The valuation impact of UK mobile termination rate changes on mobile operators.

Piran Partners LLP

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Piran Partners LLP, New Lodge, Drift Road, Windsor, England. SL4 4RR

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Contact details:

Piran Partners LLP, Reports Department, New Lodge, Windsor, England, SL4 4RR.

1. Introduction

OFCOM recently proposed a drastic reduction in mobile termination rates (MTR), this announcement has brought focus on the subject of Mobile Terminations Rates. Although much research and commentary has been produced commenting on the impact of MTR reductions to the industry or to consumers, little public comment has been made about the impact on specific mobile operators. Principally, this is because the volume of traffic exchanged between mobile operators in the UK not public. This report sets out to estimate the most interesting facet of the MTR discussion, namely the impact of MTR changes on the profit and loss (P&L) accounts for the four main UK mobile operators. And the impact these changes may have to the valuations of their respective groups.

The report also discusses the likely impact of MTR changes on customers (both business and consumer), fixed operators and international carriers. It goes on to assess the wider global impact of the proposed changes.

2.0 Background

Terminating traffic between telecommunications operators is fundamental to the function of the telecommunications industry. It is the underlying infrastructure that allows us to talk to one another. When telecommunications companies were state run bodies (often known as PTTs), interconnection related principally to the exchange of traffic between national carriers. However privatisation and the introduction of competitive mobile operators changed all of this. Today, most telephone calls involve more than one operator.

2.1 The Impact of Regulation

During the privatisation process, governments created regulators whose function was to oversee the orderly formation of competitive telecommunications markets. One of the most important commercial powers of the regulator is to set the termination rate that an operator may charge to terminate an inbound call. Policy has been to set termination rates to encourage the growth of new entrants, at the expense of those with significant market power. This has often meant that the incumbent PTT has been able to charge significantly less to terminate an inbound call than a new entrant. Asymmetries of 10:1 or more are common.

Regulators often use long term cost models to assess the costs that a carrier incurs to terminate a call. As incumbents already have a well utilised network, their costs are naturally lower than a new entrant. Regulators often refer to LRIC, which is an economic modelling process assessing the Long Run Incremental Cost.

2.2 The Charging Regime

There are three very different types of charging regimes, namely: Calling Party Pays (CPP), Receiving Party Pays (RPP) and Bill and Keep. In the Calling Pay Pays regime, any charges associated with the call to the called party (B-party) are paid by the caller (A-party, or their network). In the Receiving Party Pays regime, any charges associated with the call to the called party (B-party) are paid by the called (B-party, or their network). In the Bill and Keep model, neither the originating nor the terminating network pays the other. Calling Party Pays is common across Europe, South America, India and Africa. Received Party Pays is common in North America and Japan.

Naturally, the different interconnection charging regimes give rise to very different retail tariff strategies. Particular in the Received Party Pays regime, where the terminating network pays fees to the originating network for the termination of traffic. The US market in particular is uniquely characterised by very large monthly bundles of minutes for a fixed charge. This retail tariffing strategy is as a direct result of the interconnect charging regime.

Where carriers are of comparable size, often Bill and Keep is seen as a simpler more transparent charging regime.

In North America, Receiving Party Pays and free local calls lead to the development of a massive Paging industry and the relatively slow adoption of mobile telephony. In the late 1990's it was common to see US business executives using banks of payphones, having been alerted by their Pagers. Whereas at the same time, business executives in Europe would be using their mobile phones. Initially, the mobile networks in North America charged their customers for receiving calls. Often customer behaviour led to phones being switched off.

2.3 OFCOM's announcement

On 1st April 2010, UK regulator OFCOM announced its intention to dramatically reduce the termination rates that mobile operators can charge (so called Mobile Termination Rates (MTR)). From around 4.5pence per minute, to 0.5pence per minute.

Effectively, moving the UK interconnection market from CPR towards Bill and Keep. In theory, this it seems is acceptable, particularly if the amount of traffic between the parties is balanced and that the costs incurred by the parties is approximately the same. OFCOM's recent publications consider the LRIC costs of the relevant networks in much detail. However no consideration is given to the relative balance between the networks, as this is considered a private matter.

