

5 The financial position of the MNOs

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Introduction

5.1. In this chapter we consider the financial position of the MNOs. The chapter has been split into four sections. In the first section we provide a brief comparison of the overall financial performance of the four MNOs operating mobile networks in the UK: Vodafone, O₂ (formerly BT Cellnet), Orange, and T-Mobile (formerly One2One). The second section briefly describes the history, group structure and UK business activities of each of the four MNOs and then comments on their business plans for the period relevant to this inquiry. In the third section we consider the MNOs UK returns on capital employed, taking account of various adjustments as necessary. In the fourth section we summarize our analysis of financial data by call type using the averages of the four MNOs.

5.2. Vodafone and O₂ began providing UK mobile phone services in the mid-1980s, and Orange and T-Mobile began providing their services from the mid-1990s. They have each purchased a 3G licence in the UK through a government auction, and a fifth operator—Hutchison 3G—also purchased a licence as a new participant to encourage competition in the services that 3G networks could offer.

Comparative overall performance

5.3. This section presents a financial overview of the UK's four MNOs and looks at the various business drivers that help explain their relative performance.

5.4. Relative shares of the UK mobiles market by various measures for the four incumbent MNOs are shown in Table 5.1. Vodafone is the most profitable MNO. In terms of most other measures of market share as presented in Table 5.1, Vodafone and Orange are currently the two stronger UK operators and O₂ and T-Mobile the two weaker. This is particularly evident when looking at turnover and average outgoing call minutes per customer.

5.5. T-Mobile is now the only UK operator, which is not profitable as measured by profit before interest and tax. Orange reported its first annual profit, after interest, in 2001.

5.6. Vodafone is generally perceived in the industry to have the customers with the greatest average spend on mobile services. This is supported by the ARPU figures as shown in the Table 5.1.

5.7. O₂'s average outgoing call minutes per customer is 15 per cent lower than the nearest other MNO, T-Mobile. T-Mobile's average outgoing minutes per customer is 14 per cent lower than Vodafone's, which in turn is 8 per cent below Orange's. As regards incoming minutes per customer, the order of the MNOs is the same but the percentage gaps are smaller.

TABLE 5.1 Comparison of the UK business activities for the four MNOs*

	Vodafone	O ₂	Orange	T-Mobile†	Share of total (%)			
					Vodafone	O ₂	Orange	T-Mobile
Turnover (£m)	3,596‡	2,750	3,397	2,062	30	23	29	17
EBITDA (£m)	1,252‡	670	771	345	41	22	25	11
Profit/loss before interest and tax (£m)	751‡	202	344	-261	73	19	33	-25
Outgoing call minutes (bn)—including on-net calls	13.7	8.5	12.9	8.7	31	19	30	20
Incoming call minutes (bn)—excluding on-net calls§	6.8	4.9	6.3	4.7	30	22	28	21
Customers (m)	13.2	11.1	12.4	10.4	28	24	26	22
Contract	5.0	3.5	3.8	1.8	35	25	27	13
Prepay	8.2	7.5	8.6	8.6	25	23	26	26
<i>Customer type</i>								
Contract (%)	38	32	31	18				
Prepay (%)	62	68	69	82				
ARPU¶ £ per year	276	231	246	202				
£ per month	23	19	21	17				
Average customer numbers (m)	12.8	10.8	11.1	9.4				
Average outgoing call minutes per year per customer⊠	1,070	787	1,161	925				
Average incoming call minutes per year per customer⊠	531	454	568	500				

Source: CC based on information from the MNOs.

*Vodafone and O₂ data is for the year to March 2002, whereas Orange and T-Mobile data is for the year ended December 2001. The figures above are based on the statutory accounts of main UK entity for each of the MNOs.

†Figures for customers and minutes for T-Mobile in this table include figures for Virgin and Wholesale Partners. Virgin Mobile had 1.4 million customers at 31 December 2001.

