cable operators) and also consumers' willingness to pay higher prices. The impact may vary between Communication Providers depending on the balance of services used and the relative prices of different services.

6.41 Our broad understanding of the costs for an MPF operator is set out in Figure 6.8. This shows the main groups of cost inputs for providing MPF based services per subscriber (excluding the cost of calls). This is set out in more detail in Annex 5.

6.42 The precise importance of MPF in the overall cost structure depends on the size of the exchange. As illustrated in the Figure 6.8 below, MPF rental charges represent only around half of the cost of service provision per customer. A significant proportion of the cost base is fixed. Larger exchanges, therefore, offer the prospect of greater economies of scale by enabling fixed costs to be recovered from a larger number of customers and services, and operators may only require a relatively low share of the potential market in order to recover their total costs. This is reflected in Communication Providers' roll-out programmes to date, with the focus being on the larger exchanges.

6.43 The data shown in Figure 6.8 are based on our own model for LLU. The data illustrates that, due to economies of scale, there is a significant variation in the cost per line between larger exchanges, with high subscriber numbers and more 'marginal' exchanges. The MPF rental represents a greater proportion of the cost stack for the average exchange than for the marginal exchange.

Figure 6.8: Illustrative cost per subscriber for MPF



6.44 *Source: Ofcom (Note other CP costs exclude retail costs)*

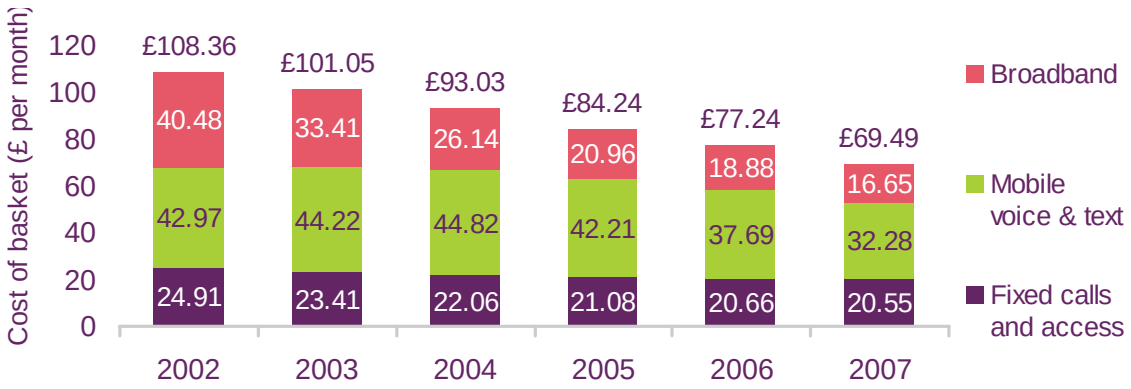
6.45 The net impact of any changes in MPF prices on the costs facing Communications Providers and on retail charges needs to be viewed in the context of other cost factors including, for example, backhaul charges. This suggests that the outcome of the Business Connectivity Market Review, which is considering backhaul and other private circuit markets, needs to be considered by Communications Providers in conjunction with this review. We anticipate that the Business Connectivity Market Review and the associated charge control review will have been completed prior to the conclusion of this review.

Question 6.10: How would price increases for MPF, SMP and WLR affect Communications Providers and the roll-out of LLU? How would this vary if the relative balance of WLR, MPF and SMPF prices were to change?

Impact on consumers

6.46 As set out in Section 3, increased wholesale access competition has supported substantial changes at the retail level. Specifically, headline broadband connections speeds have increased while prices have fallen and choice has widened.

Figure 6.9 Real cost of a basket of residential telecoms services



Source: Ofcom/ operators

6.47 In general, an increase in wholesale prices will tend to increase downstream retail prices. The extent to which this happens will depend on a number of factors, including the extent to which Communications Providers are prepared to absorb any increase in wholesale costs and competition from Communications Providers that do not use BT's exchanges (especially cable). Increases in retail prices are not necessarily contrary to consumer's interests if they ensure that operators invest in and maintain the network and that competition continues on a sustainable basis. The quality, and variety, of services that consumers receive may otherwise deteriorate.

6.48 There may be a more significant impact on any consumers who lose the benefits of competition from any reduction in the network coverage of LLU operators. These consumers could experience a reduction in choice. However, if it were not efficient to unbundle some exchanges, then it would ultimately not be in the interests of consumers as a whole for this to happen.

6.49 We have recently completed a market review of wholesale broadband access. Our November 2007 consultation on the wholesale broadband access markets[18] identified three markets in the UK outside of the Hull area. In one of these markets ('Market 3'), we found that BT does not have SMP and are now deregulating this market. Market 3 is defined as those geographic areas covered by exchanges where there are currently 4 or more of the 8 mass market operators (which include BT and Virgin Media), and exchanges where there are forecast to be 4 or more of these operators but where the exchange serves 10,000 or more premises.

[18] http://www.ofcom.org.uk/consult/condocs/wbamr07/wbamr07.pdf

6.50 Potentially, any changes in LLU charges could change the competitive conditions for some of the exchanges in Market 3. However, we think this is unlikely if any changes in LLU charges are not excessive. For exchanges that have already been unbundled, charge increases are less likely to have an impact in the short term because of the significance of sunk costs (although in the longer term they may influence the decision to replace existing equipment). Roll out to exchanges in Market 3 has largely occurred already, with all exchanges in Market 3 having being unbundled by at least one LLU operator. There are only a handful of exchanges that are classified as being in Market 3 because of forecast unbundling by more operators. Those exchanges are sufficiently large for it to be unlikely that variations in LLU charges would affect the viability of unbundling.

Question 6.11: How will price changes at the wholesale level impact on consumers, taking account of network roll out and the potential impact on retail prices?

Impact on Investment

6.51 In the UK and internationally, fixed telecoms operators, including BT, are now investing in new technologies that are capable of delivering new services, including higher bandwidths or greater bandwidth symmetry to end customers. These investments vary in terms of:

- 'Core' versus 'Access': that is, core network based (such as BT's 21 CN, next generation network) or access based such as the proposed new NGA networks;
- Technology: some operators are investing in fibre-to-the-cabinet, others in fibre-to-the-home in the local access network;
- Approach: some operators are building these new networks as overlays to existing copper access networks, while others are seeking to replace existing access networks entirely; and
- Location: few operators are looking to deploy NGA to all locations in the near term. Rather, they are looking to use a mix of technologies depending on the specific characteristics and economics of each location. This includes continued use of today's copper local loop.

6.52 Investment decisions are based on the commercial case for investment. In summary, the incentives to invest include:

- opportunities for new revenue streams;
- opportunities to reduce operating expenditure or ongoing maintenance or capital expenditure; or
- responding to a competitive threats.

6.53 However, while the majority of investment incentives relate to commercial factors, regulation does have a role to play in promoting efficient investment by:

- providing regulatory clarity on the environment that will apply to new investments and building trust in the regulatory framework; and

- ensuring that barriers to efficient investment in these new networks are minimised, including existing or future regulation.

6.54 In the context of this review we will aim to provide clarity and confidence in the regulatory framework to those considering investments, whether short or long term, by adopting an objective, transparent approach to determining the future charge controls for the regulated access services.

Question 6.12: What are the implications of a new pricing framework for incentives to new infrastructure investment by BT and other Communication Providers?

Summary

6.55 BT has provided evidence that the current, regulated prices for wholesale access services (WLR, MPF and SMPF) are out of balance with the underlying costs. They have also provided projections which suggest that the costs of these services will increase over the next few years, even after allowance is made for improvements in efficiency levels. The implications of these projections are that the charges for these services overall may need to rise and, potentially, that the price of MPF in particular may need to increase relative to the price of WLR.

6.56 As we set out in this document, we consider that Openreach may have adopted a conservative approach in projecting future costs. We also believe that there is a need to look at Openreach's current efficiency levels (given the evidence on comparative MPF price levels across Europe) and at a range of other cost related factors which will have a bearing on the need to raise prices overall, and on the appropriate balance of those prices – these include the scope of services which should be encompassed by the review, potential adjustments to the cost base, the cost of capital, and the appropriate method for recovering Openreach's fixed and common costs. Besides the evidence on costs we will also need to consider the impact of any changes on competition and on consumers, particularly bearing in the mind the benefits that the current regime has brought to consumers over the past 2 years in terms of new services, choice and reduced retail prices.

6.57 Our conclusions will be based on the evidence received, and the analysis we will undertake, during the course of the review. Nonetheless, the evidence we have reviewed to date suggests that there is likely to be a case for some increases in the charges for the regulated access services – prices fixed in nominal terms do not appear to be sustainable indefinitely. However, we do not currently believe that the increases need to be as significant as is implied by the projections provided by Openreach. We have not yet formed a view on the case for an increase in the price of MPF relative to WLR; however, the analysis of this issue will be a core element of the preparation for the next consultation.

Section 7

Performance and quality of service

Introduction

7.1 This section considers the recent actions we have undertaken to address concerns raised about Openreach performance and quality of service.

7.2 During the course of 2007, Ofcom was made aware of concerns over Openreach's performance levels and the adequacy and impact of the terms of compensation available to Openreach's customers. In response to these concerns, we conducted an 'own initiative' review of Openreach's contracts for WLR, LLU and Ethernet services. In particular, we reviewed the service level guarantees (SLGs) that set out Openreach's performance targets and the compensation payments made in the event of failure to meet those targets.

7.3 As a result of the review, we have directed a series of changes to the SLGs which, it is anticipated, will increase the incentive for Openreach to improve performance and improve the process through which Communications Providers receive compensation payments in the event of the SLGs not being met.

7.4 We currently propose to incorporate the changes to the SLGs into the future charge controls by allowing Openreach to recover compensation payments up to the level appropriate for a fully efficient operator (which is likely to be below the level of current and expected future compensation payments). This should further support the incentive effect of the changes.

7.5 In light of the recent charges to Openreach's SLG scheme, we do not intend to propose new incentive structures in this review. However, we will keep the new arrangements under review and will consider the need for supplementary measures in future should these arrangements fail to produce the desired results.

The Ofcom review of Openreach's SLGs

7.6 Communications Providers rely on Openreach to provide services to a high standard because they depend on these wholesale inputs to serve their end-users. If Openreach fails to provide a sufficient level of performance at the wholesale level this directly affects the ability of Communications Providers to meet their commitments to their end-users.

7.7 We agreed to review the SLG arrangements to assess whether they were providing Openreach with an appropriate financial incentive to provide appropriate levels of service quality. On 20 March 2008, we published the statement entitled *Service level guarantees: incentivising performance*[19] ("the SLG Statement"). The statement included three Directions which require Openreach to amend its SLGs, with the effect that from 25 June 2008:

- for **WLR**, Openreach will make proactive payments for each service failure such as late provision and late fault repair, with compensation at the current level of one month's line rental per day of delay;

[19] http://www.ofcom.org.uk/consult/condocs/slg/slg.pdf

- for **LLU**, Openreach will make proactive payments for each service failure such as late provision and late fault repair, with compensation at the current level of £8 per day of delay and £16 per day where a non-operational line is provided;

- for **Ethernet**, Openreach will make proactive payments (as currently) for each late provision at an increased level of one month's line rental per day of delay to bring it into line with WLR and LLU, and for each reported fault at an increased level of 15% of one month's line rental for each hour of downtime, to bring it into line with partial private circuit enhanced care; and

- for all the above products, Openreach will also modify caps and other unnecessary restrictions on compensation payments.

7.8 We consider that the new arrangements will provide Openreach with a stronger incentive to maintain an appropriate level of service quality given that the compensation arrangements are firmer and will be paid automatically in the event of service failure.

Review of new SLG arrangements

7.9 As set out in the SLG Statement, we plan to review the impact of the new SLGs once they have been in place for six months from the date of full implementation. Six months in itself may not be sufficient time for Openreach to change working practices or improve systems to be able to better handle fault reports and provision requests. However, It was considered sufficient to determine whether the process problems previously faced by Communications Providers have been resolved.

7.10 If, after reviewing Openreach's performance and the working of the SLG process, we consider that the changes required by the final directions have not provided sufficient incentive for Openreach to improve quality of service, we will consider what further action, if any, is appropriate. This could include modification to the SLGs through increasing the compensation payments paid by Openreach; and/or tightening or modifying the targets in the SLGs.

Incorporation of the revised SLGs into the pricing framework

7.11 It is reasonable for Openreach to expect to recover the cost of meeting SLG payments to the extent that such costs would be incurred by an efficient operator. The basis for this is that an efficient operator is unlikely to set its resource input levels such that performance is faultless at all times and, thus, would expect to make some compensation payments. These can be regarded as a cost of doing business just like any other cost. For Openreach to be able to recover these costs, we need to include them explicitly in the charge control calculations.

7.12 At this stage, we do not propose to allow Openreach to recover compensation payments based on its current service performance. Instead, we have made an initial calculation of what we would propose this allowance to be, which is set out in Annex 7.

Question 7.1: Do you agree that it is appropriate to include an allowance for compensation payments in Openreach's cost base for the purposes of determining Openreach's service costs? If so, what level would you consider consistent with the level likely to be incurred by an efficient operator?

Section 8

Structure of the new framework

Introduction

8.1 This section considers in general terms the possible structures of the new framework and implementation issues. Specifically this section considers:

- the possible design of the new controls for the core services and non-core regulated services;
- duration of controls and the impact of volume changes; and
- the regulation of new services.

Design of new controls

8.2 The current controls on the main LLU and WLR Services (The Core Services) are in the form of a specific price ceiling for each service, fixed in nominal terms.Fixed price ceilings do not allow for changes in the underlying cost of providing the services. As illustrated in Section 4, it appears that the cost of providing the Core Services may increase to an extent that cannot be offset by efficiency gains. In such circumstances, prices fixed in nominal terms will increasingly convey the wrong information to Communications Providers, from an efficiency perspective, and will become increasingly unsustainable.

8.3 There are, therefore, advantages to price controls that take account of anticipated movements in the costs of providing the underlying services. Traditionally, these types of controls have taken the form of an inflator linked to RPI (an “RPI- X” adjustment), applied to a starting charge over a number of years. The starting charge may be, but is not necessarily, the current charge level (depending on whether the current charge is considered to the appropriate starting point for the charge control). Besides providing certainty on the future level of charges, RPI-X controls also provide an incentive to the regulated company to improve efficiency once the charge control has been set.

8.4 Subject to the full analysis of costs, including consideration of whether RPI, rather than, say, CPI, is the appropriate index, we intend to propose this structure for the new controls.

Question 8.1: Do price controls in the form of an RPI-X adjustment provide an appropriate basis for setting charges? If not, what alternative would you propose and why would this provide a more suitable basis? To the extent that adjustments in the current charge controls are required, should those adjustments be implemented immediately or spread over the term of the control?

8.5 The current controls apply to the individual access services. In some instances it is desirable to designate controls over a basket services with the provider of those services (in this instance, Openreach) having the flexibility to vary the prices of individual services, provided that price changes overall are consistent with the aggregate price control. This potentially has the advantage of providing the the service provider (Openreach) with the flexibility to respond to market requirements.

On the other hand, in this case, it would mean Communications Providers having less certainty on the potential balance of the charges for the different access services. We would therefore welcome views on whether we should continue with the current approach or whether it would be appropriate to apply a charge control over a wider basket of services.

Question 8.2: Should charge controls continue to be set separately for each of the individual services (WLR, MPF and SMPF) or would it be more appropriate to set an aggregate control covering some or all of these services?

8.6 In the event that this consultation concludes that it is appropriate to introduce charge controls for the non core services, these might be implemented in one of several ways, including:

- Individual charge ceilings. This would include a potential restatement of the starting price (ie a potential step change in the charge for the service at the beginning of the control);
- controls over baskets of services allowing variations of charge movements within the baskets;
- a blanket overarching control on price increases from the existing charge level; or
- a combination of the above.

Question 8.3: Do you have any views on the appropriate structure of a control over all or any individual non-core service?

Duration of controls and impact of volume change

8.7 Charge control periods typically reflect a balance between the need for stability and the recognition that long term forecasts are inherently uncertain. A key advantage of a longer duration is that the incentives for the service provider to reduce costs are strong. However, with a longer duration, allocative efficiency can suffer, as prices can increasingly diverge from costs. Setting the duration of the price control typically involves striking a balance between these two forces. Typically, we have set charge controls for a period of 4 years, although this has varied depending on the specifics of individual markets.

8.8 Of particular concern for this review are the implications of substantial changes to the volumes of WLR and MPF, both in terms of relative movements from one to the other and in total numbers of Openreach lines. As noted in Section 6, the projections provided by BT (see Annex 9) indicate that the balance of WLR, MPF and SMPF volumes will change very significantly over the next 3-4 years. The relationship between volumes and the charge control is complicated by the fact that, while volumes are influenced by largely exogenous factors (such as competition from cable and mobile services, the move to NGN with its potential new services, and, in the slightly longer term, from NGA), it will also be influenced by the price ceilings set in this review.

8.9 In developing the pricing framework we will therefore consider how to deal with the uncertainties associated with the volume/demand outlook for MPF, WLR and SMPF. It may be appropriate, for example, to retain the flexibility to review the effectiveness

and impact of the price control in the light of changing external circumstances rather than to set charge controls for a lengthy period.

8.10 Options for the control period might, therefore, be in the form of one of the following:

- Fixed control period no review;
- Shorter control period (ie less than 4 years);
- A four year (or longer) control period but with an earlier review point;
- A four year or longer control but with a review trigger linked to specific factors, such as greater than anticipated changes to the service volumes.

8.11 We may also wish to consider whether adjustments to the controls in the event of substantial changes to volumes could be introduced without a review – perhaps through an automatic mechanism linked to volumes.

8.12 Our preference at this stage is for a four year control period with the potential for a review should volumes fall outside anticipated ranges.

8.13 The commencement date for the new controls will be dependent on the date of completion of this review and on our conclusions regarding the need for price adjustments. We will also be concerned to ensure the new charge control arrangements are administratively feasible.

Question 8.4: What are your views on the appropriate duration for a revised framework? Should Ofcom retain the flexibility to undertake a mid period review, and what do you consider should be the appropriate triggers for such as review?

Question 8.5: Do you consider that it would be appropriate to consider automatic mechanisms for modifying the charge controls in the event of substantial volume change? Do you have any specific views on the start date for the new charge control framework?

Future service offerings

8.14 Over time Openreach is likely to develop new services, either on its own initiative or in response to requests from customers. The new services are likely to range from those which are clearly directly related to existing SMP controlled services (such as further enhanced or business related service offerings for WLR) to those which would have no relationship to SMP services.

8.15 The appropriate approach to the regulation of a new service will depend on where on this spectrum the service sits. We consider that Openreach should not be discouraged from innovation in the provision of services across the spectrum. We are, therefore, minded to adopt an approach of limited intervention, provided Openreach is able to demonstrate that the provision of the new service is beneficial to its customers and does not unduly exploit an SMP position in the market.

Question 8.6: How should the Pricing Framework respond to new service offerings from Openreach? We would welcome examples of new services offerings which your would consider should be encouraged?

Question 8.7: How would you suggest Ofcom be involved, if at all, in an assessment of the charges for these services? Do you agree that Ofcom should only consider regulating the prices of these services where issues of SMP arise or distortions might occur in respect of the recovery of fixed and common costs (between SMP and non-SMP services)?

Annex 1

Responding to this Consultation

A1.1 Ofcom invites written views and comments on the issues raised in this document, to be made **by 5pm on 8 August 2008**.

A1.2 Ofcom strongly prefers to receive responses using the online web form at http://www.ofcom.org.uk/consult/condocs/openreach/howtorespond/form, as this helps us to process the responses quickly and efficiently. We would also be grateful if you could assist us by completing a response cover sheet (see Annex 3), to indicate whether or not there are confidentiality issues. This response coversheet is incorporated into the online web form questionnaire.

A1.3 For larger consultation responses - particularly those with supporting charts, tables or other data - please email markham.sivak@ofcom.org.uk attaching your response in Microsoft Word format, together with a consultation response coversheet.

A1.4 Responses may alternatively be posted or faxed to the address below, marked with the title of the consultation.