3.0 Challenge

The commercial impact of OFCOM's announcement on a particular mobile operator is heavily dependent of their traffic balance with other operators. If a significant in-balance exists, then it is possible that OFCOM's announcement may have a material effect on earnings and hence valuation of some of the UK mobile operators more than others. If the in-balance is large enough, there could even be a material impact on the consolidated group performance. Hence the challenge of this report is to reconstruct the Profit and Loss accounts of the whole interconnect operations of the major UK mobile operators using the very limited public data that is available.

3.1 Methodology

In this section we describe exactly how we have reconstructed the wholesale Profit and Loss accounts for the interconnect operations of the major UK mobile operators. The reason that we present this in so much detail is to allow the reader to reach their own conclusions as to the accuracy of our models and assumptions.

The UK mobile industry does not publish detailed interconnect volumes hence assessing the relative balance of interconnect is not straightforward. In addition, the mobile operators also interconnect SMS (text messages), these generate significant revenues, however this report focuses on voice traffic only.

However, OFTEL and latterly, OFCOM has collected and published telecommunications market data on a quarterly basis for many years. This data is often referenced by industry analysts, and is the primary source of data used by this model.

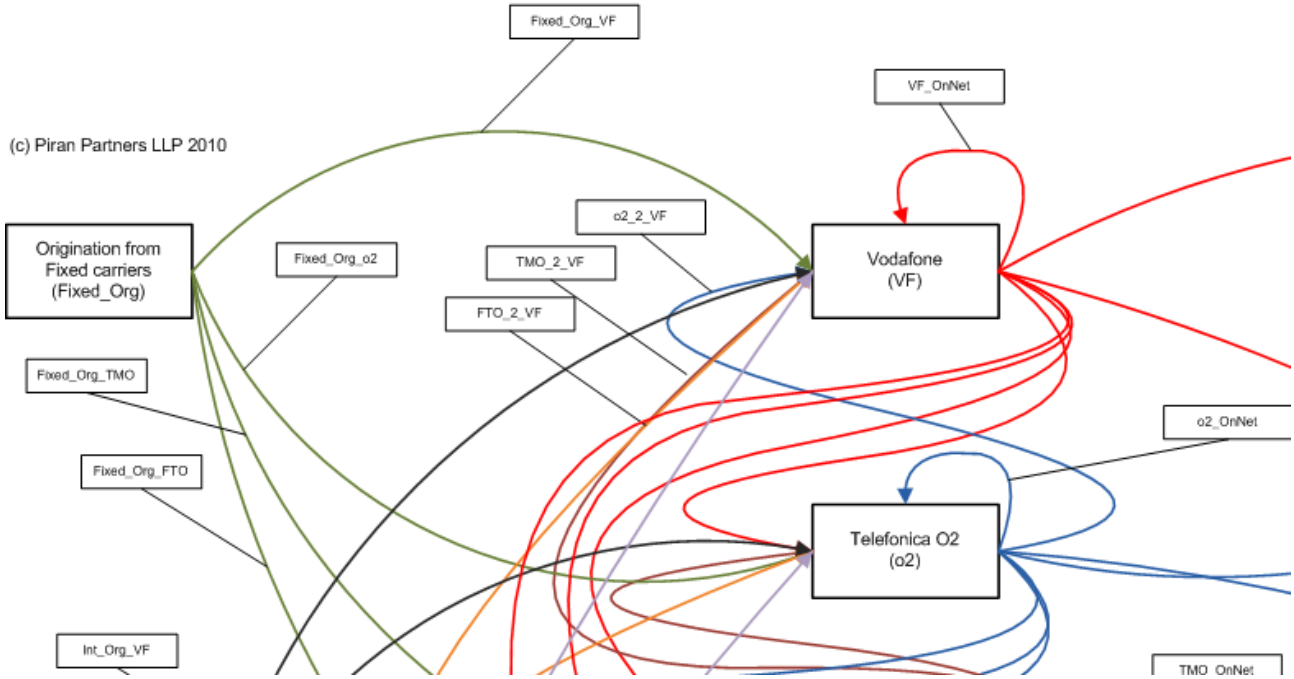
OFCOM's data provides only a limited insight into the net interconnection position of each individual mobile operator. As a starting point let's identify which of the tables within OFCOM's "Telecommunications market data tables" is useful in this instance. The table below summarises which tables are relevant and why.