‡Vodafone figures given are for Vodafone Ltd, which in 2001/02 comprises the vast majority of the UK activity of the Vodafone Group.

§The figures given for each MNO's share of total incoming minutes do not mean that we see all incoming minutes as constituting a single market.

¶ARPU is the annual average revenue per user calculated as revenue from sales to customers (which is not total revenue which includes for example equipment sales) divided by the average number of customers.

⊠Average outgoing and incoming minutes per customer are based on the average number of customers.

5.8. In terms of customer mix, T-Mobile is heavily weighted to prepay customers with approximately 80 per cent prepay and 20 per cent contract. In comparison, Vodafone has approximately 60 per cent prepay and 40 per cent contract. Orange and O₂ both have approximately 70 per cent prepay and 30 per cent contract. T-Mobile's high percentage of prepay customers results in a lower ARPU than its competitors, a weighted average of less than £20 a month because prepay customers on average have a considerably lower ARPU than contract customers.

5.9. The MNOs believe that customers who generate most revenue and profit for them are generally those consuming a large volume of peak minutes on contract tariffs. These tend to be from the business sector. T-Mobile believes that it does not have a large share of business customers, which further explains its lower ARPU compared with the other three MNOs.

MNO history, performance and plans

Vodafone

History of Vodafone Group

5.10. Vodafone Group is a UK listed company. At the end of November 2002, Vodafone Group had a market capitalization of around £83 billion, having peaked at some £230 billion in March 2000. In terms of market capitalization, it is one of the top five companies in the FTSE100. The Vodafone Group's business in the UK is carried out within a division called Vodafone UK, which comprises Vodafone Limited and several smaller businesses. Vodafone Limited operates the UK network and holds the relevant licences. Over the period April 2000 to March 2002, most but not all of Vodafone UK's businesses have been absorbed within the statutory entity Vodafone.

5.11. Racal-Vodafone, a subsidiary of Racal Electronics Plc, was granted a licence in 1983 to establish and operate a mobile cellular telecommunications system in the UK and to provide mobile telecommunications services. Service commenced in 1985. Shares in Racal Telecom Plc, an intermediate holding company of Racal-Vodafone Limited, were first publicly listed in 1988. Racal Telecom Plc was renamed Vodafone Group on its full demerger from Racal Electronics Plc in 1991.

5.12. Vodafone Group has grown as a result of organic growth and a number of major acquisitions and mergers, notably:

- (a) the acquisition of AirTouch in 1999;
- (b) the acquisition of Mannesmann in 2000;¹ and
- (c) the merger between the US interests of Airtouch and Bell Atlantic to form Verizon Wireless in 2000, in which Vodafone holds a 45 per cent interest.

It is now one of the largest mobile network operators in the world with approximately 101 million proportionate registered customers as at 31 March 2002. More information on the history of Vodafone Group up to 1998 is set out in the previous MMC report in 1998.²

5.13. An overwhelming proportion of both Vodafone Group's and Vodafone UK's business is that of mobile phone operator. Vodafone Group's principal countries of operation are Germany (21 million customers at 31 March 2002), the UK, the USA and Italy (13 million customers in each at 31 March 2002). At 31 March 2002, it had interests in 28 countries altogether. Vodafone Group's reported losses in the year ended 31 March 2002 were the product of goodwill amortization and exceptional impairment charges arising on some of its major acquisitions. (Operating profit before these adjustments, which did not affect the UK operation, was £7 billion and EBITDA was £10 billion.) Appendix 5.1 shows a summary of the most recently available Vodafone Group profit and loss account and balance sheet.

5.14. As shown in Table 5.2, Vodafone UK represents between 12 and 13 per cent of the Vodafone Group, on most of the measures used.

¹As a result of the acquisition of Mannesmann, Vodafone Group became, briefly, the owner of Orange (another UK mobile network operator). Vodafone Group was required by EC competition authorities to dispose of Orange, which it did in September 2000 by sale to France Telecom for £25 billion.