Markham Sivak
Floor 4
Competition Policy
Riverside House
2A Southwark Bridge Road
London SE1 9HA

Fax: 020 77834109

A1.5 Note that we do not need a hard copy in addition to an electronic version. Ofcom will acknowledge receipt of responses if they are submitted using the online web form but not otherwise.

A1.6 It would be helpful if your response could include direct answers to the questions asked in this document, which are listed together at Annex 4. It would also help if you can explain why you hold your views and how Ofcom's proposals would impact on you.

Further information

A1.7 If you want to discuss the issues and questions raised in this consultation, or need advice on the appropriate form of response, please contact Markham Sivak on 020 77834659.

Confidentiality

A1.8 We believe it is important for everyone interested in an issue to see the views expressed by consultation respondents. We will therefore usually publish all responses on our website, www.ofcom.org.uk, ideally on receipt. If you think your response should be kept confidential, can you please specify what part or whether all of your response should be kept confidential, and specify why. Please also place such parts in a separate annex.

A1.9 If someone asks us to keep part or all of a response confidential, we will treat this request seriously and will try to respect this. But sometimes we will need to publish all responses, including those that are marked as confidential, in order to meet legal obligations.

A1.10 Please also note that copyright and all other intellectual property in responses will be assumed to be licensed to Ofcom to use. Ofcom's approach on intellectual property rights is explained further on its website at http://www.ofcom.org.uk/about/accoun/disclaimer/

Next steps

A1.11 We will be conducting a second consultation later this year. Following the end of the second consultation period, Ofcom intends to publish a statement before the end of 2008.

A1.12 Please note that you can register to receive free mail Updates alerting you to the publications of relevant Ofcom documents. For more details please see: http://www.ofcom.org.uk/static/subscribe/select_list.htm

Ofcom's consultation processes

A1.13 Ofcom seeks to ensure that responding to a consultation is easy as possible. For more information please see our consultation principles in Annex 2.

A1.14 If you have any comments or suggestions on how Ofcom conducts its consultations, please call our consultation helpdesk on 020 7981 3003 or e-mail us at consult@ofcom.org.uk . We would particularly welcome thoughts on how Ofcom could more effectively seek the views of those groups or individuals, such as small businesses or particular types of residential consumers, who are less likely to give their opinions through a formal consultation.

A1.15 If you would like to discuss these issues or Ofcom's consultation processes more generally you can alternatively contact Vicki Nash, Director Scotland, who is Ofcom's consultation champion:

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Annex 2

Ofcom's consultation principles

A2.1 Ofcom has published the following seven principles that it will follow for each public written consultation:

Before the consultation

A2.2 Where possible, we will hold informal talks with people and organisations before announcing a big consultation to find out whether we are thinking in the right direction. If we do not have enough time to do this, we will hold an open meeting to explain our proposals shortly after announcing the consultation.

During the consultation

A2.3 We will be clear about who we are consulting, why, on what questions and for how long.

A2.4 We will make the consultation document as short and simple as possible with a summary of no more than two pages. We will try to make it as easy as possible to give us a written response. If the consultation is complicated, we may provide a shortened Plain English Guide for smaller organisations or individuals who would otherwise not be able to spare the time to share their views.

A2.5 We will consult for up to 10 weeks depending on the potential impact of our proposals.

A2.6 A person within Ofcom will be in charge of making sure we follow our own guidelines and reach out to the largest number of people and organisations interested in the outcome of our decisions. Ofcom's 'Consultation Champion' will also be the main person to contact with views on the way we run our consultations.

A2.7 If we are not able to follow one of these principles, we will explain why.

After the consultation

A2.8 We think it is important for everyone interested in an issue to see the views of others during a consultation. We would usually publish all the responses we have received on our website. In our statement, we will give reasons for our decisions and will give an account of how the views of those concerned helped shape those decisions.

Annex 3

Consultation response cover sheet

A3.1 In the interests of transparency and good regulatory practice, we will publish all consultation responses in full on our website, www.ofcom.org.uk.

A3.2 We have produced a coversheet for responses (see below) and would be very grateful if you could send one with your response (this is incorporated into the online web form if you respond in this way). This will speed up our processing of responses, and help to maintain confidentiality where appropriate.

A3.3 The quality of consultation can be enhanced by publishing responses before the consultation period closes. In particular, this can help those individuals and organisations with limited resources or familiarity with the issues to respond in a more informed way. Therefore Ofcom would encourage respondents to complete their coversheet in a way that allows Ofcom to publish their responses upon receipt, rather than waiting until the consultation period has ended.

A3.4 We strongly prefer to receive responses via the online web form which incorporates the coversheet. If you are responding via email, post or fax you can download an electronic copy of this coversheet in Word or RTF format from the 'Consultations' section of our website at www.ofcom.org.uk/consult/.

A3.5 Please put any parts of your response you consider should be kept confidential in a separate annex to your response and include your reasons why this part of your response should not be published. This can include information such as your personal background and experience. If you want your name, address, other contact details, or job title to remain confidential, please provide them in your cover sheet only, so that we don't have to edit your response.

Cover sheet for response to an Ofcom consultation

BASIC DETAILS

Consultation title:

To (Ofcom contact):

Name of respondent:

Representing (self or organisation/s):

Address (if not received by email):

CONFIDENTIALITY

Please tick below what part of your response you consider is confidential, giving your reasons why

Nothing ☐

Whole response ☐

Part of the response ☐

Name/contact details/job title ☐

Organisation ☐

If there is no separate annex, which parts?

If you want part of your response, your name or your organisation not to be published, can Ofcom still publish a reference to the contents of your response (including, for any confidential parts, a general summary that does not disclose the specific information or enable you to be identified)?

DECLARATION

I confirm that the correspondence supplied with this cover sheet is a formal consultation response that Ofcom can publish. However, in supplying this response, I understand that Ofcom may need to publish all responses, including those which are marked as confidential, in order to meet legal obligations. If I have sent my response by email, Ofcom can disregard any standard e-mail text about not disclosing email contents and attachments.

Ofcom seeks to publish responses on receipt. If your response is non-confidential (in whole or in part), and you would prefer us to publish your response only once the consultation has ended, please tick here. ☐

Name

Signed (if hard copy)

Annex 4

Consultation questions

A4.1 The questions set out in this document are collated below.

Question 2.1: What do you consider to be the appropriate goals for a new Pricing Framework?

Question 2.2: To what extent do you think that the existing framework has supported the achievement of these goals, and when has it worked against them?

Question 3.1: What do you see as the key developments in the provision of access and line rental services since 2005 and how have these affected customers and consumers?

Question 3.2: Within the context of the overall package of changes instituted by the TSR, to what extent has the current pricing structure for LLU and WLR contributed to market developments and how sensitive do you believe future developments will be to changes in the pricing of those wholesale access services?

Question 4.1: Do you accept that the evidence presented by BT on movement in costs provide a compelling case for a review of the price controls? Are the cost movements consistent with broader industry trends?

Question 6.1: What weight would you give to international benchmarks in comparing LLU prices? What other factors should we take into account in considering the comparison of prices?

Question 6.2: Our initial analysis on the potential for efficiency gains is set out in Annex 8. Please provide your views on the appropriate efficiency projections that should be assumed for Openreach over the period, given the evidence collected so far and your own experience in this sector. Please provide any additional evidence that may be relevant in assessing these projections.

Question 6.3: In Annex 7 we discuss the options with respect to the scope of services to be included within this review. Please provide your views on the appropriate scope for consideration within this review and the appropriate treatment of non core services.

Question 6.4: Should we consider greater or lesser use of price controls for SMP non-core services? How should price controls deal with this in terms of charge controls and recovery of common costs?

Question 6.5: To what extent should we incorporate the revenues and contributions to costs from non-SMP services in the review?

Question 6.6: Please review the other cost assumptions set out in Annex 7. What are your views on the assumptions made and adjustments proposed?

Question 6.7: Please review the volume assumptions set out in Annex 9. What are your views on future MPF and WLR growth? What factors are likely to be most important in determining the future level balance of demand for wholesale access services?

Question 6.8: Is it appropriate to update our assessment of Openreach's cost of capital? If so, what are your views on the key parameters that should inform that review and what account should be taken on the current uncertainties in corporate and global financial markets? To what extent should we take account of the implications of (and for) new infrastructure investment?

Question 6.9: In the context of the current markets for WLR and LLU what do you consider to be the key challenges for ensuring allocative, productive and dynamic efficiency in the context of the revision of charges?

Question 6.10: How would price increases for MPF, SMP and WLR affect Communications Providers and the roll-out of LLU? How would this vary if the relative balance of WLR, MPF and SMPF prices were to change?

Question 6.11: How will price changes at the wholesale level impact on consumers, taking account of network roll out and the potential impact on retail prices?

Question 6.12: What are the implications of a new pricing framework for incentives to new infrastructure investment by BT and other Communication Providers?

Question 7.1: Do you agree that it is appropriate to include an allowance for compensation payments in Openreach's cost base for the purposes of determining Openreach's service costs? If so, what level would you consider consistent with the level likely to be incurred by an efficient operator?

Question 8.1: Do price controls in the form of an RPI-X adjustment provide an appropriate basis for setting charges? If not, what alternative would you propose and why would this provide a more suitable basis? To the extent that adjustments in the current charge controls are required, should those adjustments be implemented immediately or spread over the term of the control?

Question 8.2: Should charge controls continue to be set separately for each of the individual services (WLR, MPF and SMPF) or would it be more appropriate to set an aggregate control covering some or all of these services?

Question 8.3: Do you have any views on the appropriate structure of a control over all or any individual non-core service?

Question 8.4: What are your views on the appropriate duration for a revised framework? Should Ofcom retain the flexibility to undertake a mid period review, and what do you consider should be the appropriate triggers for such as review?

Question 8.5: Do you consider that it would be appropriate to consider automatic mechanisms for modifying the charge controls in the event of substantial volume change? Do you have any specific views on the start date for the new charge control framework?

Question 8.6: How should the Pricing Framework respond to new service offerings from Openreach? We would welcome examples of new services offerings which your would consider should be encouraged?

Question 8.7: How would you suggest Ofcom be involved, if at all, in an assessment of the charges for these services? Do you agree that Ofcom should only consider regulating the prices of these services where issues of SMP arise or distortions might occur in respect of the recovery of fixed and common costs (between SMP and non-SMP services)?

Annex 5

Impact Assessment

Introduction

A5.1 The analysis presented in this annex represents an impact assessment, as defined in section 7 of the Communications Act 2003 (the Act).

A5.2 This impact assessment is preliminary in that it only seeks to identify the likely impacts, without attempting to evaluate the relative attractiveness of the two high level options considered.

A5.3 Stakeholders should send any comments on this preliminary impact assessment to us by the closing date for this first consultation. We will consider all comments in our second consultation.

A5.4 Impact assessments provide a valuable way of assessing different options for regulation and showing why the preferred option was chosen. They form part of best practice policy-making. This is reflected in section 7 of the Act, which requires that generally we have to carry out impact assessments where our proposals would be likely to have a significant effect on businesses or the general public, or when there is a major change in Ofcom's activities. However, as a matter of policy Ofcom is committed to carrying out and publishing impact assessments in relation to the great majority of our policy decisions. For further information about our approach to impact assessments, see the guidelines, Better policy-making: Ofcom's approach to impact assessment, which are on our website: http://www.ofcom.org.uk/consult/policy_making/guidelines.pdf

The citizen and/or consumer interest

A5.5 Ofcom's overarching aim is to further the interests of citizens and consumers. Where appropriate, Ofcom does this by promoting competition.

A5.6 This review considers the charge ceiling on Openreach for wholesale line rental, unbundled local loops and related services. These are important wholesale inputs that feed into services retailed to consumers. The main retail markets affected are the retail broadband internet access markets and the fixed narrowband retail exchange line markets. Voice call markets may also be affected, as most communications providers who purchase wholesale line rental and some of those who purchase unbundled local loops also provide calls to consumers.

A5.7 BT has a large market share of the relevant wholesale products, and a majority of consumers will be potentially affected by any changes.

Ofcom's policy objective

A5.8 We consider that the objectives for a new pricing framework for Openreach should be:

- to promote efficient, sustainable competition in the delivery of both broadband and traditional voice services;
- to prevent excessive charging and the abuse of SMP by Openreach;

- to provide regulatory certainty for both Openreach and its customers;
- to ensure that the delivery of the regulated services is sustainable, in that the prevailing prices provide Openreach with the opportunity to recover all of its relevant costs (where efficiently incurred), including the cost of capital.

Options considered

A5.9 At the most aggregate level, there are two options we could consider:

- continuation of the current charge ceilings; and
- revising the level of at least some of the charge ceilings.

A5.10 We do not think that the removal of the current charge ceilings is an option. Openreach has SMP in the relevant markets. Without charge ceilings, Openreach would have the ability and incentive to set excessive charges for the relevant services. We consider that this would be detrimental to consumers and, therefore, given Ofcom's objective to promote the interests of consumers, the retention of charge ceiling is required.

A5.11 If we were to consider increasing at least some charge ceilings, there would then be a secondary set of options about the relative increases of different charge ceilings and by how much they need to rise overall. In this First Consultation we have not set out definitive options for the relative increases of different charge ceilings. Our intention is to set out such options in the Second Consultation.

A5.12 In this First Consultation, we concentrate on identifying the impacts on different stakeholders rather than on trying to quantify them.

Impact on Openreach and BT

A5.13 As set out in Section 4, to date we estimate that Openreach's underlying rate of return has exceeded the 2005 Regulatory Rate of Return of 10%.

A5.14 Openreach's return on capital employed also appears to have been falling consistently over time. This trend in Openreach's rate of return is not unexpected: charges are fixed in nominal terms; costs are increasing; and the mix of services has also shifted significantly towards products that make lower contributions to fixed costs.

A5.15 If the charge ceilings were not raised, this trend would tend to continue. At some point Openreach would probably be unable to earn an appropriate return on its assets overall if efficiency improvements were not sufficient to compensate for increases in input costs.

A5.16 One of the reasons for the estimated deterioration in Openreach's financial position is due to the change in the mix of services. In particular, a substantial movement from WLR to MPF is forecast. As MPF appears to make a lower contribution to fixed costs than WLR, this tends to result in a lower overall return for Openreach. The switch from WLR to MPF is driven by both increases in non-BT MPF based competition and also replacement of traditional WLR based services with MPF based services (due in a large part by the changes in services made possible by NGN).

A5.17 In terms of the impact on BT Group, as opposed to just Openreach, the distinction between external MPF and internal MPF is important. When CPs other than BT switch from buying WLR to MPF, this results in lower profitability for BT Group. However, when a downstream unit of BT switches from WLR to MPF, this might be regarded as a change in the level of internal transfers within BT Group, but without any necessary impact on the overall results for the group. The split of internal and external MPF in the forecasts is given in Annex 9.

A5.18 The impact on profits of rising costs with fixed charge ceilings applies equally to BT Group as well as to Openreach.

Impact on Communication Providers

A5.19 Increases in the charges for WLR, MPF, SMPF and non core services would increase costs for Communication Providers. The extent to which any increase may impact on profitability will depend on a number of factors. These include the extent to which any cost increases will be passed through to consumers. This may depend on the extent of competition from providers who do not use BT's inputs (especially from cable operators) and also consumers' willingness to pay higher prices. The impact may vary between Communication Providers depending on the balance of services used and the relative prices of different services.

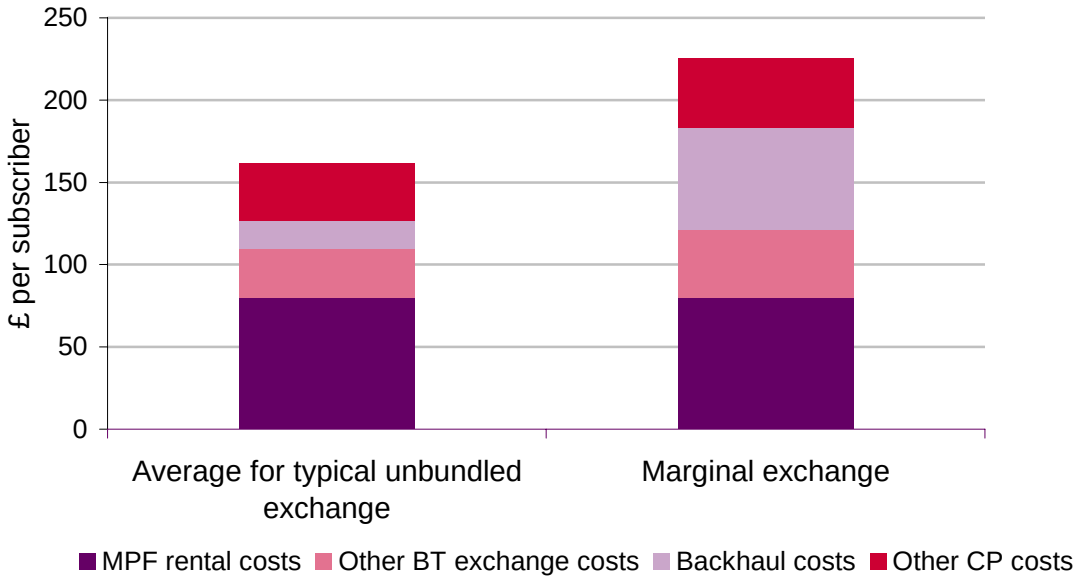
A5.20 We concentrate below on the possible impact of an increase in MPF charges. This emphasis is partly because there is more apparent cost pressure on the MPF charges as reported by Openreach and because LLU provision involves a significant amount of sunk investment cost.

A5.21 Our broad understanding of the costs for an MPF operator is set out in Figure A5.1. This is based on our own model for LLU and shows the main groups of cost inputs for providing MPF based services per subscriber (excluding the cost of calls).

A5.22 The precise impact of the changes depends on the size of the exchange. Larger exchanges offer the prospect of greater economies of scale by enabling fixed costs to be recovered from a larger number of customers and services, and operators may only require a relatively low share of the potential market in order to recover their total costs. This is reflected in the Communication Provider's roll-out programmes to date, with the initial focus being on the larger exchanges.

A5.23 The left hand column shows the breakdown for an average exchange that has been unbundled, which tend to be larger exchanges. In contract, the right hand column shows the breakdown for a 'marginal' exchange, by which we mean an exchange for which the business case for unbundling is finely balanced, which tend to be smaller exchanges. The smallest exchanges are unlikely to be viable candidates for unbundling because the cost per subscriber is relatively high.

Figure A5.1: Illustrative cost per subscriber for MPF per annum (excluding call costs)



Source: Ofcom

A5.24 The size of the different cost components in Figure A5.1 are only intended to be illustrative. The precise level and breakdown of costs are dependent on various assumptions. One of the most important assumptions is the market share of the operator. Figure A5.1 assumes a reasonably large market share for broadband subscribers. The components of cost other than the MPF rental charge would be greater had a smaller market share been assumed.

A5.25 When considering the impact on an LLU operator's total costs, it is the left hand column that is most relevant. This shows that the MPF rental charge represents around a half of the cost of service provision per customer (excluding call costs).

Impact on coverage of LLU

A5.26 An increase in LLU charges may also affect the future roll out plans of LLU operators.