Table description	Outline description of the data provided by the table
Fixed telecoms markets, Table 5, Calls to mobiles.	This table provides an indication of the volume of traffic originating on fixed networks which is terminated on UK mobile networks.
Fixed telecoms markets, Table 9, Calls to mobiles.	This table provides an indication of the total retail revenue generated by fixed operators from calls to mobile networks by residential customers.
Fixed telecoms markets, Table 10, Calls to mobiles.	This table provides an indication of the total retail traffic generated by fixed operators from calls to mobile networks by residential customers.
Fixed telecoms markets, Table 14, Calls to mobiles.	This table provides an indication of the total retail revenue generated by fixed operators from calls to mobile networks by business customers.
Fixed telecoms markets, Table 15, Calls to mobiles.	This table provides an indication of the total retail traffic generated by fixed operators from calls to mobile networks by business customers.
Mobile telecoms markets, Table 2.	This table provides details of the volume of UK, International and roaming calls originated by the four main UK mobile operators. i.e. out bound traffic.
Mobile telecoms markets, Table 4.	This table provides details of the period end subscriber numbers for both Post Pay and Pre-Pay for the four main UK mobile operators.
Mobile telecoms markets, Table 6.	This table provides details of the volume of traffic terminated by each of the four main UK mobile operators. i.e. in bound traffic.

The OFCOM data is useful in as much as it provides the total inbound traffic for any particular mobile operator. It also provides the total call origination for each mobile operator. But critically, it does not provide any information on exactly where an originated call terminates.

Considering a particular mobile operator, its net interconnect profit and loss position for voice is the sum of all inbound traffic charged at the regulated interconnect rate less out payments to other operators. Out payments include: payments to other mobile operators, payment to fixed operators (including premium rate services), payments to international carriers, etc.

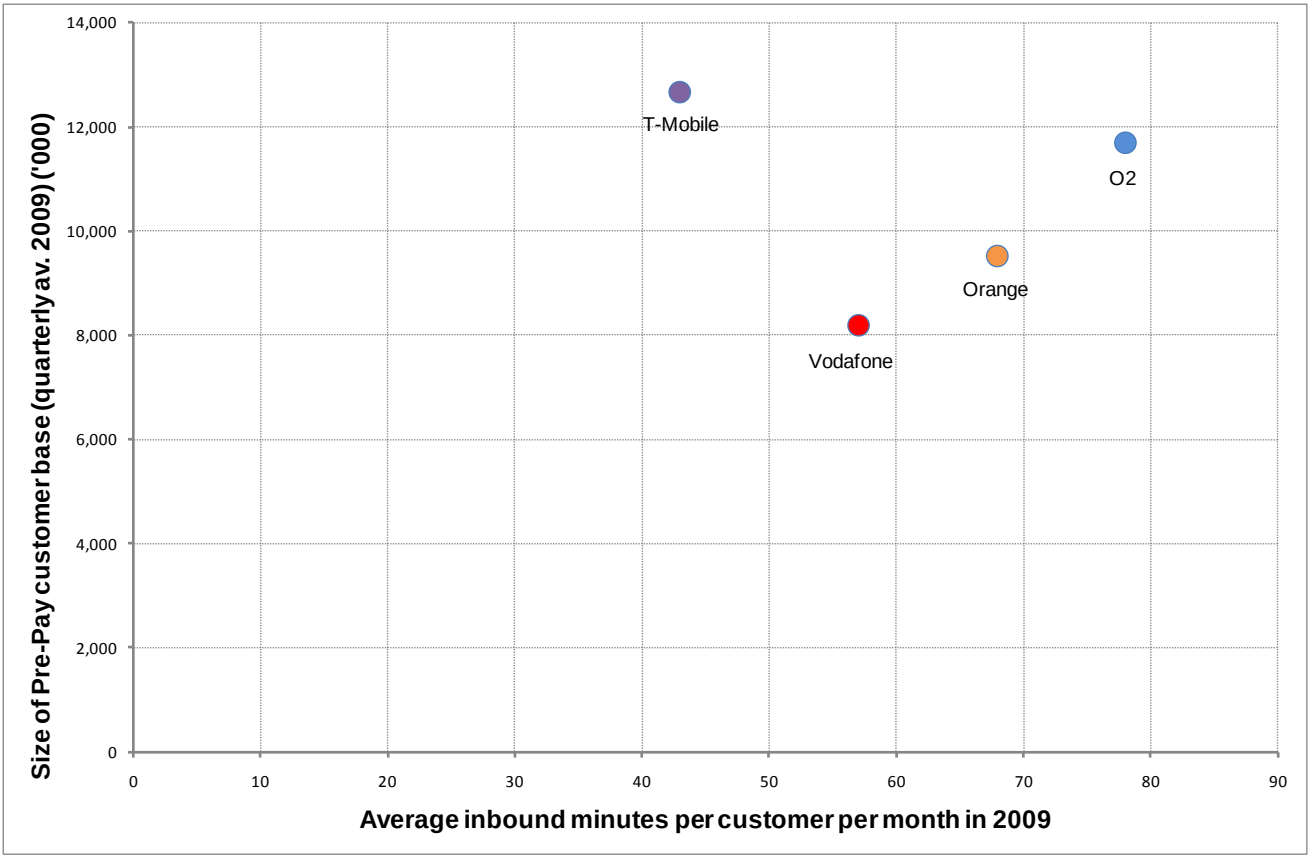
Figure x shows the complex web of inter-operator payments, showing just those relevant in this case.