²MMC report, *Cellnet and Vodafone: reports on the references under section 12 of the Telecommunications Act on the charges made by Cellnet and Vodafone for terminating calls from fixed-line networks*, December 1998.

TABLE 5.2 Comparison of Vodafone UK with Vodafone Group for the year to March 2002

	Vodafone Group	Vodafone UK	per cent Vodafone UK as proportion of Group
<i>Measures of relative size</i>			
Total fixed assets at net book value (£bn)	125	9	7
Total tangible assets at net book value (£bn)	19	2	12
Proportionate turnover (£bn)	30	3.6	12
Customers (m)	101	13	13
Employees ('000)	67	9	13
EBITDA (£bn)*	10	1.3	13

Source: CC based on information from Vodafone.

*The derivation of Vodafone Group's EBITDA is shown in Appendix 5.1.

Vodafone's performance

5.15. Tables 5.3 and 5.4 show the results of Vodafone Limited, rather than those of the entire UK mobile business, Vodafone UK. However, during the course of a two-year period from April 2000 to March 2002, most of the other activities of Vodafone UK not already within Vodafone have been transferred into that entity. Vodafone has contained the majority of the profits and assets of Vodafone UK over the period 1997 to 2002. We do not describe the service provider businesses that are not yet included within Vodafone's business.

5.16. Table 5.3 shows a summary of Vodafone's profit and loss account for the five years to 31 March 2002. Over the five-year period, turnover increased by 167 per cent from £1,342 million in 1998 to £3,596 million in 2002. Operating profit as a percentage of turnover was 21 per cent in the year to 31 March 2002 compared with 43 per cent in the year to 31 March 1998. Interest payable increased significantly to £465 million as a result of Vodafone incurring borrowings to pay for its 3G licence.

TABLE 5.3 Vodafone: profit and loss accounts for five years ended 31 March 2002

	£ million				
	1997/98	1998/99	1999/00	2000/01	2001/02
Turnover	1,342	1,651	2,200	2,804	3,596
Cost of sales*	<u>-591</u>	<u>-833</u>	<u>-1,294</u>	<u>-1,650</u>	<u>-1,998</u>
Gross profit	751	819	906	1,154	1,598
Selling and distribution costs*	-50	-58	-79	-115	-190
Administrative expenses*	-90	-122	-192	-215	-623
Research and development costs*	<u>-31</u>	<u>-34</u>	<u>-35</u>	<u>-24</u>	<u>-34</u>
Operating profit	580	604	601	799	751
Net interest receivable/(payable)†	<u>16</u>	<u>12</u>	<u>-4</u>	<u>-250</u>	<u>-465</u>
Profit on ordinary activities before taxation	597	617	597	549	286
Tax on profit on ordinary activities	<u>-179</u>	<u>-183</u>	<u>-162</u>	<u>-156</u>	<u>-116</u>
Profit on ordinary activities after taxation	<u>418</u>	<u>433</u>	<u>434</u>	<u>393</u>	<u>170</u>
Operating profit as percentage of turnover	43	37	27	28	21

Source: Vodafone financial statements.

*These are the classifications used for presentation to shareholders. However, in our analyses in this chapter, and in Chapter 7, we have used alternative classifications as appropriate.

†Note: May not add up because of rounding.

5.17. Vodafone told us that the increase in administration costs to £623 million in the year to 31 March 2002 (from £215 million in the previous year) was primarily the result of the transfer of ten Group companies (mainly retail operations) into Vodafone, which inter alia generated amortizable goodwill and increased the cost base of Vodafone. The operating profit for Vodafone before goodwill and exceptional items accounted for between 94 and 100 per cent of Vodafone UK's operating profit over these five years. (A reconciliation between Vodafone and Vodafone UK's profits for the years ended March 2001 and March 2002 is shown in Appendix 5.6.)