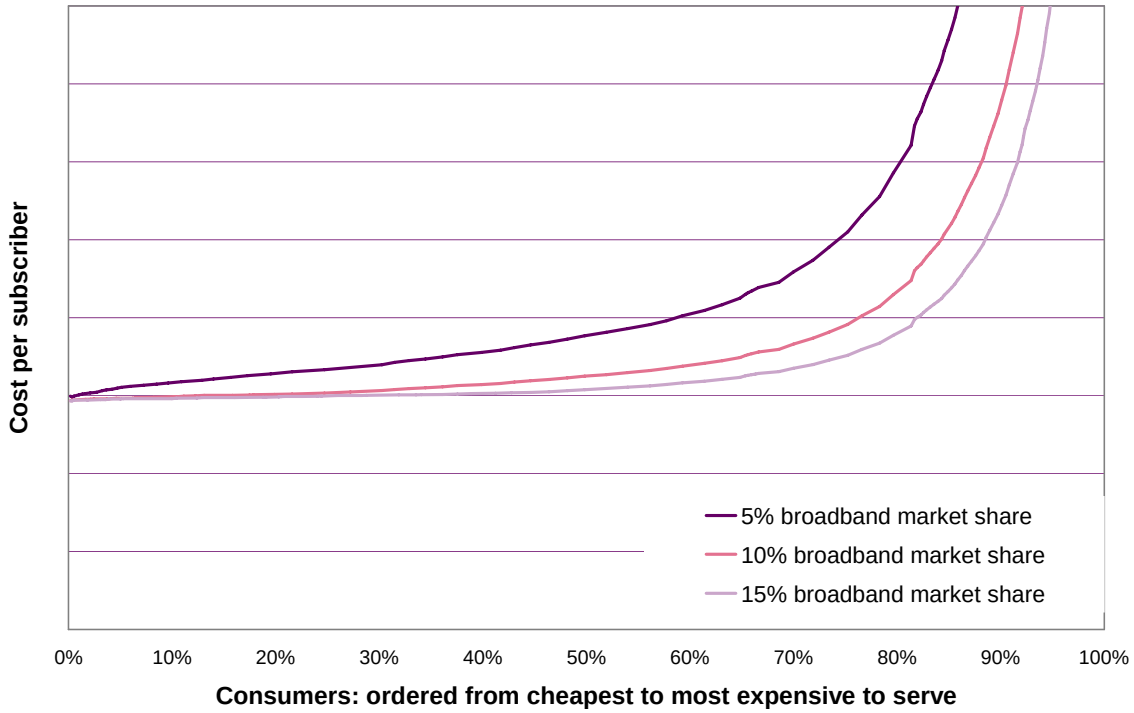
A5.27 For exchanges that have already been unbundled, changes in the SMPF and MPF charges are less likely to have an impact in the short term. This is because there are significant sunk costs in LLU (that the operator will not be able to recover if it were to exit). These include set-up costs, investment in equipment and backhaul services connection costs. We therefore believe that LLU operators are likely to have an incentive to continue to offer LLU based services at exchanges at which they have already unbundled. However, when equipment in the exchange needs replacing, then the decision about whether to remain in an exchange is different. At that time the decision will be similar to the decision about future roll-out to new exchanges.

A5.28 The unbundling of exchanges is already well advanced, with further roll-out occurring slowly. In considering the potential impact on future roll-out, it is the costs at the more marginal exchanges that are relevant, rather than at a typical unbundled exchange.

A5.29 The right hand column in Figure A5.1 above shows in broad terms the relative size of different groups of cost for a more marginal exchange. It can be seen that backhaul typically represents a much bigger component of total cost at more marginal exchanges. This is partly because of economies of scale in backhaul and also because smaller exchanges tend to be more isolated implying longer backhaul lengths and higher costs. This suggests that the outcome of the business connectivity market review will also be an important factor affecting future roll-out of LLU. This is especially the case because marginal exchanges are more likely to use BT for backhaul because they are generally more distant from other Communication Providers' networks.

A5.30 We have used a model of MPF to try to understand how the cost per subscriber varies for different consumers. Figure A5.2 shows how the cost per subscriber varies when consumers are ordered from the cheapest to serve to the most expensive. Because the results are very sensitive to the proportion of subscribers assumed to be served by the operator at each exchange, we have shown this for a variety of assumptions about broadband market share. Because the absolute levels of costs per subscriber are sensitive to assumptions about cost, we have shown the graph without a scale on the cost axis. However, the shapes of the curves remain broadly the same for a range of cost assumptions. The shapes of the curves are also broadly similar when SMPF is considered rather than MPF.

Figure A5.2: Illustrative cost per subscriber for MPF (excluding call costs)



Source: Ofcom

A5.31 The general shape of these different curves show that costs per subscriber increase as a higher proportion of the population are covered. They also demonstrate how the costs are higher for smaller market shares.

A5.32 Given the shape of these curves, the impact of a charge increase on coverage depends on where on the curves Communication Providers currently are. If

coverage were currently very low, then a small charge increase could potentially have a very significant effect on coverage. If coverage and market concentration were high, then a charge increase might be less likely to have a significant impact on coverage. Currently coverage is slightly over 80 per cent.

Impact on consumers

A5.33 In general, an increase in wholesale prices is likely to tend to increase downstream retail prices. The main retail markets affected by a price increase would be the retail broadband internet access markets and the fixed narrowband retail exchange line markets.

A5.34 The extent to which this happens will depend on a number of factors. These include the extent to which Communication Providers are able to absorb any increase in wholesale costs, the extent of competition from Communication Providers that do not use BT's exchanges, especially cable, and the outcome of the business connectivity charge control review, which may affect the wholesale backhaul charges paid by Communications Providers which may, in turn, also have an impact on retail prices.

A5.35 Even if retail prices were to rise, this may ultimately be in consumers' interests. Without charge increases BT may have an insufficient incentive to invests in and maintain the network. Without such incentives, the quality of services that consumers receive may otherwise deteriorate.

A5.36 There may be a more significant impact on any subset of consumers who lose the dynamic benefits of competition from any shrinkage in the coverage of unbundling as a result of any MPF and SMPF price increases. Any such consumers could see a reduction in choice and benefits, especially for retail broadband.

Impact on the broadband markets

A5.37 We have recently completed a market review of wholesale broadband access. Our November 2007 consultation on the wholesale broadband access markets[20] identified three markets in the UK outside of the Hull area. In one of these markets ('Market 3'), we found that BT does not have SMP and are now deregulating this market. Market 3 is defined as those geographic areas covered by exchanges where there are currently 4 or more of the 8 mass market operators (which include BT and Virgin Media), and exchanges where there are forecast to be 4 or more of these operators but where the exchange serves 10,000 or more premises.

A5.38 Potentially, any changes in LLU charges could change the competitive conditions for some of the exchanges in Market 3. However, we think this is unlikely if any changes in LLU charges are not excessive. For exchanges that have already been unbundled, charge increases are less likely to have an impact in the short term because of the significance of sunk costs (although in the longer term they may influence the decision to replace existing equipment). Roll out to exchanges in Market 3 has largely occurred already, with all exchanges in Market 3 having being unbundled by at least one LLU operator. There are only a handful of exchanges that are classified as being in Market 3 because of forecast unbundling by more operators. Those exchanges are sufficiently large for it to be unlikely that variations in LLU charges would affect the viability of unbundling.

[20] http://www.ofcom.org.uk/consult/condocs/wbamr07/wbamr07.pdf

Annex 6

Current regulation

Introduction

A6.1 This annex sets out the regulation currently in place on the Openreach services subject to this review.

A6.2 Services subject to price controls

Service	Current control	Set in
SMPF - rental	£15.60 pa	Dec 04 Ofcom LLU Statement[21]
SMPF	£34.86 connection	Dec 04 Ofcom LLU Statement
MPF Transfer	£34.86 connection	Dec 04 Ofcom LLU Statement
MPF New provide	£168.36 connection	Dec 04 Ofcom LLU Statement
SMPF (No Tam)	£19.19 – per disconnection	Dec 04 Ofcom LLU Statement
SMPF (with Tam)	£13.83 – per connection	Dec 04 Ofcom LLU Statement
SMPF standard line test	£3.75	Dec 04 Ofcom LLU Statement
MPF minor network intervention	£315.76 connection	Dec 04 Ofcom LLU Statement
MPF major network intervention	£643.36 per connection	Dec 04 Ofcom LLU Statement
MPF small network build	£2776.27	Dec 04 Ofcom LLU Statement
MPF hand back charge – Transfer	£4.24	Dec 04 Ofcom LLU Statement
MPF hand back charge – New provide	£4.24	Dec 04 Ofcom LLU Statement
Internal tie cables (1)	£19.48 pa rental	Dec 04 Ofcom LLU Statement
Internal tie cables (1)	£476.89 connection	Dec 04 Ofcom LLU Statement
Internal tie cables (2)	£14.08 pa rental	Dec 04 Ofcom LLU Statement
Internal tie cables (2)	£376.83 connection	Dec 04 Ofcom LLU Statement
Internal tie cables (2) jointing	£143.92 fixed charge per cable	Dec 04 Ofcom LLU Statement
MDF licence fee	£23.64 pa per cable	Dec 04 Ofcom LLU Statement

[21] http://www.ofcom.org.uk/consult/condocs/rwlam/statement/rwlam161204.pdf

BT provided cables (100 pairs)	£104.93 pa rental	Dec 04 Ofcom LLU Statement
BT provided cables (100 pairs)	£1,340.11 connection	Dec 04 Ofcom LLU Statement
BT provided cables (100 pairs) (additional 100m)	£71.24 pa rental	Dec 04 Ofcom LLU Statement
BT provided cables (100 pairs) (additional 100m)	£209.35 connection	Dec 04 Ofcom LLU Statement
BT provided cables (500 pairs)	£168.43 pa rental	Dec 04 Ofcom LLU Statement
BT provided cables (500 pairs)	£2,191.83 connection	Dec 04 Ofcom LLU Statement
BT provided cables (500 pairs) (additional 100m)	£131.98 pa rental	Dec 04 Ofcom LLU Statement
BT provided cables (500 pairs) (additional 100m)	£209.35 connection	Dec 04 Ofcom LLU Statement
BT provided cables (additional 100m)	£89.60 pa rental	Dec 04 Ofcom LLU Statement
BT provided cables (additional 100m)	£422.28 connection	Dec 04 Ofcom LLU Statement
Operator provided cables (100 pairs)	£24.68 pa rental	Dec 04 Ofcom LLU Statement
Operator provided cables (100 pairs)	£1,188.02 connection	Dec 04 Ofcom LLU Statement
Operator provided cables (500 pairs)	£27.44 pa rental	Dec 04 Ofcom LLU Statement
Operator provided cables (500 pairs)	£1,689.03 connection	Dec 04 Ofcom LLU Statement
Operator provided cables (additional 100 pairs)	£13.18 pa rental	Dec 04 Ofcom LLU Statement
Operator provided cables (additional 100 pairs)	£406.18 connection	Dec 04 Ofcom LLU Statement
Essential system supply	£145.28 pa rental	Dec 04 Ofcom LLU Statement
Non-essential system supply	£11.69 pa rental	Dec 04 Ofcom LLU Statement
AC final distribution	£311.02 pa rental	Dec 04 Ofcom LLU Statement
MPF - rental	£81.69 per annum	Nov '05 Ofcom LLU Statement[22]
WLR analogue residential	£100.68 per annum	Jan '06 Ofcom WLR Statement[23]
WLR analogue business	£110.00 per annum	Jan '06 Ofcom WLR Statement
WLR existing line transfer residential	£2.00	Jan '06 Ofcom WLR Statement

[22] http://www.ofcom.org.uk/consult/condocs/llu/statement/llu_statement.pdf
[23] http://www.ofcom.org.uk/consult/condocs/wlrcharge/statement/statement.pdf

WLR existing line transfer business	£2.00	Jan '06 Ofcom WLR Statement
WLR new line residential	£88.00	Jan '06 Ofcom WLR Statement
WLR new line business	£88.00	Jan '06 Ofcom WLR Statement

Service subject to cost orientation regulations

Service		
Wholesale business analogue exchange line services (ex rentals)	N/A	Nov '03 Ofcom Narrowband MR
Wholesale business ISDN2 internal service connections	N/A	Nov '03 Ofcom Narrowband MR
Wholesale business ISDN2 internal service takeovers	N/A	Nov '03 Ofcom Narrowband MR
Wholesale business ISDN2 external service connections	N/A	Nov '03 Ofcom Narrowband MR
Wholesale business ISDN2 external service transfers	N/A	Nov '03 Ofcom Narrowband MR
Wholesale business ISDN2 exchange line services	N/A	Nov '03 Ofcom Narrowband MR
Other MPF Hostel Rentals[19]	N/A	Dec 04 Ofcom LLU Statement
Other MPF Room Build[24]	N/A	Dec 04 Ofcom LLU Statement
Other MPF Tie Cables[19]	N/A	Dec 04 Ofcom LLU Statement
Wholesale residential ISDN2 internal service connections	N/A	Nov '03 Ofcom Narrowband MR
Wholesale residential ISDN2 internal service rentals	N/A	Nov '03 Ofcom Narrowband MR
Wholesale residential ISDN2 exchange line services	N/A	Nov '03 Ofcom Narrowband MR
Network services (ex ISDN30)	N/A	Nov '03 Ofcom Narrowband MR

[24] Charges not specifically covered under price control

The Other SMP Services

Service		
Wholesale business ISDN30 internal service connections	N/A	Nov ’03 Ofcom Narrowband MR
Wholesale business ISDN30 internal service rentals	N/A	Nov ’03 Ofcom Narrowband MR
Wholesale business ISDN30 external service connections	N/A	Nov ’03 Ofcom Narrowband MR
Wholesale business ISDN30 external service rentals	N/A	Nov ’03 Ofcom Narrowband MR
Wholesale business ISDN30 internal service takeovers	N/A	Nov ’03 Ofcom Narrowband MR
Wholesale business ISDN30 external service transfer	N/A	Nov ’03 Ofcom Narrowband MR
Wholesale business ISDN30 exchange line services	N/A	Nov ’03 Ofcom Narrowband MR
Network Services ISDN 30	N/A	Nov ’03 Ofcom Narrowband MR

Annex 7

Openreach cost estimates

Introduction

A7.1 This Annex summarises key extracts from Openreach's estimates of the CCA FAC cost stacks for the Core Services and reviews the basis for these estimates.

A7.2 As explained below, we consider that, overall, Openreach's approach to its cost calculations appears to be logically sound. However, Openreach's calculations are critically dependent on a number of key assumptions which will be subject to further review.

Information provided by Openreach

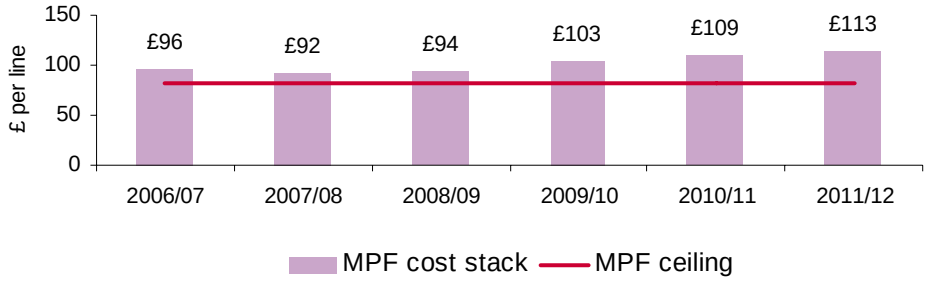
A7.3 At our request, Openreach provided estimates of service unit costs for the period to March 2012. These were calculated by reference to the cost of the activities that would be performed to deliver those services and included a 10% return.

A7.4 Openreach has provided projection of the fully allocated cost for each of the Core Rental Services as follows:

- For MPF rentals the CCA FAC will be around £113 by 2011/12 (about £104 in 2008/09 prices);

Figure A7.1

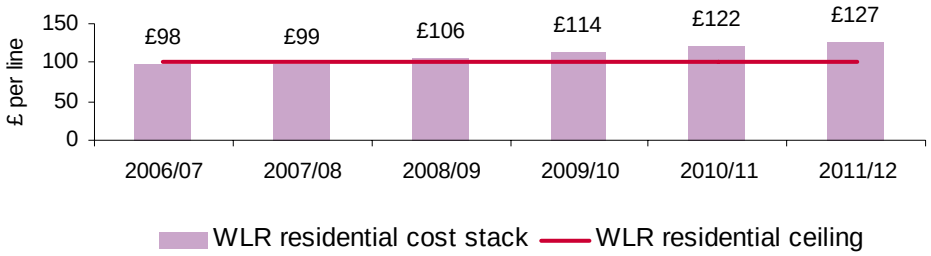
MPF CCA/FAC cost stack vs ceiling, per Openreach



- for residential WLR rentals the CCA FAC will be around £127 by 2011/12 (about £117 in 2008/09 prices);

Figure A7.2

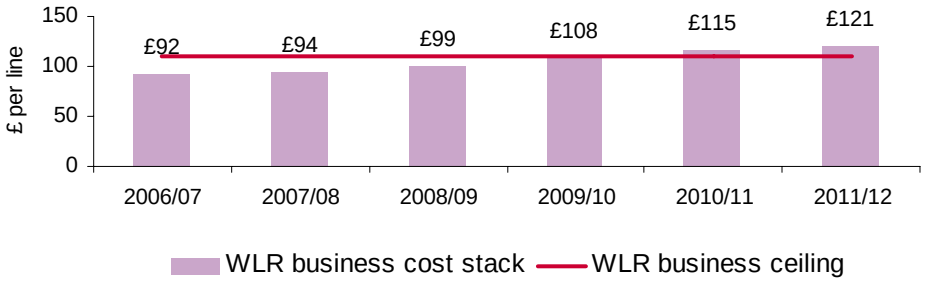
WLR residential CCA/FAC cost stack vs ceiling, per Openreach



- for business WLR rentals the CCA FAC will be around £121 in 2011/12 (about £110 in 2008/09 prices);

Figure A7.3

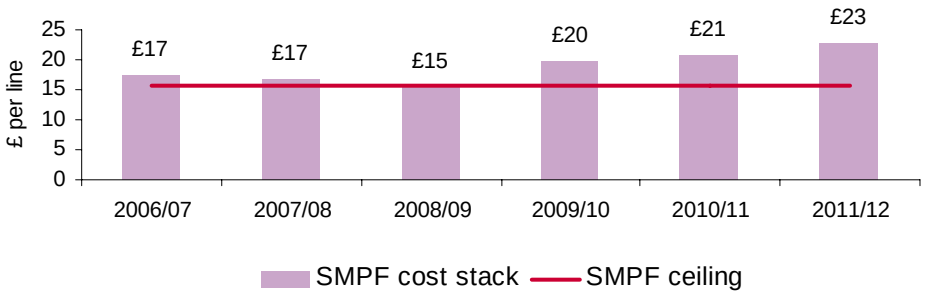
WLR business CCA/FAC cost stack vs ceiling, per Openreach



- and, for SMPF the CCA FAC will be around £23 in 2011/12 (about £21 in 2008/09 prices).