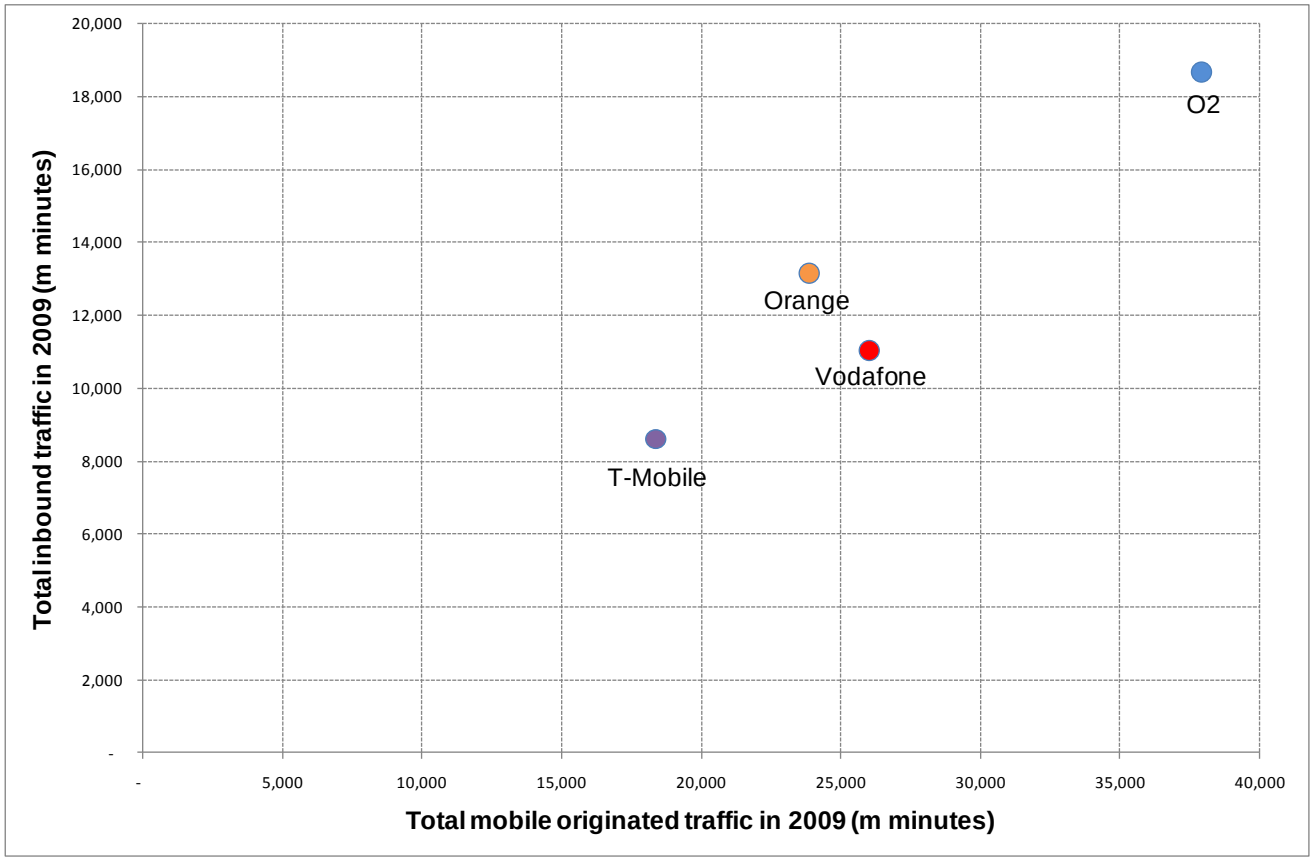
By its very nature, interconnect is a zero sum game. Every call needs to be originated and every call needs to be terminated. With this understanding and a few reasonable industry assumptions, it is possible to estimate the net voice profit and loss positions of each of the main four mobile networks.