Figure A7.4

SMPF CCA/FAC cost stack vs ceiling, per Openreach



A7.5 On the basis of the volume scenarios set out in Annex 9, Openreach's estimates, assuming current prices are hold flat over the period, would suggest that the returns on the Core Services would fall as follows:

- On MPF rentals, Openreach would not be making a positive return on a CCA basis;

Figure A7.5

MPF	2006/7	2007/8	2008/9	2009/10	2010/11	2010/12
Volumes ('000s of lines)	620	1,142	2,072	6,575	8,191	10,614
	£'m	£'m	£'m	£'m	£'m	£'m
Revenue	**50**	**91**	**166**	**526**	**655**	**849**
Pay	11	20	36	129	173	232
Line cards and TAMs	0	0	2	9	15	22
Accommodation	6	12	22	73	95	130
Stores, contractors & misc.	3	6	11	38	47	60
Corporate overheads	3	5	8	29	39	53
IT	4	7	11	40	54	73
Fleet	2	3	6	23	30	39
Other	1	2	3	8	12	17
Operating cost	**32**	**55**	**99**	**351**	**465**	**625**
EDITDA	**18**	**37**	**67**	**175**	**190**	**224**
Depreciation	11	18	36	130	178	245
EBIT	**7**	**19**	**31**	**45**	**12**	**-21**
ROCE%	4%	6%	5%	2%	0%	-1%
Mean Capital Employed	**168**	**322**	**600**	**1,968**	**2,525**	**3,334**

- On business WLR rentals, the return calculated on a CCA basis would fall to around 7%;

Figure A7.6

Business WLR	2006/7	2007/8	2008/9	2009/10	2010/11	2010/12
Volumes ('000s of lines)	5,856	5,916	5,895	4,278	3,785	2,261
	£'m	£'m	£'m	£'m	£'m	£'m
Revenue	**644**	**651**	**648**	**471**	**416**	**249**
Pay	77	83	87	66	63	40
Line cards and TAMs	68	68	74	63	61	36
Accommodation	48	50	51	39	36	22
Stores, contractors & misc.	24	33	29	22	20	12
Corporate overheads	19	18	20	16	15	10
IT	19	24	28	21	20	13
Fleet	19	18	19	14	13	9
Other	29	22	19	15	15	9
Operating cost	**303**	**316**	**328**	**256**	**243**	**152**
EDITDA	**341**	**335**	**321**	**215**	**173**	**97**
Depreciation	88	82	96	82	81	52
EBIT	**253**	**254**	**225**	**133**	**92**	**45**
ROCE%	17%	16%	14%	11%	8%	7%
Mean Capital Employed	**1,478**	**1,565**	**1,628**	**1,234**	**1,128**	**688**

- On residential WLR rentals, the return calculated on a CCA basis would fall to around 2%;

Figure A7.7

Residential WLR	2006/7	2007/8	2008/9	2009/10	2010/11	2010/12
Volumes ('000s of lines)	18,250	17,652	16,797	13,945	12,672	11,636
	£'m	£'m	£'m	£'m	£'m	£'m
Revenue	**1,837**	**1,777**	**1,691**	**1,404**	**1,276**	**1,171**
Pay	264	270	272	233	229	225
Line cards and TAMs	213	203	210	205	206	187
Accommodation	160	160	156	136	129	124
Stores, contractors & misc.	81	105	89	76	71	66
Corporate overheads	65	59	63	54	54	54
IT	64	77	86	75	74	73
Fleet	63	58	59	50	48	47
Other	92	68	56	51	49	49
Operating cost	**1,002**	**1,000**	**990**	**880**	**860**	**824**
EDITDA	**835**	**777**	**701**	**524**	**416**	**347**
Depreciation	289	255	284	277	280	277
EBIT	**546**	**522**	**417**	**247**	**136**	**70**
ROCE%	11%	10%	8%	6%	3%	2%
Mean Capital Employed	**4,948**	**5,016**	**4,980**	**4,315**	**4,048**	**3,800**

- On SMPF rentals, Openreach would not make a positive return calculated on a CCA basis.

Figure A7.8

SMPF	2006/7	2007/8	2008/9	2009/10	2010/11	2010/12
Volumes ('000s of lines)	8,956	10,714	11,343	7,570	6,702	4,719
	£'m	£'m	£'m	£'m	£'m	£'m
Revenue	**140**	**167**	**177**	**118**	**105**	**74**
Pay	55	64	61	55	53	41
Line cards and TAMs	1	1	2	2	2	2
Accommodation	28	37	37	28	26	20
Stores, contractors & misc.	12	12	10	9	8	6
Corporate overheads	13	13	13	11	11	8
IT	19	20	18	16	15	12
Fleet	5	5	5	4	4	3
Other	8	11	10	9	8	6
Operating cost	**141**	**162**	**155**	**134**	**127**	**98**
EDITDA	**-1**	**5**	**22**	**-16**	**-23**	**-25**
Depreciation	6	6	9	7	6	4
EBIT	**-7**	**-1**	**12**	**-23**	**-29**	**-29**
ROCE%	-8%	-1%	11%	-32%	-46%	-63%
Mean Capital Employed	**80**	**105**	**107**	**72**	**62**	**45**

Openreach's approach to cost modelling

A7.6 The cost stacks set out above were calculated by Openreach by reference to the activities that are performed in order to deliver those products. On this basis, all costs incurred by the business should therefore be attributed to one or more activity, such that the activity cost can be calculated and allocated to the services that consume them.

A7.7 Openreach's forecasts draw upon:

- an activity based costing (ABC) model, used to forecast the labour requirement based on activities; and
- non-pay variable costs based on direct labour, and
- a product allocation model, which allocates costs to services.

A7.8 Openreach has, on a confidential basis, provided Ofcom with functional versions of these models and given us access to the individuals and consultants involved in their preparation to explain how the models work and respond to queries that arose from our review of the information provided.

A7.9 Openreach has also provided a high level reconciliation to demonstrate that the forecast profit and loss account in for 2007/08 is consistent with the audited profit and loss account for 2006/07, as rolled forward by one year.

A7.10 To inform our view on the integrity of Openreach's calculations, we :

- Prepared our own estimates of future costs on a CCA FAC basis, by rolling forward audited financial data from the 2007 current cost financial statements;
- Adjusted Openreach's calculations to reflect our views on key assumptions; and
- Ensured that the differences between our estimate and Openreach's adjusted calculation could be explained.

A7.11 Based on the work performed to date, we consider that Openreach's cost estimates are based on a logically sound approach.

A7.12 However, as explained below, while the overall approach appears broadly sensible, the estimates are ultimately dependent on a number of key assumptions which will be subject to further review, including:

- The potential for efficiency gains;
- The appropriate treatment of relevant costs;
- The appropriate rate of return; and
- The scope of the services taken into account.

A7.13 Efficiency gains, the rate of return and the scope of the review are considered elsewhere in this document. This annex provides some further information on the appropriate treatment of relevant costs.

A7.14 Our review of Openreach's cost calculations has highlighted a number of costs that may be subject to adjustment including:

- Light user scheme costs;
- Service Level Guarantee ("SLG") payments;
- Line card costs; and
- Other costs.

A7.15 These are considered in turn below.

A7.16 BT's *Light User Scheme ("LUS")* provides a reduced line rental to lower income customers of BT retail as mandated by Ofcom and the Universal Service Directive.

A7.17 Openreach's estimate of LUS costs includes administration costs plus an assessment of the difference in retail prices between LUS rates and basic residential rental prices.

A7.18 For the reasons set out in our consultation on BT's regulatory financial reporting, of 17 April 2008, attributing a cost of the LUS to Openreach's service is not consistent with Ofcom's conclusion that the net cost to BT of the universal service obligations was relatively small, with most of the benefit accruing at the retail level.

A7.19 *SLG payments* relate to the payments Openreach is required to make to service providers where it has failed to meet service level agreements or guarantees (for example, where it fails to keep an appointment to install a new line).

A7.20 As noted in Section 7 we consider it is reasonable for Openreach to expect to recover the cost of meeting SLG payments to the extent that such costs would be incurred by an efficient operator. The basis for this, is that an efficient operator would not set its resource input levels such that performance was without fault at all times and, thus, would expect to make some compensation payments. These can be regarded as a cost of doing business just like any other cost. For Openreach to be able to recover these costs, we need to explicitly include them in the charge control calculations.

A7.21 At this stage, we do not propose to allow Openreach to recover a level of compensation payments on the basis of its current service performance. Instead, we have made an initial calculation of what we would propose this allowance to be.

A7.22 Where available, we have assumed the targets on which results are reported by the Office of the Telecommunications Adjudicator (OTA2). These are the targets which Openreach set out in its Integrated Plan for the end of 2008. For example, we assume that 98% of LLU provisions are provided on time (meaning that compensation is due for 2 per cent of provisions) and we assume that 95% of faults are repaired on time;

A7.23 Where such targets have not been available, we have made assumptions. In particular, we have assumed:

- An annual fault rate of 10%;
- All late fault repairs and late provisions are on average 2 days late; and

- Performance of 99.8% for the availability of the Equivalence Management Platform (EMP).

A7.24 *Line cards* are the electronic equipment which sit at the local exchange and assign a phone number to copper lines and represent the end of the access network.

A7.25 BT currently uses PSTN line cards which only recognise voice traffic and will become obsolete as BT replaces its legacy PSTN and broadband network with a single IP based network. In a traditional PSTN network, the line card exclusively supports voice services and is directly attributable to WLR services. In the broadband network, the equivalent function is provided by the DSLAM.

A7.26 As part of its NGN programme, BT is replacing these line cards with 'Combi cards', which can be used by multiple products or services in three ways:

- To generate a voice only service, using the voice only capability of the card (currently WLR);
- A data only service (not currently available); or
- A voice and data service (currently WLR and SMPF).

A7.27 There are therefore several possible bases for the allocation of line card costs, including allocation by the number of lines, regardless of the services provided on that line, and by the number of services, based on the number of channels of the line card that are used. BT has proposed that line card costs should be recovered on the basis of the number of services provided.

A7.28 We are currently considering the most appropriate basis for the allocation of line card costs. However, the effect of Openreach's approach appears to be to increase line card costs reflected in the WLR charge. Consumers of WLR would therefore be required to pay more for a similar service due to a change in the means of delivering that service.

A7.29 We have also identified some other costs for further review including, for example, EMP costs. The Undertakings require BT to introduce systems and procedures that ensure that all of Openreach's customers are treated in the same manner and have the same customer experience. EMP expenditure represents the cost of replacing BT's separate legacy systems (for BT and other Communication Providers) with a single system, and implementing further system improvements. Subject to a detailed review of these and other costs reflected in Openreach's estimates, it is possible that further adjustments are required.

A7.30 Openreach's model also reflects a number of regulatory adjustments, representing its interpretation of adjustments determined by Ofcom in previous regulatory reviews.

A7.31 These include the following:

- a RAV adjustment;
- a line length adjustment; and
- a drop wire adjustment

A7.32 We consider that, for the purpose of this review, these adjustments should be applied on a basis consistent with that adopted in previous reviews. These bases are considered in turn below.

A7.33 In respect of the *RAV adjustment*, in 1997 Oftel changed the way BT accounted for its network assets in the regulatory accounts. Oftel determined that is was appropriate to account for the assets using the current cost convention rather than historic cost convention. The purpose was to allow regulated prices to be based on the economic cost of replacement assets.

A7.34 In terms of cost recovery, the total returns permitted for any given asset will be equivalent, irrespective of whether an HCA or CCA methodology is applied, provided that the methodology is applied consistently throughout the asset's life and that such returns are discounted at the operator's cost of capital.

A7.35 However, a change in methodology during the life of the asset could potentially give rise to over- or under-recovery of costs depending upon the future replacement cost and the point during the asset lifecycle at which the switch took place. This is because, while the extent of cost recovery is equivalent between the two approaches, the path of cost recovery is not.

A7.36 As explained in the Statement on valuing copper access, the effect of the change in accounting treatment in 1997 was that BT would recover more costs than it actually incurred on the assets held prior to the accounting policy change. Specifically, t BT would over-recover costs incurred on long life assets held prior to August 1997. No over/under recovery will occur on assets purchased since August 1997, as these have been consistently treated under CCA methodology.

A7.37 To prevent over- or under-recovery of cost related to assets purchased prior to August 1997 we created a Regulatory Asset Value (RAV)[25] which represents the remaining value of the copper based local access network as at 1 August 1997 rather than continuing to value those assets at current cost. The forecast value of the RAV is set to equal the closing HCA value as at the end of the 2006/07, indexed each year to ensure its value is not eroded by inflation. Over time the RAV unwinds as the assets are written-off.

A7.38 Having examined BT's RAV model we found it worked as documented which appeared to be broadly in accordance with Ofcom's Statement on valuing copper access. These assumptions are however subject to a further review.

A7.39 The copper access element of the RAV and adjustment to costs stacks were used as inputs into BT's costing model which allocated the RAV adjustment to services in an appropriate manner. Our preliminary assessment is that Openreach has reflected the RAV adjustment on a reasonable basis in its cost model.

A7.40 In respect of the *line length adjustment*, the 2005 LLU statement explained that E-side and D-side costs relevant to LLU should be adjusted on the basis of line length because the average length of a copper loop that can be used to provide a 2Mbit/s broadband service is shorter than the average copper loop. This situation arises because DSL does not technically work over long line lengths and full LLU is mainly used to provide broadband, and broadband and voice services, but not voice only services.

[25] http://www.ofcom.org.uk/consult/condocs/copper/value2/statement/statement.pdf

A7.41 As costs are apportioned to rentals on a per line basis an adjustment is required to reflect our determination that residential WLR lines are on average longer than MPF lines, and therefore should carry a greater proportion of the cost.

A7.42 Openreach did not calculate a line adjustment as such but instead allocated copper and duct costs to the relevant product lines weighted by the relative average replacement cost of the relevant product line against the average replacement cost of a WLR Business line. The average line replacement costs were based on BT's 2007 Local Line Costing Survey (LLCS). Whilst there is some merit in using the replacement costs of a line as a proxy for the average length of a line, we have not yet established the reliability of the results.

A7.43 Our preliminary assessment is that Openreach has applied the line length adjustment on a basis that is not consistent with the basis adopted for the purposes of setting the LLU charge in 2005 and understates the reduction to the MPF copper costs. This would have the effect of overstating the estimated MPF charge.

A7.44 The *drop wire adjustment* relates to the costs of installing and maintaining the copper wire that links the end users premises to the distribution point in the street. The main element of the cost is the copper wire itself and the labour used to install it. BT has included depreciation and maintenance costs which reflect the accounting treatment since 2000/1 of capitalising the cost of new dropwire and expensing it over a ten year period. The result is that Openreach have modelled dropwire costs increasing from a low level to a 'steady state' cost in 2010/11 rather than providing a 'normalised' cost.

A7.45 In calculating dropwire depreciation, BT have included a proportion of capital relating to residential dropwires installed between 2000/01 and 2004/05 which may represent an over-recovery of costs. This is because until December 2005 the Retail Price Control had set residential prices that allowed for the full recovery of dropwire operating and capital costs for BT retail residential customers. BT's model does not appear to adjust for these costs and we have, therefore, used our own estimates.

Scope of services to be taken into account

A7.46 The focus of the evidence set out above is the Core Rental Services. However, Openreach provides a range of other services. It is, therefore, necessary to consider if and how the costs of providing these services should be taken into account in developing a coherent regulatory framework for Openreach.

A7.47 We consider that, to the extent that these services are not covered by other projects within Ofcom, they cannot be ignored. However, how these services should be taken into account will vary, depending on if and how they are regulated.

A7.48 As set out in Section 2, for ease of reference in this document, we have split the services provided by Openreach into five categories, as follows:

1. the "Core Rental Services" include the WLR, MPF and SMPF rentals;

2. the "Ancillary Services" include the related services in the markets where SMP has been found. These can be considered within 3 sub-categories, as follows:

    a. SMP services that are subject to price control;

b. SMP services that are subject to cost orientation obligations; and

c. SMP services that are not subject to cost orientation obligations.

3. the "Non-Regulated Services" include the related services that are not subject to a finding of SMP; and

4. the Services covered by the Business Connectivity Market Review (which are beyond the scope of this review).

A7.49 The services subject to price controls are clearly within the scope of this project. Services covered by the Business Connectivity Review are beyond the scope of this project.

A7.50 Our review of the Non-Regulated Services will be limited to ensuring that the allocation of common costs across Openreach appears to be appropriate and that Openreach is not attributing excessive costs to regulated services that may be better attributed to other services.

A7.51 The table below sets out Openreach aggregate revenue and cost projections across the Ancillary and Non-Regulated Services. The high rates of return are to some part due to the low levels of capital employed for some of the Non-Regulated Services.

Figure A7.9

	2006/7	2007/8	2008/9	2009/10	2010/11	2010/12
	£'m	£'m	£'m	£'m	£'m	£'m
Revenue	**1,401**	**1,399**	**1,353**	**1,310**	**1,257**	**1,145**
Pay	322	361	338	321	299	279
Cost of sales	269	246	244	237	233	226
Accommodation	40	44	44	41	39	37
Stores, contractors & misc.	78	82	65	63	53	45
Corporate overheads	78	74	71	66	62	59
IT	107	107	101	95	88	83
Fleet	36	40	38	36	32	29
Other	54	50	41	37	36	34
Operating cost	**983**	**1,004**	**942**	**896**	**842**	**793**
EDITDA	**418**	**395**	**411**	**414**	**415**	**352**
Depreciation	69	62	76	84	86	83
EBIT	**349**	**333**	**335**	**329**	**328**	**269**
ROCE%	49%	45%	44%	45%	48%	41%
Mean Capital Employed	**715**	**737**	**758**	**726**	**687**	**653**

A7.52 As part of the Second Consultation, we will consider how the non-core services should be taken into account in the new Pricing Framework. Options include:

- Setting charge controls for the services subject to price controls, and possibly the other Ancillary Services and Other SMP services;

- Taking account of the contribution to common costs made by the Ancillary Services that are subject to cost orientation obligations and Other SMP services, and ensuring that costs have been allocated to those services on an appropriate basis when considering the level of costs to be recovered via the charges for Core Rental Services; and

- Leaving the existing regulation of other SMP Services unchanged.

Annex 8

Potential for efficiency gains

Introduction

A8.1 Assumptions regarding Openreach's ability to reduce costs through future efficiency gains have a significant impact on the estimate of Openreach's future costs.

A8.2 This annex sets out:

- The efficiency assumptions reflected in Openreach's cost calculations
- The conclusions that can be drawn from the statistical approach to determining how efficient Openreach is relative to other telecommunication providers and the inherent limitations to that approach;
- Alternative bases for determining the potential for efficiency gains; and
- Our current view of the scope for efficiency gains, expressed as a range.

Openreach's assumptions

A8.3 Openreach has provided a model that allows two efficiency scenarios to be modelled. The first scenario is Openreach's base case, the second is described by Openreach as an 'aggressive' efficiency scenario.

A8.4 In Openreach's model, the efficiency assumption is applied to certain cost categories only including pay and group costs but not depreciation and return on capital. These operating cost categories add up to around a half of Openreach's total costs

A8.5 In both efficiency scenarios, Openreach has taken account of budgeted efficiency gains expected in 2007/08, of over £100 million.

A8.6 BT's model then forecast the adjusted costs forward subject to the assumed potential for efficiency gains.

A8.7 As set out in the table below, Openreach's base case assumes that nominal efficiency gains of 1% each year would be possible in respect of most operating costs (ie absent inflation, costs would fall by 1%). In Openreach's aggressive case the potential for efficiency gains is generally around 3% or 4%, depending on the category of costs.

08/09 – 11/12	Variable – Labour	Variable – non labour	Overheads[26]
Base	1%	1%	1%
'Aggressive'	4%	3%	3%

[26] Except Cumulo rates, some property costs (0%) and Line cards (.25%)

A8.8 Openreach has explained that it considers its aggressive efficiency scenario to be challenging in the extreme and would potentially threaten future investment and customer service.

A8.9 Openreach's cost forecasts, therefore, assume that the actual savings in 2007/08 will be followed by efficiency gains of 1% on most operating costs.

Statistical analysis

A8.10 To inform our assessment of the potential for BT to reduce its costs through efficiency gains, we have traditionally considered efficiency gains in two parts.

A8.11 The first is the frontier shift, representing how the telecommunications industry as a whole has improved its efficiency for reasons such as technical innovation.

A8.12 The second element is catch-up efficiency which is the additional efficiency required by BT to reach industry best practice. Previously[27], Ofcom used recent observed changes in BT's unit costs as a base for the frontier shift catch up element and commissioned econometric analysis to estimate this.

A8.13 As in the past, the econometric analysis is based on Stochastic Frontier Analysis (SFA) of BT's costs against the Local exchange companies (LECs), the regional telephone network monopolies operating in the USA. This is a benchmarking exercise, adjusted to account for known differences between BT and the LECs, such as topography and differences in accounting policy.

A8.14 This approach has worked reasonably well in the past, as the LECs were provided comparable benchmarks to BT as a whole. However, as a standalone access service telephone company, direct benchmarking of Openreach against the LECs was problematic.

A8.15 The mid point of the wide range of possible results from the analysis would put, BT's around the top decile of US LECs ranked by efficiency. The range was a construct of the need to significantly alter the range of services provided by Openreach in order to undertake a comparison with the US LECs. The artificiality of this process combined with the very wide range of possible results it produced does not allow a robust conclusion to be drawn (there is no reason to suppose that the mid point of the range is particularly meaningful). The variation in possible results indicated the difficulty in constructing a good comparison set of data to match against Openreach and hence the limitations of this approach. The reasons for this are probably a combination of changes to US operating approaches and the difficulty in extracting matching data to Openreach from US information.

A8.16 It is, therefore, necessary to look for alternative efficiency measures to encompass both the frontier shift and catch up efficiency.

Historic trend analysis

A8.17 The use of historical trend analysis assumes that long term trends in cost savings are indicative of the level of efficiency savings that may be achievable in the future.

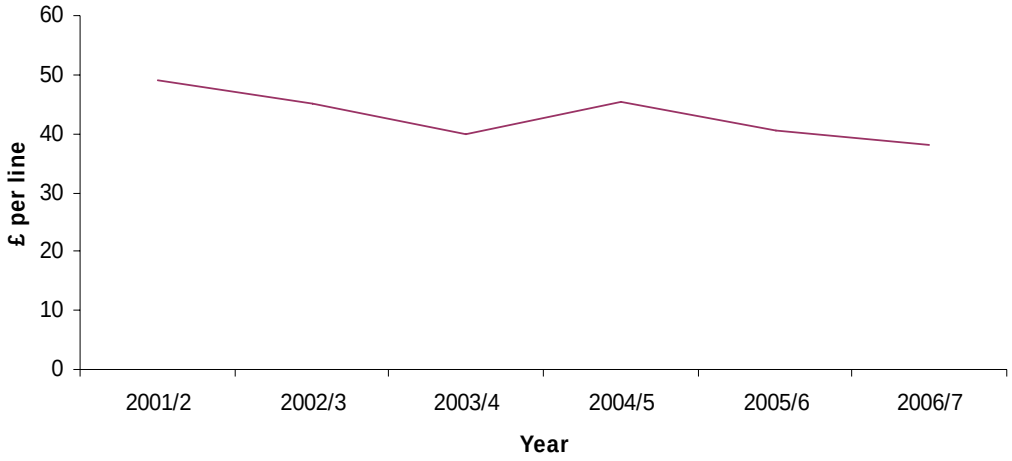
[27] see para 6.72 http://www.ofcom.org.uk/consult/condocs/charge/statement/annex6.pdf

A8.18 We have reviewed the costs set out in the regulatory accounts for PSTN residential access between 2001/2 and 2006/7 as a proxy for Openreach's range of rental products.

A8.19 Whilst the data series was complete in aggregate there were gaps in the level of granularity; in particular the information included combined rental and connection cost information (with the exception of 2003/4) and was no split of total HCA costs into depreciation and operating costs. It was therefore necessary to make assumptions in both these areas.

A8.20 Using volume of residential WLR rentals reported by BT to Ofcom we estimated that in real terms BT's annual efficiency improvement was just below 5% over the period.

Figure A8.1: PSTN residential access rentals - HCA Operating costs



A8.21 Openreach provided similar analysis based on more granular information. Focusing on total operating costs (including depreciation), Openreach estimated that it had delivered real efficiency gains of around 1.6% a year between 2001/02 and 2006/07. Restating this figure based on operating costs and excluding depreciation would suggest a historical rate of between 2% and 3%.

Cost review

A8.22 Ofcom engaged KPMG to carry out an initial review aimed at identifying components of Openreach's operating costs where there may be potential for improvements in efficiency and improvements in cost performance.

A8.23 The study identified a number of areas where they consider scope may exist for efficiency savings based on available benchmark and comparator data.

A8.24 More work is to be done following this consultation to better understand the extent to which these potential savings are realistic. However, based on their initial review, KPMG identified just over £300 million of potential efficiency savings. This amounts to approximately 10% of 2007/08 operating costs.

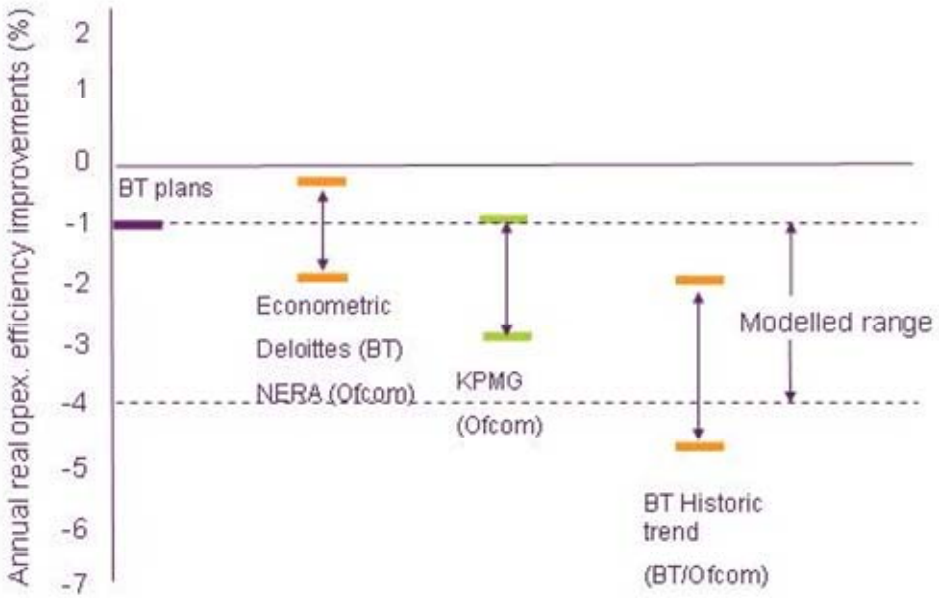
A8.25 Further work is required to form a more robust view of the scope for efficiency gains and the time if would take to deliver them. However, at this stage, a range of

between 1 and 3% additional savings per annum over a four year period appears reasonable.

A8.26 BT has provided Ofcom with some external research on comparative efficiency. This information has been provided to Ofcom on a confidential basis. Openreach has explained that this research was not commissioned for the purpose of determining Openreach's efficiency relative to international operators and that there are significant limitations to the inferences that can be drawn from it. We accept that there are such limitations, however, this research would, in our view, support projected efficiency improvements towards the upper end of our range.

Preliminary conclusions

A8.27 There are a range of sources available to inform an assessment of the potential efficiency gains. There are potential limitations associated with each approach. However taking all these approaches into account, Ofcom currently believes that efficiency gains in the range of 1% to 4% a year should be achievable for each year from 2008/09 onwards as illustrated in the graph below.



Annex 9

Volume forecasts

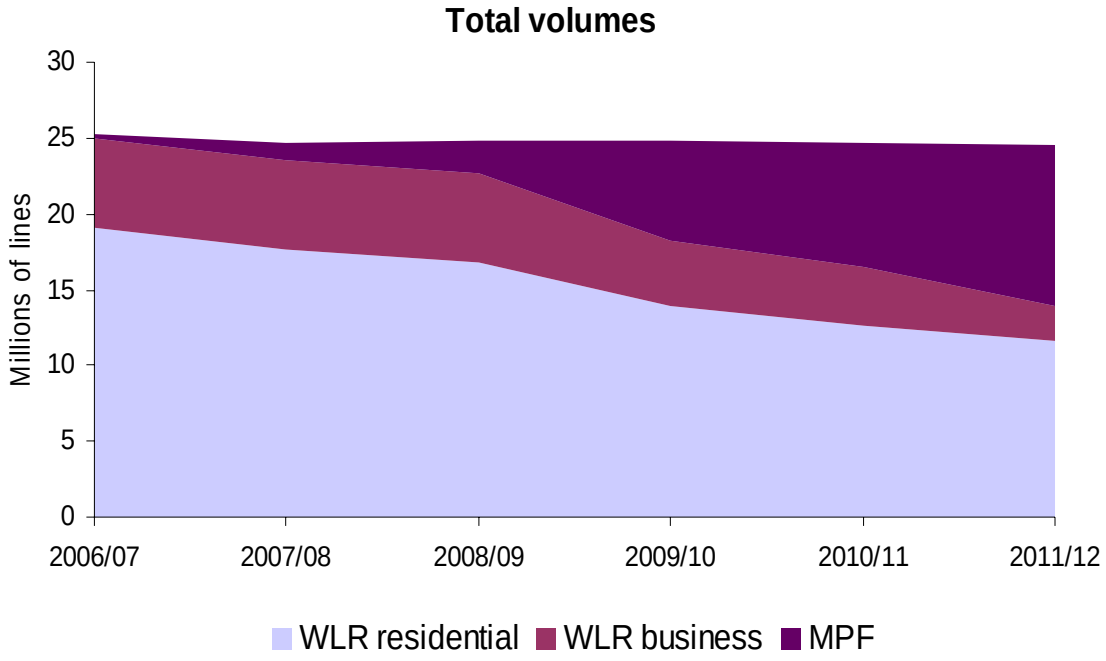
A9.1 The volume forecast used for the purpose of determining the final level of charges will be informed by responses to this consultation (see Section 6) and further research of our own. We recognise that forecasting changes in demand beyond the short term is inherently difficult and different forecasts could be made depending which view is taken about the way the market will evolve.

A9.2 The volume scenario presented below was provided by Openreach. We consider that the scenario represents a plausible outcome, without necessarily being the most likely outcome. The chosen scenario is illustrated in the graphs tables A9.1 to A9.5 below. Respondents' views on the likely level of demand for these services are invited in Section 5.

A9.3 A key consideration is the split between external (sales to non-BT customers) and internal volumes (sales within BT) with the greatest area of uncertainty being with respect to the volumes of external sales.

A9.4 Openreach's projections show the external market as increasingly moving to MPF as its new core network (21CN) network provides for the delivery of voice and data. Whilst BT recognises that under 21CN migration Openreach will be required to re-jumper their lines from the current configuration onto the new network architecture, they have not included a step change of internal WLR to MPF.

A9.5 In aggregate BT forecast a -0.4% annual reduction in single voice lines between April 2007 and March 2012, falling from 29.6m to 29.2m. Multivoice lines decline -29% annually in the same period (driven by migration of ISDN2 to broadband) with broadband line growth slows to +6.1% annually, total lines rising from 14.8 to 18.8m.

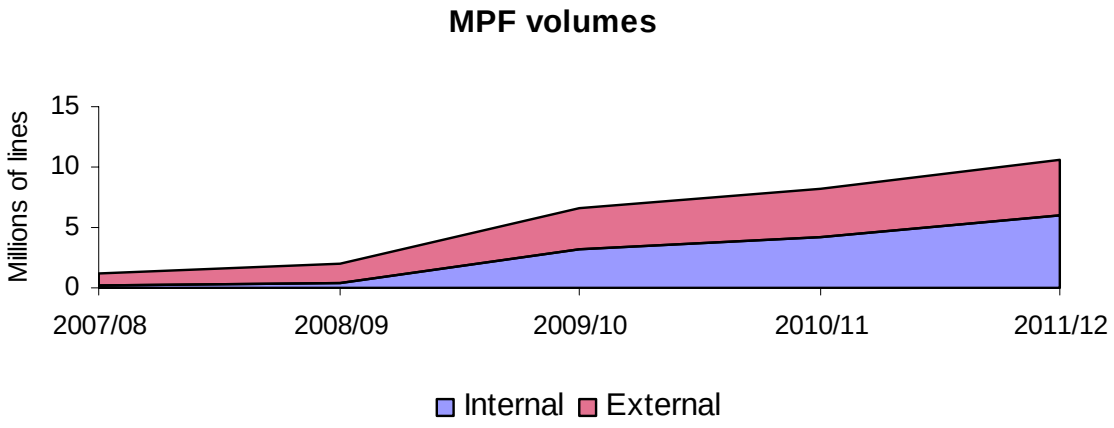


Volumes (,000)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
Residential WLR	18,250	17,652	16,797	13,945	12,672	11,636
Business WLR	5,856	5,916	5,895	4,278	3,785	2,261
SMPF	8,956	10,714	11,343	7,570	6,702	4,719
MPF	620	1,142	2,072	6,575	8,191	10,614

Figure A9.1

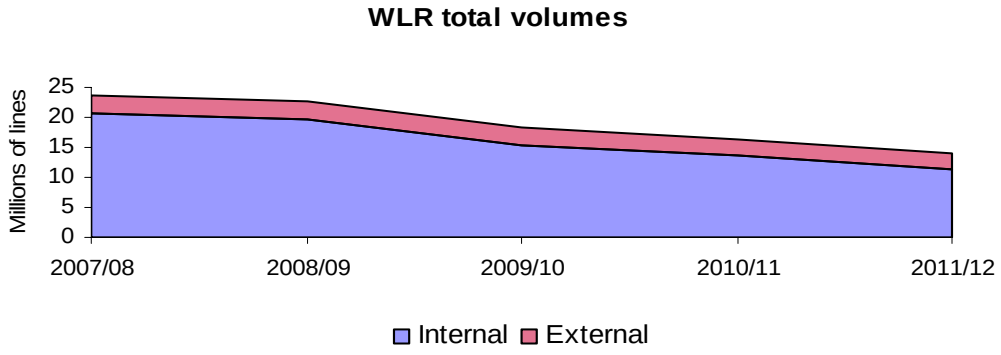
A9.6 MPF has increasingly become the favoured method of delivering broadband for external Communications Providers, between 2007/08 and 2011/12 LLU volumes for broadband grow from 0.9m to 4.7m. Growth is likely to be driven by Communications Providers increasing their presence in the number of exchanges whilst continuing to move to full LLU. The take-up of MPF will be driven by the price advantage MPF has over WLR+SMPF coupled with the greater product functionality and flexibility MPF allows. BT recognise that growth in MPF will slow once Communications Providers investment reaches the marginal exchanges but current estimate that unbundling is viable in approximately 2,000 exchanges

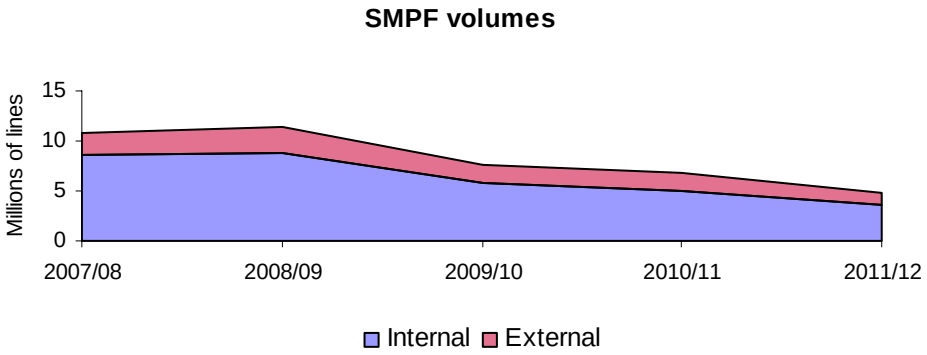
Figure A9.2



A9.7 As BT's model forecasts the replacement of a WLR and SMPF line for every MPF line, substitution has a large impact on external volumes. The rate of decline of WLR will double from -5.1 % annually to -11.8% in 2011/12, implying 5.6m less WLR lines. There is a bigger impact on SMPF where external declines go from -1.8% annually to -18.5%.

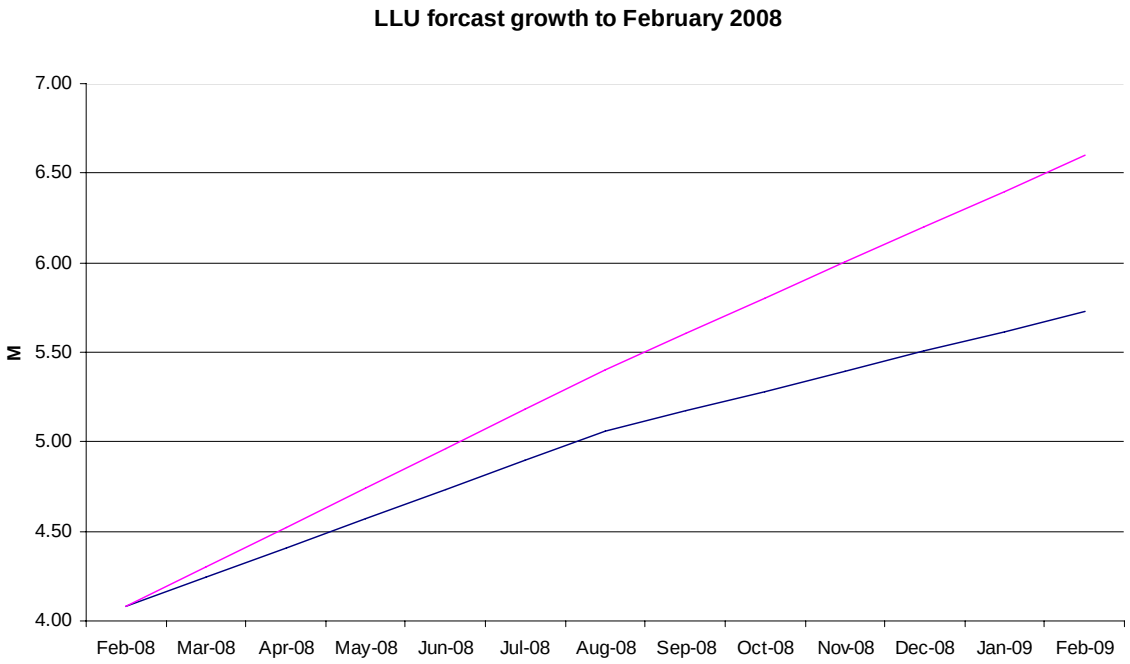
Figures A9.3 and A9.4





A9.8 The BT estimates will need to be reviewed against external projections. Our recent analysis suggests there may be some underestimation of external LLU volumes. Figure A9.5 set out the projected growth of external LLU (combined MPF and SMPF) out to Feb 2009, based on recent Communications Providers information. The table includes upper and lower bounds for growth suggesting there will be between 5.7 million and 6.6 million unbundled line (SMPF and MPF by the end of 2008/9. This contrasts with BT estimate of around 5 million external unbundled lines. This suggests BT may be underestimating the level of external demand.

Figure A9.5



Annex 10

Cost of Capital

Summary

A10.1 This annex sets out our initial view on the proposed approach to estimating the cost of capital relevant to the main existing business of Openreach. This is currently dominated by the provision of copper-based access services including WLR and LLU. This work will be refined over the course of the consultation process.

A10.2 For clarification, throughout the remainder of this Annex, we refer to this as the Openreach cost of capital. We recognise that this is a simplification – and that there may be parts of the Openreach business now or in the future to which a different cost of capital may apply.

A10.3 There is a great deal of uncertainty in global credit (and, to a lesser extent, equity) markets at the present time. The timing of this review of cost of capital presents some challenges, not least in terms of our approach to cost of debt[28].It is not our intention at this early stage to limit our scope of analysis during a period of flux.

A10.4 That said, we believe it is appropriate to consult on the weighted average cost of capital ("WACC") as part of the current review of Openreach's financial framework, particularly as there appear to have been material changes in several of the key parameters previously used in our WACC calculations.

A10.5 We believe that the appropriate framework to use is the capital asset pricing model ("CAPM"). For a discussion of the framework and our approach please see the Final Statement that we published in August 2005 entitled "*Our approach to risk in the assessment of the cost of capital*[29]" (the "Final Statement"). Our approach has been similar to that adopted in the Final Statement, in that we have taken a long-term, cautious approach.

A10.6 In the Final Statement we estimated the WACC for the main Openreach business to be 10.0% (which was then referred to as BT's "copper access network business", and 11.4% for the rest of BT (i.e. everything other than this). The 10% rate was used as the basis for the existing charge ceilings for WLR and LLU.

A10.7 Based on our estimates of the key parameters as set out in this annex, we estimate a range for Openreach's pre-tax nominal WACC of 9 – 10% (vs 2005 figure of 10.0%). Our estimated range for the pre-tax nominal WACC for the rest of BT is 10 – 11% (vs 2005 figure of 11.4%). These ranges are consistent with a BT Group range of 9.5 – 10.5%.

A10.8 Our calculations are based on the following range of estimates:

[28] See paras A10.70 - A10.75 for further discussion on this issue.
[29] http://www.ofcom.org.uk/consult/condocs/cost_capital2/statement/final.pdf

	Openreach	BT Group	Rest of BT
Equity Risk Premium	4.5 – 4.75%	4.5 – 4.75%	4.5 – 4.75%
Equity Beta	0.7 – 0.8	0.8 – 0.9	0.9 – 1.0
Risk-free rate	4.2 – 4.6%	4.2 – 4.6%	4.2 – 4.6%
Debt premium	2 – 3%	2 – 3%	2 – 3%
Pre-tax nominal WACC[30]	**9 – 10%**	**9.5 – 10.5%**	**10 – 11%**

A10.9 In proposing these ranges, we have, amongst other things, had regard to Section 3(4)(d) of the Communications Act 2003; i.e. to have regard to the desirability of encouraging investment and innovation in relevant markets when exercising our duties.