One of the most important assumptions is the method by which inbound traffic is apportioned between MNOs. We have reviewed three different methods: (i) by subscriber numbers, (ii) by a weighting mechanism giving favour to those with a bigger Pre-Pay base, and (ii) in proportion to call origination volumes. Apportioning by subscriber number (i) doesn't take into account any behavioural aspects of the base, just the raw numbers and these raw numbers are difficult to compare given T-Mobile's 180-day reporting policy.

In the UK, Pre-Pay customers tend to make fewer calls than they receive and Post-Pay customers tend to make more than they receive. This behaviour, largely due to the tariffing strategies of the mobile operators, would favour apportioning by a weighting factor favouring those with a larger Pre-Pay base (ii). As can be seen from the chart below, there appears to be a close correlation between size of Pre-Pay base versus average inbound minutes, the clear exception being T-Mobile. It should be noted that T-Mobile quotes 180-day active customers where the other MNOs quote 90-day active, this will inflate their customer base somewhat. The major disadvantage of this method is that a subjective weighting factor needs to be applied to adjust for the relative inbound termination for a Post-Pay vs Pre-Pay customer.



The third possible apportionment method is in proportion to call origination volumes (iii). This method has the advantage of simplicity, however it has the disadvantage of underestimating the costs of those with a relatively strong Post-Pay and weak Pre-Pay base (i.e. Vodafone). And over estimating those in the reverse position (e.g. T-Mobile). As can be seen from the chart below, there appears to be a reasonable correlation between inbound and outbound traffic.



We have selected method (iii), apportionment by call origination volume for the model. Both methods (ii) & (iii) give similar results, the major difference being that weighting (ii) results in a larger net deficit for Vodafone (which we believe is actually the case). However, the weighting method (ii) relies on a weighting factor derived from our experience. We consider this approach could be considered less robust. Additionally, basing the model on customer numbers exposes inaccuracies arising from T-Mobile's 180-day active customer definition.

As a mobile operator's termination rate is regulated, it charges the same amount to terminate traffic irrespective of the originating party. Mobile termination rate charges have been taken from those published by BT Wholesale. It should be noted that during 2009, some mobile operators followed Three's

lead and started varying MTRs. Reasonable averages have been taken where necessary. Readers should contact the author for further clarification if necessary.

3.2 Key Assumptions

3.2.1 The total in bound interconnect traffic generated by the UK mobile operators (as reported by OFCOM) originates from: other UK mobile operators, international operators and UK fixed operators. (UK fixed traffic terminating on UK mobile networks is also reported by OFCOM).

3.2.2 Each mobile operator receives termination from the fixed networks in proportion to their overall share of inbound termination.