Equity Risk Premium ("ERP")

Key parameter in CAPM

A10.10 The ERP is a key component of the estimate of a company's WACC.

A10.11 Under the CAPM the ERP represents the extra return that investors require as a reward for investing in equities rather than a risk-free asset. It is market-specific, not company-specific.

A10.12 Academics and other users of the CAPM have conducted a large number of investigations into the value of the ERP, using quantitative techniques and surveys. These have produced a range of widely differing estimates, which means that we (and other economic regulators) have to choose a value from within the plausible range implied by these studies.

A10.13 Our approach to estimating the ERP is as set out in the 2005 Final Statement.

Alternative estimation methods and estimates

A10.14 A number of different methods are used to measure the return that investors will require for investing in equity markets. These may be based on historical investment returns (i.e. an ex-post approach), or on forward-looking considerations (i.e. an ex-ante approach).

A10.15 We consider the following estimation methods:

a) Ex-post estimation:

- Extrapolating observed historical risk premia;

[30] At this stage of the consultation process we consider it prudent to round our range estimates of the WACC to the nearest 0.5%.

- Extrapolating adjusted historical risk premia; and

b) Ex-ante estimation

- Using the dividend growth model;

- Surveys of academic and user expectations.

Ex-post estimation – extrapolating historical risk premia

A10.16 Historic risk premia are calculated as the difference between the return earned from the equity market and that earned from government bonds.

A10.17 Work carried out by the London Business School's Dimson, Marsh and Staunton ("DMS")[31] is regarded as being one of the most authoritative sources of historical estimates. DMS measure total returns over a relatively long period, include a large sample of countries and make adjustments for survivorship bias.

A10.18 Figure 1 below summarises the historic risk premia presented by DMS for UK and World equity market indices. This data is not materially different from that set out in the 2005 Final Statement.

Figure 1: Risk premia based on asset price data for 1900 – 2007

	Relative to Bills		Relative to Bonds	
	Geometric Mean	Arithmetic Mean	GM	AM
UK	4.4	6.1	4.1	5.4
World	4.8	6.1	4.0	5.1

Source: Dimson, Marsh and Staunton, Global Investment Returns Yearbook 2008, tables 10, 11 (p48)

A10.19 As stated in the 2005 Final Statement, we place most weight on UK and World ERPs, and believe that some weight should be given to historic premia that are:

- Measured relative to bonds;

- Calculated on an arithmetic and geometric basis (with a greater emphasis placed on arithmetic measures); and

- Calculated with reference to both world and domestic equity markets.

A10.20 The estimates given in Figure 1 suggest it would be appropriate to give weight to historic premia between 4.0% and 5.5%.

A10.21 DMS themselves have suggested an arithmetic mean premium for the world index of approximately 4.5 – 5.0%[32]

Ex–post estimation – extrapolating adjusted historical risk premia

A10.22 DMS have suggested that historic risk premia are likely to over-estimate the future ERP, since the market has outperformed the expectations of investors over the last

[31] Dimson, Marsh and Staunton, 2008, "Global Investment Returns Yearbook 2008", ABN AMRO, London Business School.
[32] DMS 2008, p52

century. Investors could not reasonably have expected to experience such prolonged periods of growth and economic stability, particularly in the US.

A10.23 DMS adjust for this apparent out-performance by making a downward adjustment to historical premia.

A10.24 In addition, investor confidence has grown, leading to a re-rating of equities, observed by DMS as a step change in price/earnings ratios. Therefore either investors are expecting faster earnings and dividend growth or they are requiring a lower risk premium (or both). By taking into account current forecasts for earnings/dividend growth DMS have made a downward adjustment to the historic risk premium.

A10.25 In the 2005 Final Statement we published a table showing risk premia and adjustments to account for the re-rating of equities and outperforming expectations[33]. We note that DMS have not updated this information in the most recent yearbook for 2008, however, we believe that the period 1900 – 2004 is still a relevant period for the purposes of this analysis.

A10.26 Adjusting for out-performance of expectations and the re-rating of equities leads to a downward adjustment. We have applied a downward adjustment of 1% to the range for the historic ERP of 4 to 5.5%.

A10.27 The figures above imply a range for the adjusted ERP over bonds of 3 to 4.5%.

A10.28 We note that the DMS adjustments are fairly subjective, and we would advocate putting only a modest amount of weight on these adjusted returns.

Ex-ante estimation – estimates not based on historic returns

A10.29 The ERP can be estimated without using historical data.

A10.30 The dividend growth method is based on forecasts of future dividend growth. With this method you can calculate an “implied” ERP using current market values and forecasts for earnings/dividends.

A10.31 In the 2005 Final Statement we presented a range of ERP estimates based on this method of estimation with a midpoint of 3.5 to 4%.

A10.32 In response to our consultation documents that preceded the final statement some stakeholders argued that approaches of this type are seriously flawed since they rely on highly subjective input parameters i.e. analyst expectations and an assumption of constant growth rates.

A10.33 We agree that approaches of this type require the use of highly subjective parameters. As a result, we place relatively little weight on this type of analysis. We believe that the range presented at the time of our 2005 Final Statement is still relevant.

[33] See 2005 Final Statement, p32, for this table.

Ex-ante estimation: academic/user surveys

A10.34 It is possible to estimate the ERP by using surveys carried out amongst academics and users of the CAPM. Participants are asked to quantify the returns that they expect from the equity market over a particular time horizon.

A10.35 The first consultation that we published in January 2005[34] in relation to assessing BT's cost of capital set out the range of views of academics as being from 3 to 7%, while the views of practitioners ranged from 2 to 4%.

A10.36 A more recent study of US finance academics, carried out by Ivo Welch, suggested that an estimate of the ERP based on academic views might be around 5%, based on a sample of about 400 finance professors and the 30-year geometric equity premium.[35]

A10.37 We would afford this analysis relatively little weight given that it appears to lack the necessary robustness, and also does not take account of recent market conditions.

Regulatory benchmarks

A10.38 The range of ERP estimates adopted by the UK's economic regulators and competition authorities is in the range of 2.5% to 5.0%.

Figure 2: Regulatory benchmarks of ERP

Source/Year	ERP	Comment
Ofcom, 2005	4.5% (range of 4.0% to 5.0%)	Our approach to risk in the assessment of the cost of capital, 18 August 2005
Ofwat, 2004	4.0% – 5.0%	For period 2005 – 10. To be reviewed in 2009.
Ofgem, 2006	4.0% - 5.0%[36]	Difference between market return of 6.5% to 7.5% and risk-free rate of 2.5%.
CC/CAA, 2007	2.5% - 4.5%	5-yr review of cost of capital for BAA London Airports[37]
FSA, 2006	4.0%[38]	Difference between market return of 8.1% and risk-free rate of 4.1%.

[34] http://www.ofcom.org.uk/consult/condocs/cost_capital/cost_capital.pdf
[35] http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1084918
[36] http://www.ofgem.gov.uk/Networks/Trans/PriceControls/TPCR4/ConsultationDecisionsResponses/Documents1/16342-20061201_TPCR%20Final%20Proposals_in_v71%206%20Final.pdf
[37] This range of values for the ERP has attracted criticism for being too low by a number of academics, including Stephen Schaefer (LBS) and Stewart Myers (MIT), both of whose papers can be found at http://www.caa.co.uk/docs/5/ergdocs/heatgatnov07/baa_a.pdf
[38] http://www.fsa.gov.uk/pubs/cp/cp06_03.pdf

Our objectives in determining the ERP

A10.39 In determining an appropriate value for the ERP, we have looked to previous decisions by ourselves, other economic regulators, and the Competition Commission. Given the lack of consensus for values for the ERP adopted by these bodies, there is a range of reasonable values that Ofcom could adopt.

A10.40 We have had regard to Section 3(4)(d) of the Communications Act 2003 ("The Act"); i.e. to the desirability of encouraging investment and innovation in relevant markets when exercising our duties.

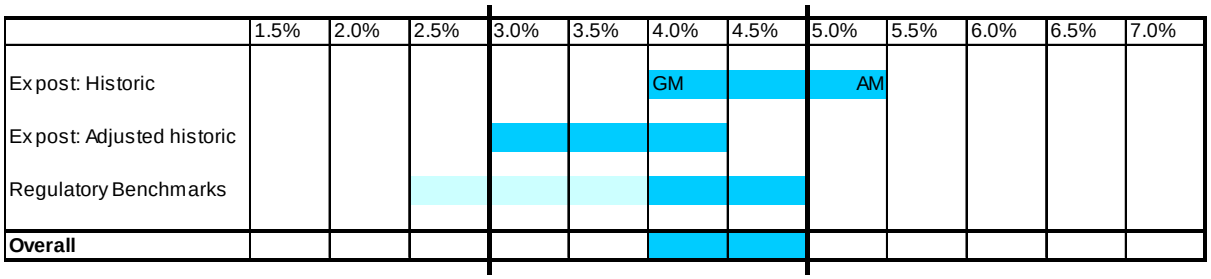
A10.41 While setting rewards too low could lead to discretionary investment being discouraged, setting rewards too high could lead to consumers paying prices that are too high (or investments that are not fully justified by demand).

A10.42 Our duty to promote competition under Section 4 of The Act is also an important factor to consider. We would also note that competition at the retail level may provide a stimulus for innovation.

A range of values for the ERP

A10.43 The figure below summarises the ERP estimates discussed above.

Figure 3: Summary of ERP estimates



A10.44 Our view on the ERP is similar to that presented in the 2005 Final Statement, and we believe that a range of 4 to 5% reflects a balanced view of the available evidence.

A10.45 We would note that the recent consensus suggests that there has been some upward pressure on the ERP since we last reviewed BT's cost of capital, perhaps in line with increased volatility in equity markets.

A10.46 For example, recent Bank of England quarterly bulletin data suggests an increase in the implied equity risk premium to above the 4.5% level.[39]

A10.47 We maintain our belief that the downside of an estimate of the ERP that is too low is worse than the downside of one that is too high. We therefore tend to favour setting the ERP towards the upper end of the 4 to 5% range.

A10.48 To allow for both an upward movement in recent consensus views and our tendency to err on the upper end of the range, we have adopted a central range of 4.5 - 4.75% for the ERP.

[39] http://www.bankofengland.co.uk/publications/quarterlybulletin/qb0704.pdf

BT Group Beta

What does the equity beta represent?

A10.49 The value of a company's equity beta reflects movements in returns to shareholders (as measured by the sum of dividends and capital appreciation) from its shares relative to movements in the return from the equity market as a whole.

A10.50 We estimated the BT Group equity beta to be 1.1 in our 2005 Final Statement. This was based on a series of datapoints, with particular reference to the 2-year daily estimate of BT's beta measured against the FTSE Allshare index.

How has BT's Group beta moved since 2005?

A10.51 We commissioned a study from the Brattle Group into how BT Group's equity beta had moved since the last review and for their estimation of the range of values that we should now consider[40].

A10.52 Brattle advised us that BT's equity beta had fallen since the last review in 2005, and estimated a range of 0.7 to 0.9 for BT's equity beta.

A10.53 Given the relative volatility and turmoil in credit (and, to a lesser extent, equity) markets since the 2nd half of 2007, we propose a beta estimate for BT towards the upper end of the range proposed by Brattle.

A10.54 This would imply a reduction in BT Group's beta, from 1.1 in 2005.

A10.55 In our range of estimates for the WACC for BT Group, we have used a range of 0.8 – 0.9 for BT's beta.

Is it appropriate to reflect project-specific variations in risk in Our financial analysis?

A10.56 As we set out in the 2005 Final Statement, it is sometimes appropriate to view some large companies such as BT as being a group that consists of a number of firms, or projects, each with its own unique risk profile, that operate together under common ownership.

A10.57 Since the conclusion of Ofcom's Strategic Review of Telecommunications in 2005, the creation of Openreach has given greater clarity over the access services part of BT Group's business. We set a number of charges for various Openreach and BT products.

Rewarding project risk

A10.58 As set out in 2005, to reward projects (or businesses) with different levels of risk differently, in a regulated environment, two approaches can be used:

A10.59 Allowing different costs of capital on different projects; and

A10.60 Adjusting the cash flows on the projects to reflect the probability of different outcomes.

[40] See separate Annex entitled "Updated Estimate of BT's Equity Beta March 2008"

A10.61 Adjusting the cost of capital will affect the discounting of all cash flows to an extent that is dependent on their timing. However, applying adjustments directly to cash flows makes it easier to focus on individual elements of risk within a company.

A10.62 In the Final Statement we presented our view that the case for assessing risk on a project-specific basis is likely to be stronger under the following circumstances:

- There are strong *a priori* reasons for thinking that the systematic risk faced by the project was significantly different from that faced by the overall company (e.g. different income elasticities of demand and/or stability of cash flows);

- There is evidence which can be used to assess variations in risk e.g.:

a) There are benchmark firms that are close to "pure play" comparators in terms of having similar risk characteristics to individual projects within the firm;

b) Other quantitative analysis can be used to assess variations in risk (such as the work carried out on our behalf by PwC for the 2005 Final Statement);

c) Data on the firm is supplied at a disaggregated level (accounting separation); and

d) Correctly identifying variations in risk, and reflecting this in an adjusted rate of return, is likely to bring about significant gains for consumers.

A10.63 We have not significantly changed our view of the correct way to approach disaggregating BT's cost of capital since the Final Statement in 2005.

A10.64 On our view, in the case of BT's cost of capital, it is appropriate to reflect project-specific variations in risk in our financial analysis.

What does BT's Group beta imply for the estimate of Openreach's equity beta?

A10.65 In the 2005 Final Statement, we estimated an appropriate notional beta for BT's copper access network business which was 0.2 lower than BT Group's. While we recognise that the process of disaggregation of equity betas is not an exact science, we remain of the view that Openreach's beta is below that of the BT Group[41].

A10.66 Therefore, where previously we estimated the beta for BT Group at 1.1 and for BT's copper access network business at 0.9 in 2005, we propose to make a similar downward adjustment to the BT Group beta for Openreach.

A10.67 Our interim view at this stage suggests an Openreach beta lower than the BT Group figure, although a reduction of 0.2 would result in beta levels disproportionately low when compared with similar network utilities[42]. Therefore, we estimate a beta for Openreach in the range 0.7 – 0.8 (compared to a BT Group beta range of 0.8 – 0.9).

A10.68 We also note that Openreach is now a larger proportion of BT Group (as measured by mean capital employed) than it was in 2005, having increased from around 40% in 2004 to around 50% in 2007. This has a knock-on effect for the beta of the rest of BT.

[41] See 2005 Final Statement sections 6 and 7 for a full explanation of the magnitude of our reduction in BT Group's equity beta for BT's access services division (i.e. Openreach).
[42] For examples of comparator network utilities, see section 7 of the 2005 Final Statement.

BT and the debt markets

Introduction

A10.69 Our WACC calculations require two further inputs in addition to those already set out, e.g.

a) The risk-free rate; and

b) BT's debt premium.

A10.70 Since the latter half of 2007 there has been increased uncertainty and volatility in world credit markets, and we have been mindful of this when considering our estimates of debt parameters.

A10.71 We would note that the volatility in world credit markets has had a number of distinct effects in recent months, two of which are partially offsetting for the purposes of our calculations:

A10.72 As volatility and uncertainty in credit (and also in property) markets has increased, central bank interest rates have fallen and the risk-free rate has dropped.

A10.73 The demand for corporate credit risk has diminished and the price of corporate debt issues has increased, pushing up BT's debt premium.

A10.74 These two short-term effects can be reflected in the risk-free rate and BT's debt premium in our calculation, but this would require a shift to a more short-term focus than we have used in the rest of our analysis.

A10.75 Therefore, while we are mindful of short-term increases in the cost of debt for BT, we do not propose to fully reflect the short-term cost of debt in our calculations. By the same token, we do not propose to fully reflect the short-term reduction in the risk-free rate.

A10.76 For the purposes of illustration, we have given a range of values for both the risk-free rate and the BT debt premium.

A10.77 The lower end of the range for the risk-free rate is associated with the higher end of the debt premium range (i.e. a relatively short-term view), while the higher end of the risk-free rate range is associated with the lower end of the debt premium range (i.e. a relatively long-term view).

The risk-free rate

A10.78 The risk-free rate of interest is an input into both the calculations of the cost of debt and the cost of equity.

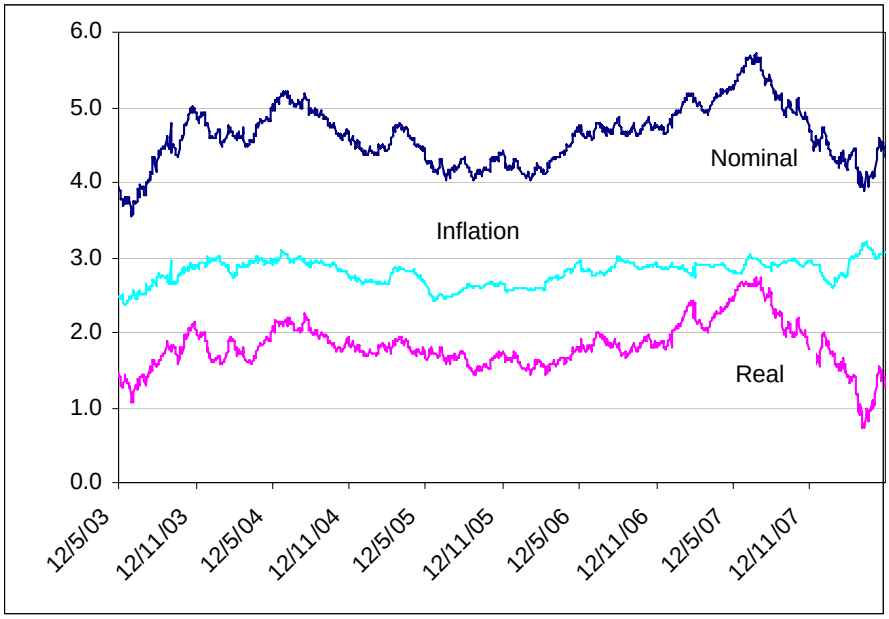
A10.79 For a UK company, a proxy for the nominal risk-free rate is the yield to maturity on gilts, or government strips[43], while the real risk-free rate can be proxied by the yield on index-linked gilts of appropriate maturity. The difference between the two provides an estimate of inflation.

[43] STRIPS = Separate trading of registered interest and principal securities - fixed-income securities sold at a significant discount to face value which offer no interest payments because they mature at par.

A10.80 We can track the nominal, real and inflation rates over time, using Bank of England data on 5-year duration gilts, as shown by Figure 4 below.

A10.81 From the figure we can see that the nominal yield peaked at around 5.8% in July 2007 and has been falling since. We would argue that the most recent 3-month average nominal yield of around 4.2% should be seen as being at the bottom of a range of possible values.

Figure 4: Nominal, Real and Implied Inflation 5 yr rates 2003 – 2008



Source: Bank of England data

A10.82 The average nominal yield for 5-year zero coupon gilts has fallen over the last year. While we would give more weight to the more recent nominal rates than those from 5 years ago, we are mindful that we do not wish to estimate the rate based on a period of abnormally-low rates.

Figure 5: Historic averages of Nominal, Real and Inflation 5 year rates

Averaging period	Nominal	Real	Inflation
Spot (9 May 08)	4.3	1.3	3.1
3 month	**4.2**	1.2	3.0
6 month	4.3	1.4	2.9
1 year	4.8	1.9	2.9
2 year	4.8	1.9	2.9
3 year	**4.6**	1.8	2.8
5 year	**4.6**	1.8	2.8

Source: Bank of England data

A10.83 We would propose a range of 4.2 to 4.6% to be appropriate for the nominal risk-free rate.

BT's Debt Premium

A10.84 This is a time of huge volatility and uncertainty in credit markets, and this uncertainty is reflected in corporate bond yields, which have risen as government gilt yields have fallen.

A10.85 BT's current credit rating is Baa1 (Moody's)/BBB+ (S&P), and the evidence of its recent debt issues suggests that its short-term debt premium is in the region of 300 basis points (bps), or 3.0%, up significantly from the 1.0% that we estimated in our 2005 Final Statement.

A10.86 However, longer term measures of BT's debt premium suggest that 3% may be a temporary high. For example, the premium over the risk-free rate on BT's sterling-denominated 10 year corporate debt issued in June 2007 was around 1.5% at the time of issue (but has now increased to over 2.5%).

A10.87 Taking into account the ongoing volatility of credit markets, we would propose a range of 2 – 3% for BT's debt premium.

A10.88 We would note again that our analysis pairs the higher end of the debt premium range (i.e. a relatively short-term view) with the lower end of the range for the risk-free rate, while the lower end of the debt premium range (i.e. a relatively long-term view) is associated with the higher end of the risk-free rate range.

Conclusions

A10.89 The table below sets out the WACC estimates for Openreach and the rest of BT based on the estimates outlined in the sections above.

A10.90 We propose the following ranges of values for the pre-tax nominal WACC:

- Openreach: **9 – 10**% (versus 10.0% for BT's copper access network business in 2005)
- The rest of BT: **10 – 11**% (versus 11.4% in 2005).

Table 1: Range of estimates of pre-tax nominal WACC for Openreach

WACC Component	Estimate
Risk-free rate	4.2 – 4.6%
Equity Risk Premium	4.5 – 4.75%
Equity Beta	0.7 – 0.8
Cost of equity (post tax)[44]	7.5 – 8.5%
Debt premium	2 – 3%
Cost of debt (pre-tax)	6.5 – 7.0%
Corporate tax rate	28%
Cost of debt (post tax)	4.5 – 5.0%
Gearing	35%
WACC (post tax)	6.5 – 7%
WACC (pre-tax)	9 – 10%

Table 2: Estimates of pre-tax nominal WACC for rest of BT

WACC Component	Estimate
Risk-free rate	4.2 – 4.6%
Equity Risk Premium	4.5 – 4.75%
Equity Beta	0.9 – 1.0
Cost of equity (post tax)	8.5 – 9.5%
Debt premium	2 – 3%
Cost of debt (pre-tax)	6.5 – 7%
Corporate tax rate	28%
Cost of debt (post-tax)	4.5 – 5%
Gearing	35%
WACC (post tax)	7 – 7.5%
WACC (pre tax)	10 – 11%

[44] Estimates of ranges for cost of equity, cost of debt and WACC have all been rounded to the nearest 0.5% at this early stage of the consultation process.

Annex 11

Updated Estimate of BT's Equity Beta March 2008

UPDATED ESTIMATE OF

BT'S EQUITY BETA

MARCH 2008

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Contents

1 Introduction and Summary of Findings

Ofcom has asked us to update previous estimates of BT's equity beta. Table 1 shows our estimates of the beta relative to both UK-based and global market indices, and across a number of timeframes.

Table 1

BT beta measured against the FTSE allshare index

Period	1 year	2 year	5 year
Start date	01/03/2007	01/03/2006	01/03/2003
End date	29/02/2008	29/02/2008	29/02/2008
Beta	0.84	0.77	0.91
Standard error	0.06	0.05	0.04

BT beta measured against the FTSE allworld index

Period	1 year	2 year	5 year
Start date	01/03/2007	01/03/2006	01/03/2003
End date	29/02/2008	29/02/2008	29/02/2008
Beta	0.95	0.87	0.93
Standard error	0.10	0.08	0.06

Table 2 shows also a number of estimates for earlier time periods, illustrating that beta estimates in previous years would have been different.

Table 2

BT beta measured against the FTSE allshare index

Period	1 year	1 year	1 year	2 years	2 years	2 years
Start date	01/03/2005	01/03/2006	01/03/2007	28/02/2004	01/03/2005	01/03/2006
End date	28/02/2006	28/02/2007	29/02/2008	28/02/2006	28/02/2007	29/02/2008
Beta	0.82	0.60	0.84	0.83	0.67	0.78
Standard error	0.12	0.10	0.06	0.08	0.08	0.05

BT beta measured against the FTSE allworld index

Period	1 year	1 year	1 year	2 years	2 years	2 years
Start date	01/03/2005	01/03/2006	01/03/2007	28/02/2004	01/03/2005	01/03/2006
End date	28/02/2006	28/02/2007	29/02/2008	28/02/2006	28/02/2007	29/02/2008
Beta	0.64	0.67	0.95	0.73	0.65	0.87
Standard error	0.15	0.14	0.10	0.09	0.10	0.08

The one-year beta measured one year ago looks to be somewhat below both current and earlier estimates, and the two year beta shows a similar pattern. Clearly any change in beta over time raises important questions, not least because the measurement procedure assumes implicitly that it is constant within the measurement window. We must therefore ask whether any change reflects a shift in the fundamental relationship between BT's

equity and the overall market, or is a statistical artefact (ie, has beta changed, or is it that these are different estimates of the same underlying parameter)? One obvious explanation might be a change in gearing, but BT's gearing has recently been fairly constant.[1]

To address these questions, we test the reliability of the statistical estimates using a variety of formal and informal statistical techniques. Our analysis suggests that the estimates are generally reliable, even though the dataset includes a number of outliers, and recent market volatility may mean that the most recent estimates have slightly larger standard errors. For the one year estimates we have performed additional analyses: examining the impact of removing the most influential outliers, and of giving less weight to outliers via a "robust regression".[2] Table 3 shows that the standard estimates are not significantly influenced by the existence of outliers.

Table 3

BT beta measured against the FTSE allshare index

Regression	Normal	Influential outliers removed	'Robust'
Start date	01/03/2007	01/03/2007	01/03/2007
End date	29/02/2008	29/02/2008	29/02/2008
Beta	0.84	0.82	0.82
Standard error	0.06	0.07	0.05

However, if we look at a "rolling" beta estimate, the influence of outliers can be seen in the one-year regressions. Figure 1 shows what one and two year estimates of the BT equity beta look like on a "rolling basis", against the Allshare index (the Appendix shows the equivalent graph for the Allworld index). The striking feature is the "cliff-edge" effect, with the beta estimate dropping significantly when the "window" changes by just a few days, bringing 15 and18 May 2006 "outliers" into the dataset. The one-year beta then rises sharply when these outliers leave the window again.

Figure 1 also shows that the one-year estimate fell significantly in the early part of 2004 and that the two-year estimates correspondingly fell in the early part of 2005. Following these falls, the two-year estimate has been broadly stable. The one-year estimate temporarily fell further during mid-2006 to mid-2007.

[1] Gearing in the four quarters starting 31st March 2006 averaged 27% on a net debt basis, and 26% in the four quarters starting 31st March 2007.

[2] We report these analyses on a heuristic basis. In particular we note the lack of a good theoretical basis for removing outliers in this context.

Figure 1

Conclusions

Our findings suggest that:

- BT's estimated equity beta has fallen somewhat since 2004/5.
- The latest estimates seem to be reliable, in the sense that they do not seem to be influenced by outliers.
- The lower one-year beta estimates from mid 2006 to mid 2007 seem to be due to a small number of "unusual" days.[3]
- Based on those regressions, it is reasonable to use a range of 0.7 to 0.9 for BT's current equity beta.

[3] The estimate falls when the unusual days enter the regression window, and rises again when they leave, explaining the U-shaped portion of the rolling regression chart centred around December 2006.

2 Statistical Reliability

One set of concerns about statistical reliability relates to the "standard assumptions" that underlie classic regression, specifically that the error term in the regression follows a normal distribution and does not suffer from heteroscedasticity or auto-correlation. Failure to meet these conditions does not invalidate the regression estimates (i.e., the beta estimate), but it does have the following consequences:

1. Although OLS is still an unbiased procedure in the presence of heteroscedasticity and/or autocorrelation, it is no longer the best (least variance) estimator.

2. In the presence of heteroscedasticity and/or autocorrelation, the beta estimate may be more uncertain (that is, OLS may under-estimate the standard error of the beta estimate).

3. Heteroscedasticity and/or auto-correlation may also indicate that the underlying regression is mis-specified.

4. Failure of normality does not *per se* undermine the validity of OLS, but the presence of outliers raises difficult questions about the robustness of the estimates.

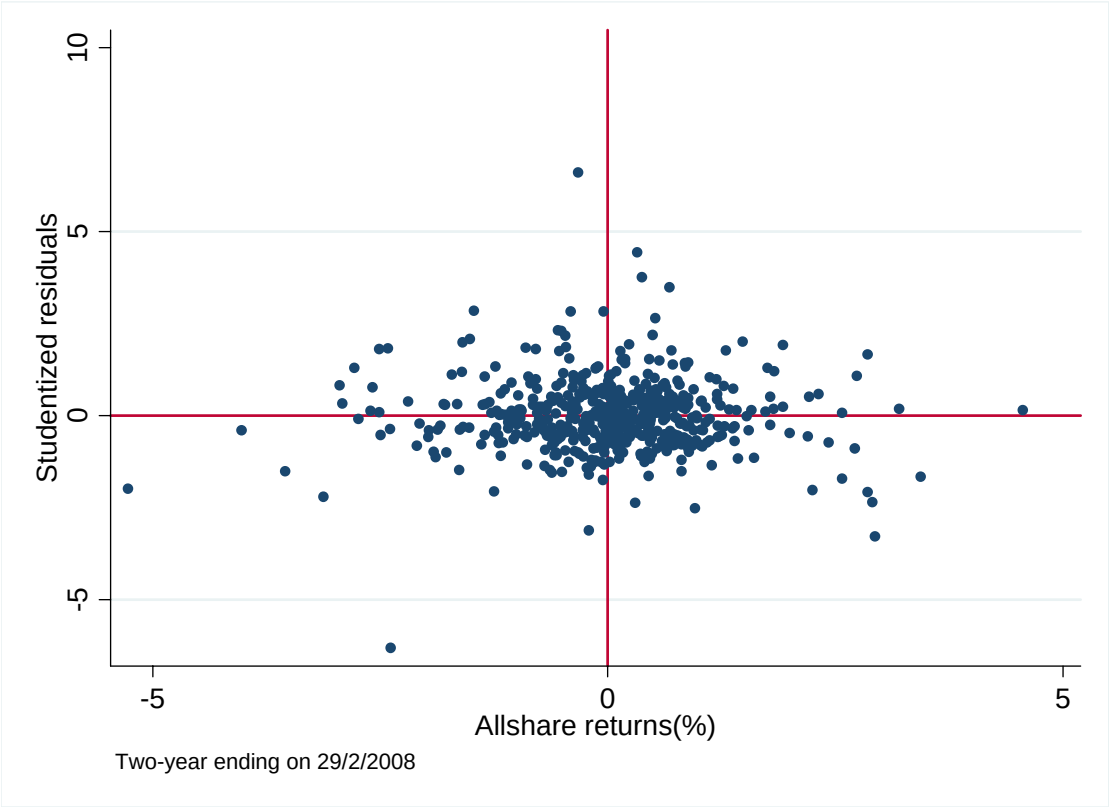
We have therefore carried out a number of standard diagnostic tests.

2.1 Tests for heteroscedasticity

Figure 2 shows a scatterplot of the residuals against the market index returns, for the two-year FTSE Allshare regression. Visual inspection does not reveal any clear pattern—the "vertical spread" does not appear to change in any systematic way as we move horizontally across the graph, as would be the case under typical sources of heteroscedasticity. However, there are clearly a number of outliers. We discuss the issue of outliers later in this paper.

The Appendix provides the corresponding graphs for our other three main regressions (one year Allshare and one and two year Allworld). The conclusions are similar in all cases.

Figure 2



Although Figure 2 does not show any obvious evidence of heteroscedasticity, we have also performed formal tests (the White test) for heteroscedasticity, reported in Table 4 below. The White test suggests that regressions against the Allshare index show evidence of heteroscedasticity (possibly as a result of the recent volatility in market returns associated with the "credit crunch"). Nevertheless, the heteroscedasticity does not seem to be making our regression results significantly less reliable: Table 1 and Table 2 show both standard errors and "robust" standard errors, which correct for the presence of heteroscedasticity, and the two are almost the same.

Table 4

BT beta measured against the FTSE allshare index

Index	Allshare	Allworld	Allshare	Allworld
Start date	01/03/2006	01/03/2006	01/03/2007	01/03/2007
End date	29/02/2008	29/02/2008	29/02/2008	29/02/2008
White statistic	6.63	3.76	5.59	1.31
p-value	0.04	0.15	0.06	0.52

2.2 Tests for auto-correlation

We have performed a formal test (the Durbin-Watson test) for auto-correlation, reported in Table 5 below. The test shows no sign of auto-correlation.[4]

[4] Auto-correlation would be signalled by a statistic outside the range 1.65 to 2.31.

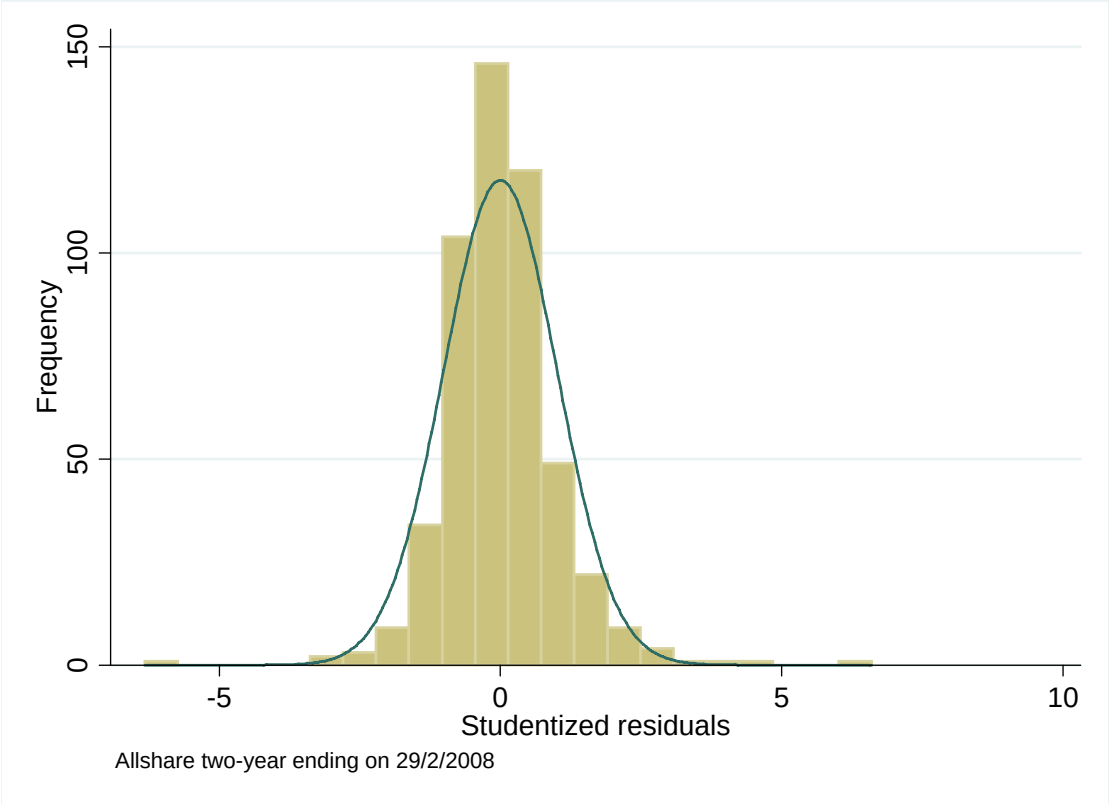
Table 5

Index	Allshare	Allworld	Allshare	Allworld
Start date	01/03/2006	01/03/2006	01/03/2007	01/03/2007
End date	29/02/2008	29/02/2008	29/02/2008	29/02/2008
d-stat	1.91	2.09	1.78	2.16

2.3 Normality and Outliers

To test for normality of the residuals we have plotted a histogram of the "studentised residuals", shown in Figure 3 (for the two-year FTSE Allshare regression). The curve superimposed on the histogram is a standard normal distribution. If the error terms follow a normal distribution then the studentised residuals should follow the t-distribution, which for our sample size is practically indistinguishable from the standard normal distribution. The histogram looks like a normal distribution except for the outliers: there are a few too many points a large number of standard deviations away from zero.

Figure 3



There is no "right answer" to the treatment of outliers. In this case they clearly represent genuine data points. For example, on the 18 May 2006 BT gained 8.1% while the Allshare dropped by 0.3%, so that on that particular day holding BT shares was an outstanding hedge against market risk. Equally however, the presence of outliers can make standard OLS estimates less reliable.

As a guide to help understand the influence of outliers on our beta estimates we have carried out two analyses: looking at the impact of removing "influential outliers", and performing a "robust regression".

To identify influential outliers we calculate the 'Cook's D' measure of the influence of each point on the regression outcome. A usual threshold is to classify points with a D score over 4/N (number of observations) as influential. Table 6 lists the observations with D scores over this threshold and which have studentized residuals of more than +/- 3. We identify the six observations shown in bold as influential outliers.[5]

Table 6

Date	BT return (%)	Allshare return (%)	Cook's D	Residuals
03Mar2006	**6.01**	**0.32**	**0.020**	**4.43**
06Mar2006	**5.10**	**0.68**	**0.016**	**3.49**
18May2006	**8.12**	**-0.33**	**0.044**	**6.60**
08Nov2007	-4.21	-0.21	0.010	-3.13
08Jan2008	**5.21**	**0.37**	**0.015**	**3.76**
22Jan2008	**-1.94**	**2.93**	**0.089**	**-3.29**
07Feb2008	**-9.80**	**-2.39**	**0.226**	**-6.33**

We recalculate the two-year allshare regression excluding the influential outliers shown in bold in Table 6. The results are reported in Table 7, and the same table also shows the results of a 'robust' regression that assigns lower weight to outliers than OLS does. Table 3 above shows equivalent results for the one-year regression. Neither estimate is significantly affected by the outliers.

Table 7

BT beta measured against the FTSE allshare index

Regression	Normal	Influential outliers removed	'Robust'
Start date	01/03/2006	01/03/2006	01/03/2006
End date	29/02/2008	29/02/2008	29/02/2008
Beta	0.77	0.76	0.78
Standard error	0.05	0.05	0.05

2.4 The Dimson adjustment

One potential mis-specification could arise from the use of daily data. As discussed in previous papers, using daily returns for beta estimation can lead to inaccurate beta estimates for a number of reasons related to issues of:

- Liquidity: using daily returns will tend to under-estimate the beta for thinly traded stocks (because "theoretical" responses to changes in the overall market value are not reflected in observed prices), and therefore to over-estimate the beta of thickly traded stocks (since beta estimation must be right on average over the whole portfolio of stocks that make up the market index).

[5] The seventh point is not excluded because it is only slightly above each threshold, whereas the other six are a long way above one or both thresholds.

- Non-synchronous trading: if for example an event occurs at 3pm that moves the price of BT and other firms around the world, then this will be reflected in the daily return of that day for the NYSE, but tomorrow's daily return for the BT share. Since shares traded on the NYSE make up part of the AllWorld index, regression of daily BT returns against the AllWorld index will miss part of the correlation.

These types of effects can be tested for and adjustments made using the "Dimson technique" of regressing against lagged and leading index returns. In the past we have found that for the AllShare index the Dimson test does not indicate a significant relationship, and no adjustment is necessary. We maintain that conclusion now.

For the AllWorld index, we have performed regressions using one lag and lead, as reported below. The results are not materially different from those without the adjustment terms (reported in Table 1).

Table 8

Dimson regression cf 'usual' regression

Index	Allworld	Allworld
Start date	01/03/2007	01/03/2006
End date	29/02/2008	29/02/2008
Allworld lag co-efficient	-0.14	-0.14
Allworld lag p-value	0.20	0.10
Allworld lead co-efficient	0.05	0.03
Allworld lead p-value	0.64	0.71
Dimson beta	0.89	0.78

3 Conclusions

Our findings suggest that:

- BT's estimated equity beta has fallen somewhat since 2004/5.
- The latest estimates seem to be reliable, in the sense that they do not seem to be influenced by outliers.
- The lower one-year beta estimates from mid 2006 to mid 2007 seem to be due to a small number of "unusual" days.[6]
- Based on those regressions, it is reasonable to use a range of 0.7 to 0.9 for BT's current equity beta.