3.2.3 The amount of traffic terminated by the mobile operators from international carriers is in the same proportion as that originated by them. UK mobile originated traffic to International destinations is reported by OFCOM. Typically, such traffic amounts to around 2% when compared to UK call origination traffic.

3.2.4 OFCOM's data excludes Three. Currently, Three's customer base is mostly Post-Pay customers. Because of this, Three maintains a significant mobile termination deficit. We believe well in excess of £100m per annum. We estimate that the Outbound to Inbound call ratio is 7:1.

3.2.5 The mobile operator's reports to OFCOM exclude MVNOs. Some of the termination traffic destine for a particular mobile operator's customers will originate from MVNOs. We estimate that seven MVNOs have just over 7.5% share of traffic. However, the majority of MVNOs have Pre-Pay customers, such customers are less likely to generate high volumes of out bound traffic (Post-Pay customers typically have large inclusive minute bundles). Hence we estimate that the Outbound to Inbound call ratio for this group is 0.25:1.

3.2.6 T-Mobile has a significantly higher proportion of Pre-Pay customers than the other networks. As discussed above, Pre-Pay customers make less outgoing calls. Also, T-Mobile effectively inflates its active user base figures by reporting 180-day active user figures. We have no means of accurately adjusting for either of these figures. Although we believe that our model nets off an over inflated customer base by one prone to receiving calls.

3.2.7 We calculate the average outbound traffic per user and assume that individual operators send traffic to other operators in that same weighted proportion. This method appears more representative than using the total subscriber base, or weighted subscriber base (see above).

3.2.8 We assume that a proportion of the total UK originated call traffic is on-net, i.e. terminated without charge. The fraction of such traffic depends on the pricing strategy of the MNO. Those who have aggressively pushed free on-net called (like O2) have higher on-net traffic. We assume that O2's on-net traffic is 30%, whilst the others are 25%.

3.3 Reconstructed UK Voice Interconnect net cash contributions for 2009

The table below shows our reconstruction of the UK voice interconnect net cash contributions (profit and loss accounts) for each of the major UK operators in 2009.

	Vodafone (UK)	O2 (UK)	T-Mobile (UK)	Orange (UK)
MTR Revenue from MNOs & MVNOs	£405	£729	£355	£524
MTR Revenue from fixed and international	£139	£236	£115	£170
Total MTR revenue	£544	£965	£469	£694
MTR payments to other MNOs & MVNOs	£533	£525	£392	£481
Termination payments to fixed OLOs	£18	£33	£12	£17
Total UK termination payments	£551	£558	£404	£499
Net contribution from UK termination	-£7	£407	£65	£195

All figures in £ m.

At this point it is valuable to double check (sense check) these figures. It should not be surprising that O2 has by far the largest interconnect revenue, this figure is effectively publish by OFCOM. The split of the fixed interconnect, especially between Vodafone and Orange raises some question. However, the fact remains that according to OFCOM's data, Orange received 20% more termination traffic than Vodafone.

Vodafone appears to be paying out much more in MTR than might be expected. Vodafone has a large base of Post-Pay customers all of whom have large inclusive minute packages. And unlike O2, Vodafone's Pre-Pay base is relatively small. This logic would suggest that a MNO with a large Post-Pay base would indeed make substantial MTR payments. Effectively, Vodafone's relatively small Pre-Pay base means that its interconnect traffic is in-balanced.

MTR revenues from fixed is substantially higher than termination payments. This is consistent with MTR for 2009 of around 5p pm and fixed termination rates of around 0.3p pm.

4.0 The financial effect of OFCOM's proposed MTR rates

OFCOM proposed four staged MTR rates leading to a 0.5p pm MTR by 2015. As MTRs change, so will MNO's tariff strategies. This of course will lead to changes in traffic patterns. Such analysis is beyond this report, please contact the author for more details.

Specifically, OFCOM proposed MTRs of: 2.5p pm, 1.5p pm, 0.9p pm and 0.5p pm.

The profit and loss accounts below show our forecast taking account of only OFCOM's proposed MTR changes.