[6] The estimate falls when the unusual days enter the regression window, and rises again when they leave, explaining the U-shaped portion of the rolling regression chart centred around December 2006.

Appendix

Tables 1a and 2a below correspond to Tables 1 and 2 in the main text, with the addition of a "robust" standard error. The robust standard error is very similar to the normal standard error.

Table1a

BT beta measured against the FTSE allshare index

Period	1 year	2 year	5 year
Start date	01/03/2007	01/03/2006	01/03/2003
End date	29/02/2008	29/02/2008	29/02/2008
Beta	0.84	0.77	0.91
Standard error	0.06	0.05	0.04
Robust standard error	0.09	0.07	0.06

BT beta measured against the FTSE allworld index

Period	1 year	2 year	5 year
Start date	01/03/2007	01/03/2006	01/03/2003
End date	29/02/2008	29/02/2008	29/02/2008
Beta	0.95	0.87	0.93
Standard error	0.10	0.08	0.06
Robust standard error	0.11	0.09	0.08

Table2a

BT beta measured against the FTSE allshare index

Period	1 year	1 year	1 year	2 years	2 years	2 years
Start date	01/03/2005	01/03/2006	01/03/2007	28/02/2004	01/03/2005	01/03/2006
End date	28/02/2006	28/02/2007	29/02/2008	28/02/2006	28/02/2007	29/02/2008
Beta	0.82	0.60	0.84	0.83	0.67	0.78
Standard error	0.12	0.10	0.06	0.08	0.08	0.05
Robust standard error	0.13	0.11	0.09	0.09	0.08	0.07

BT beta measured against the FTSE allworld index

Period	1 year	1 year	1 year	2 years	2 years	2 years
Start date	01/03/2005	01/03/2006	01/03/2007	28/02/2004	01/03/2005	01/03/2006
End date	28/02/2006	28/02/2007	29/02/2008	28/02/2006	28/02/2007	29/02/2008
Beta	0.64	0.67	0.95	0.73	0.65	0.87
Standard error	0.15	0.14	0.10	0.09	0.10	0.08
Robust standard error	0.16	0.16	0.11	0.10	0.11	0.09

Below we show the graphs of residuals against index returns for the Allshare index (one year regression) and the Allworld index (one year and two year regressions), corresponding to Figure 2 in the main text.

Figure 2a: BT vs Allworld two year residuals

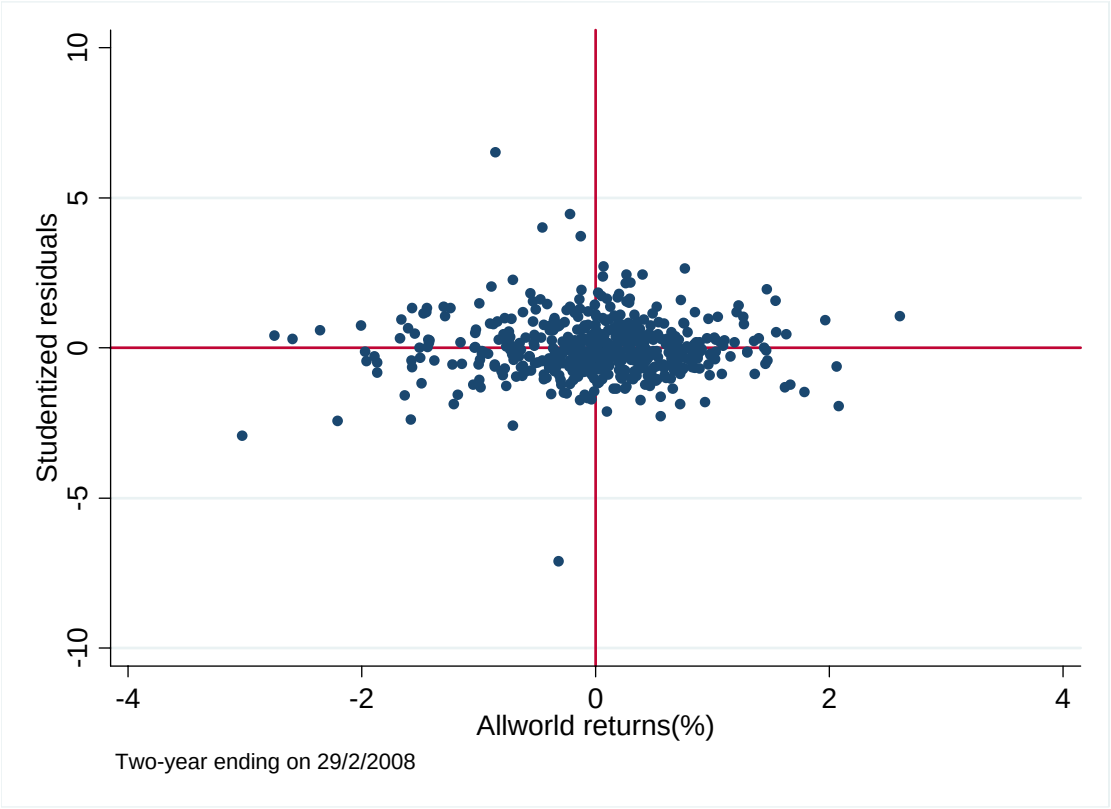


Figure 2b: BT vs Allshare one year residuals

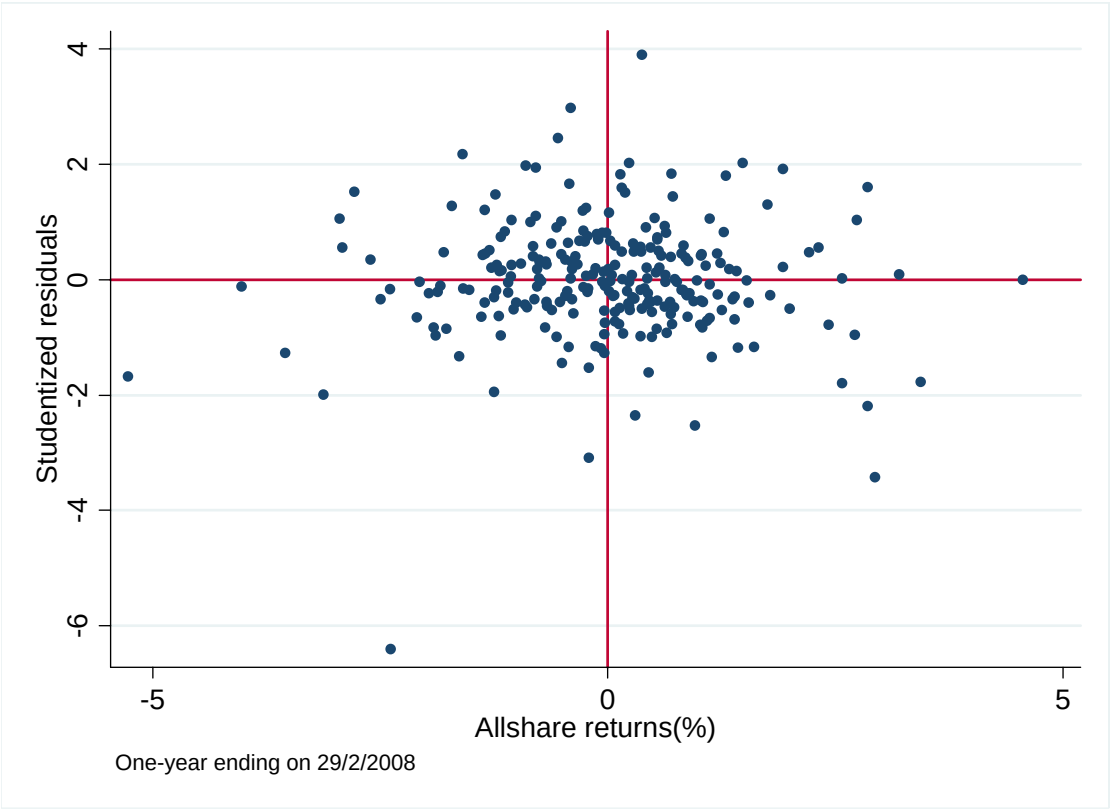
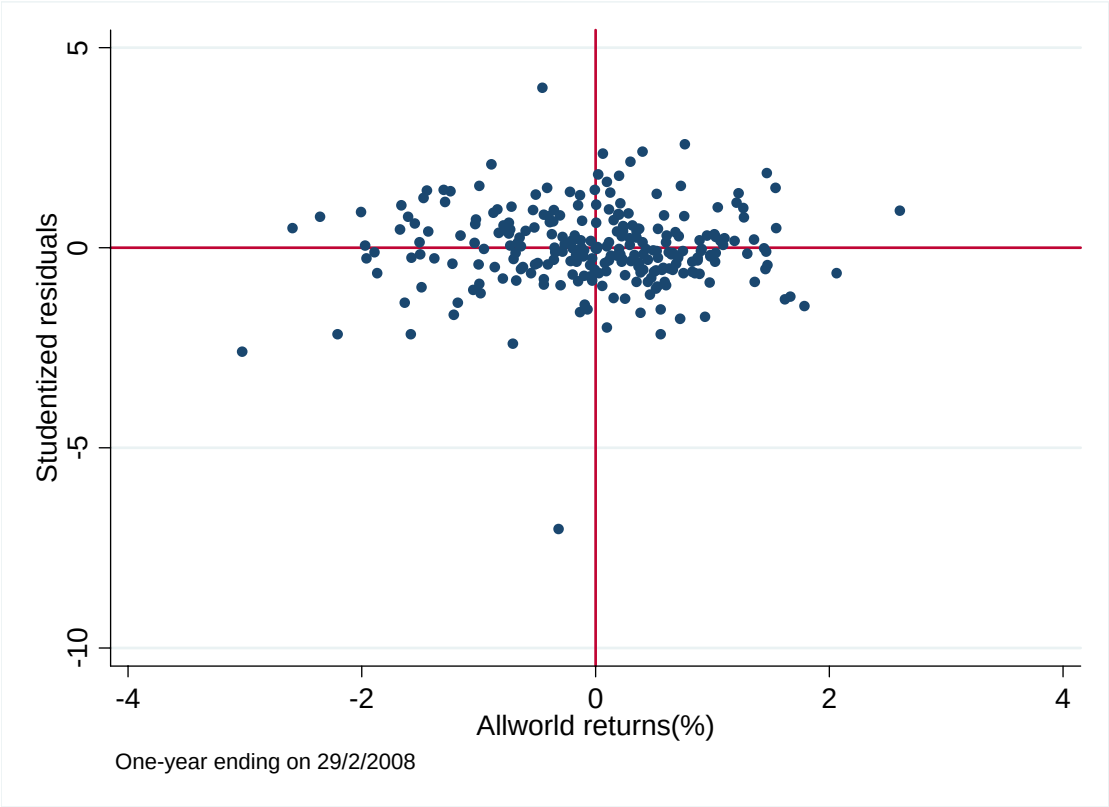


Figure 2c: BT vs Allworld one year residuals



Below we show the histogram of "studentised residuals" for the Allshare index (1 year regression) and the Allworld index (1 year and 2 year regressions), corresponding to Figure 3 in the main text.

Figure 3a: Distribution of BT vs Allshare one year studentised residuals

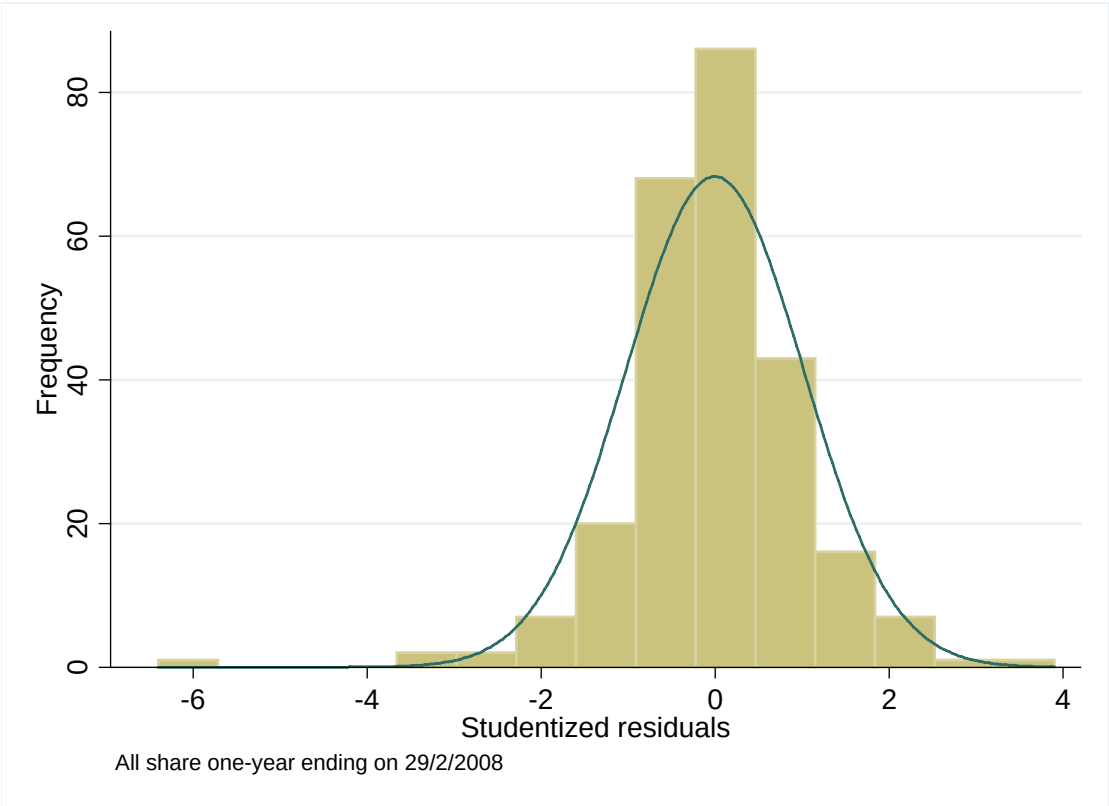
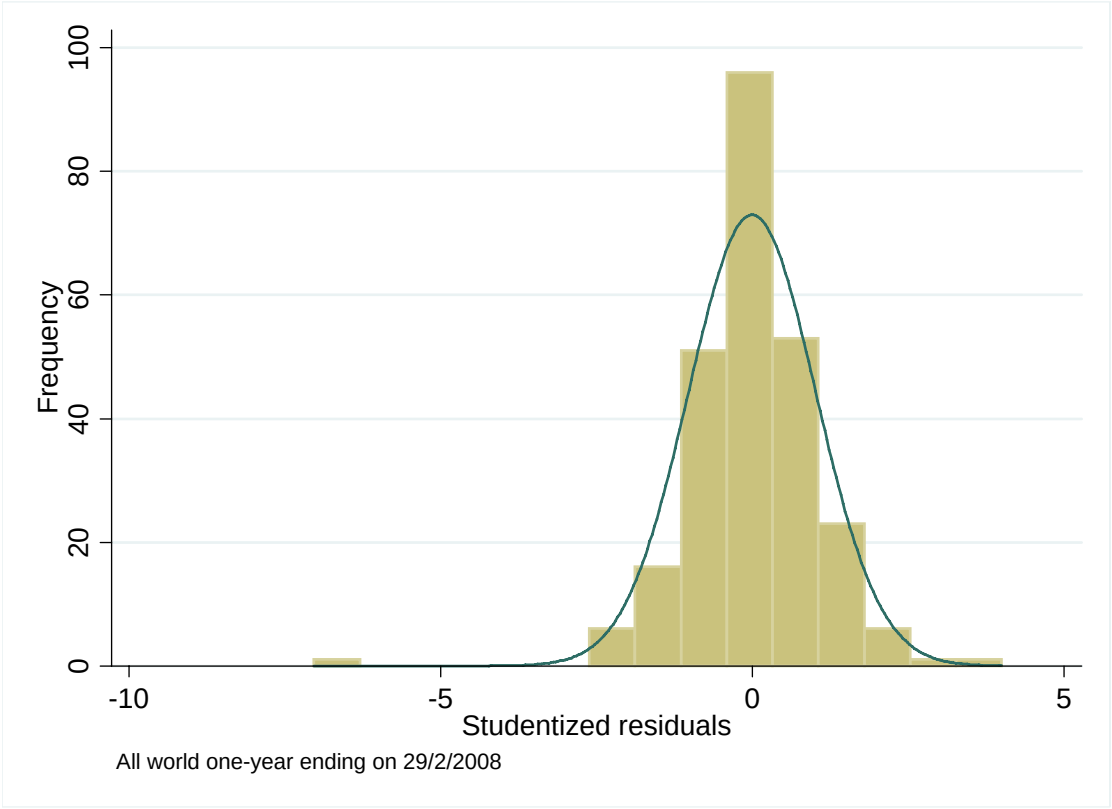
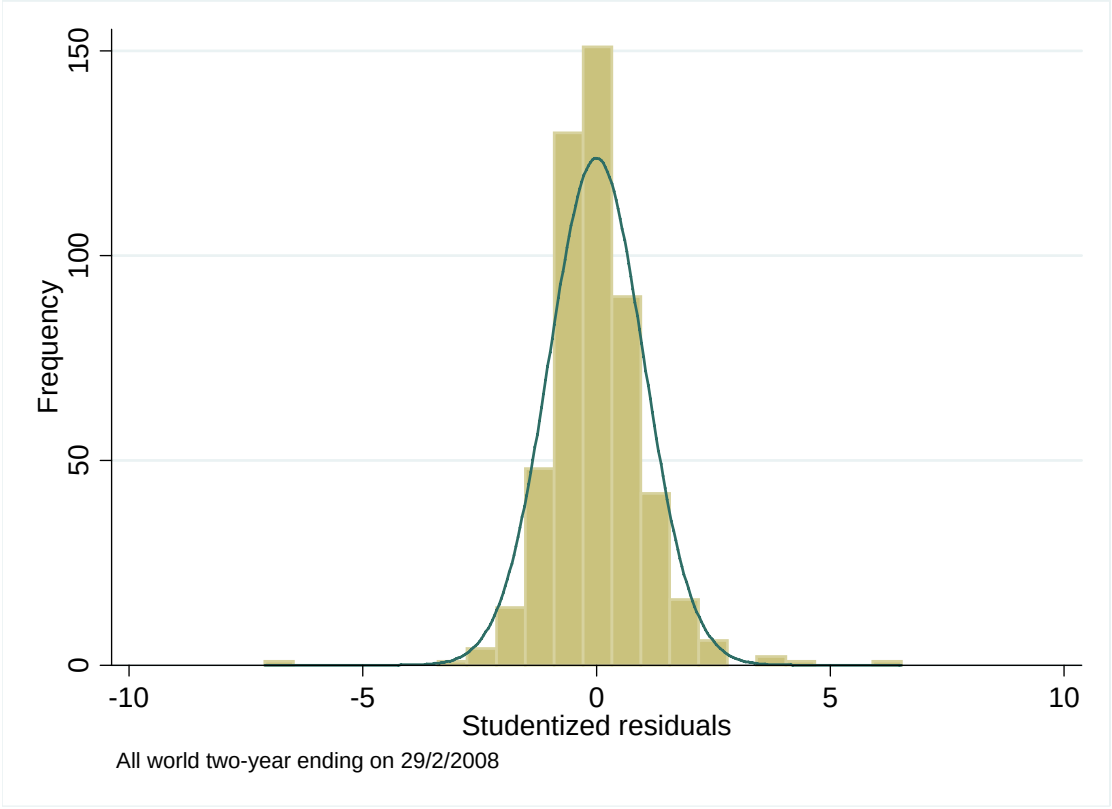


Figure 3b: Distribution of BT vs Allworld one year studentised residuals



All world one-year ending on 29/2/2008

Figure 3c: Distribution of BT vs Allworld two year studentised residuals



All world two-year ending on 29/2/2008

Figure 1a: Allworld beta "rolling estimates"