4.1 MTR of 2.5p pm, proposed for 2011/2012

	Vodafone (UK)	O2 (UK)	T-Mobile (UK)	Orange (UK)
MTR Revenue from MNOs & MVNOs	£221	£394	£181	£277
MTR Revenue from fixed and international	£71	£120	£55	£85
Total MTR revenue	£292	£514	£237	£362
MTR payments to other MNOs & MVNOs	£263	£259	£195	£239
Termination payments to fixed OLOs	£18	£33	£13	£17
Total UK termination payments	£282	£292	£208	£257
Net contribution from UK termination	£10	£222	£29	£105

All figures in £ m.

4.2 MTR of 1.5p pm, proposed for 2012/2013

	Vodafone (UK)	O2 (UK)	T-Mobile (UK)	Orange (UK)
MTR Revenue from MNOs & MVNOs	£144	£255	£117	£180
MTR Revenue from fixed and international	£43	£72	£33	£51
Total MTR revenue	£186	£327	£151	£230
MTR payments to other MNOs & MVNOs	£157	£156	£117	£144
Termination payments to fixed OLOs	£18	£33	£13	£17
Total UK termination payments	£176	£189	£130	£161
Net contribution from UK termination	£10	£138	£21	£69

All figures in £ m.

4.3 MTR of 0.9p pm, proposed for 2013/2014

	Vodafone (UK)	O2 (UK)	T-Mobile (UK)	Orange (UK)
MTR Revenue from MNOs & MVNOs	£97	£172	£79	£121
MTR Revenue from fixed and international	£26	£43	£20	£30
Total MTR revenue	£123	£215	£99	£151
MTR payments to other MNOs & MVNOs	£94	£95	£70	£86
Termination payments to fixed OLOs	£18	£33	£13	£17
Total UK termination payments	£112	£128	£82	£104
Net contribution from UK termination	£10	£87	£17	£48

All figures in £ m.

4.4 MTR of 0.5p pm, proposed for 2014/2015

	Vodafone (UK)	O2 (UK)	T-Mobile (UK)	Orange (UK)
MTR Revenue from MNOs & MVNOs	£66	£116	£53	£82
MTR Revenue from fixed and international	£14	£24	£11	£17
Total MTR revenue	£80	£140	£65	£99
MTR payments to other MNOs & MVNOs	£51	£53	£38	£48
Termination payments to fixed OLOs	£19	£33	£13	£17
Total UK termination payments	£70	£86	£51	£65
Net contribution from UK termination	£10	£54	£13	£33

All figures in £ m.

4.5 Overall effect

The table below shows our estimates of the net effect of OFCOM's MTR proposals on the cash contributions (or losses) from UK voice termination for the four major MNOs.

	Vodafone (UK)	O2 (UK)	T-Mobile (UK)	Orange (UK)	Everything Everywhere
Net contribution in 2009	-£7	£407	£65	£195	£260
Net contribution in 2015	£10	£54	£13	£33	£47
Change in net cash contribution from UK voice MT	£17	-£353	-£52	-£162	-£214

All figures in £ m.

The combined effect for Everything Everywhere is a net reduction in contribution of £214m.

5.0 Potential impact on group valuations

5.1 Vodafone

Our model indicates that the effect of these changes are not material for Vodafone. We believe that if anything Vodafone will be a net beneficiary of the proposed changes.

5.2 Telefonica

Telefonica reported OIBDA[1] of €1,680m (£1,497m) for its UK operation for full year 2009. Hence this change represents 23% of Telefonica UK's OIBDA margin. However, Telefonica's consolidated net income for 2009 was is £6,928m, a potential impact of 5%.

5.3 Orange / T-Mobile (Everything Everywhere)

Orange reported EBITDA of £836m for FY2009 for its UK operation. Orange reported consolidated net income of €2,997m (circa £2,670m). As Everything Everywhere is a 50:50 joint venture, then the impact of OFCOM's proposals could represent around 4% of Orange's consolidated net income.

5.4 ARPU impact

One should also note that mobile termination revenue is included in ARPU calculations. We estimate that ARPUs (particularly PrePay) will drop by around 20%. Although this won't necessarily impact on cash contributions (overall profitability).

[1] Operating Income Before Depreciation and Amortisation (OIBDA). It is similar to EBITDA, however it starts with the GAAP definition of operating income, whereas EBITDA (a non-GAPP definition) starts with net revenues. Unlike EBITDA, OIBDA does not incorporate non-operating income. This is seen as an advantage for comparison purposes because non-operating income usually doesn't reoccur year after year and its separation from operating income ensures that all income reflects only the income earned from regular operations.

6.0 Limitations of the model

The model is heavily reliant on the accuracy of OFCOM's data. Industry insiders question the absolute accuracy of the data, particularly from quarter to quarter, as it is common to adjust errors from one quarter to another. Although industry consensus is that OFCOM's data is reasonably accurate if taken over a four quarters or more. However, it should be stressed that the author is not aware of any formal verification programme conducted by OFCOM, hence it is possible that one or more mobile operators is simply providing erroneous data to OFCOM.

Although this report is not a piece of market research, we have informally contacted various industry insiders to cross check our findings. We heard different feedback, particularly from Vodafone and O2 Telefonica. We believe Vodafone had a voice interconnect deficit in 2009 which may have been larger than our model indicates. We hear from Telefonica that they do not have such a significant voice interconnect surplus. We fail to understand how this can be the case, unless OFCOM's data is completely meaningless. We should state that it is difficult to meaningfully compare our findings without the mobile operators releasing confidential information.

7.0 The impact of OFCOM's proposals on fixed operators

Fixed line operators have long complained about the unjust nature of MTRs. For example, back in 1995 when MTRs were 25p pm, fixed operators were forced to charge upwards of 40p pm (GM=38%). However fixed operators have not passed on the full benefit of declining MTRs to consumers. In 2009, residential customers paid 14p pm on average to call a mobile phone, whilst business customers paid only 9p pm. In 2009, BT alone generated retail revenues of £641m, against costs of approximately £263m, or a gross margin of 59%.

We would expect fixed line operators to retain their current price levels for residential customers, offering significant discounts within large bundled offers. However to maintain the same cash contribution, average fixed to mobile prices will need to remain above around 7.7p (12.2p in 2009), assuming the same traffic volume. One could argue that consumer and competitive pressure will force BT to reduce its fixed to mobile charges to around 4p. This would reduce BT's cash contribution from this call type by £194m across residential and business customers.

However, the general decline in traffic volume to mobile poses a larger threat to BT. Declining by an average of around 12% per annum. Although the narrowing of the price differential to call a mobile from a fixed phone rather than another mobile may well halt this decline somewhat.

8.0 The impact of OFCOM's proposals on MVNOs and the MNOs that support them

MVNOs are very special cases with respect to mobile termination. The exact details of the commercial terms and the impact of MTR changes are bespoke between MVNO and host MNO. In general, these changes are detrimental to either the MVNO or their host MNO, because MVNOs tend to have Pre-Pay customer bases. This area fails beyond the scope of this particular report however Piran Partners LLP maintains one of the industry's leading independent centres of expertise in this area, please contact us for further information.

9.0 The impact of OFCOM's proposals on international operators

International operators and their overseas origination partners will experience significant benefits from OFCOM's proposals. Today, most competitive tariff packages charge less for calls to an international landline than to a mobile resident in the same country. The fact that all calls to the UK will soon cost approximately the same will drive more inbound international traffic particularly to mobile networks.

10.0 The potential global impact of OFCOM's proposals

We expect other European regulators to follow OFCOM's lead and reduce mobile termination rates. This will create a similar commercial situation in each country, whereby certain mobile operators may gain or lose depending on specific circumstances. However we believe that any consistent reduction in termination rates will increase the volume of international traffic, particularly inbound international traffic to mobile operators.

11.0 In Summary

Mobile operators do not publish their inter-operator interconnect volumes, hence assessing it is not possible to know with certainty the exact financial position of any particular operator. The model outlined in this report indicates that some UK mobile operators had a significant imbalance of voice termination in 2009. The model indicates that the changes outlined by OFCOM could lead to a significant decrease in enterprise valuations for Telefonica and Everything Everywhere.

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