5.18. At 31 March 2002, Vodafone UK had around [§] personnel, with an employment cost for the year of £[§] million. It analysed this total into [§] people in administration; [§] in selling and distribution activities; and the balance in development and other activities. During the year, Vodafone reduced its UK headcount by around [§] per cent.

5.19. Table 5.4 shows a summary of Vodafone's balance sheet for the five years to 31 March 2002. Tangible fixed assets increased substantially to £2.3 billion over the five years, with the greatest level of additions from 2000. The zero net asset value of Vodafone at March 2000 was the result of a dividend payment made out of reserves by Vodafone to Vodafone Group, at the request of Vodafone Group.

TABLE 5.4 **Vodafone: balance sheets as at 31 March 1998 to 2002**

	<i>£ million</i>				
	1997/98	1998/99	1999/00	2000/01	2001/02
<i>Fixed assets</i>					
Intangible assets (mainly 3G licence)		0	100	6,537	6,607
Tangible assets	806	997	1,413	1,989	2,258
Investments	<u>4</u>	<u>5</u>	<u>4</u>	<u>2</u>	<u>1</u>
	810	1,002	1,516	8,528	8,866
Current assets	445	322	408	1,088	1,267
<i>Current liabilities</i>					
Creditors: amounts falling due within one year	<u>-407</u>	<u>-475</u>	<u>-1,922</u>	<u>-3,159</u>	<u>-3,281*</u>
Total assets less current liabilities	848	849	2	6,456	6,853
Convertible loan stock†	0	0	0	-6,056	-6,285
Provisions for liabilities and charges	<u>-2</u>	<u>-2</u>	<u>-2</u>	<u>-7</u>	<u>-156</u>
Net assets	846	847	0	393	412

Source: Vodafone financial statements.

*Includes £2.37 billion owing to group companies.

†Issued to another group company, repayable at par in 2021. See paragraph 5.20.

Note: May not add up because of rounding.

5.20. The intangible assets at March 2002 are made up of £643 million for goodwill (largely from the transfer in of businesses referred to above), and £5.96 billion being the 3G licence fee. Vodafone has forecast the introduction of 3G services to occur in 2003. It funded the licence fee by issuing £6.1 billion convertible unsecured loan stock to another group company. The loan stock bears interest from 30 November 2001 at LIBOR plus 0.21 per cent. The final redemption date is 31 December 2021.

Vodafone UK's business plan

5.21. Information from Vodafone UK's long-range business plan to 31 March 2006 is included in Appendix 5.8. This plan was based on higher termination charges over this period than those envisaged in Oftel's charge control proposals. The plan showed total revenue and earnings increasing each year. Free cash flow was expected to be positive each year with operating cash flows funding continued network investment.

O₂

History of mmO₂

5.22. mmO₂ is a group established in November 2001 from a demerger of businesses from the publicly listed BT. It includes the company BT Cellnet,¹ which in May 2002 was renamed and rebranded under the name O₂. In this chapter, we refer to BT Cellnet and O₂ as appropriate. The mmO₂ group supplies voice and data mobile telecommunications services in the UK, Germany, Netherlands and Ireland, which have all been recently rebranded as O₂. mmO₂ also operates a 3G network (as well as a 2G net-

¹The MMC investigated BT Cellnet's UK business in 1998, and its business is briefly described in paragraphs 3.97 to 3.99 of the MMC's report (see second footnote to paragraph 5.12).

work) in the Isle of Man, trading as Manx Telecom. Appendix 5.2 shows a summary of the most recently available mmO₂ profit and loss account and balance sheet. mmO₂'s market capitalization was around £4.4 billion at the end of November 2002.

5.23. Table 5.5 shows that O₂ represents over one-half of mmO₂'s total business in the year to 31 March 2002 as provided by various measures, but contributed more than the total group EBITDA, because, in aggregate, the remainder of the group was loss-making in the year.

TABLE 5.5 Comparison of O₂ with mmO₂ Group for the year ended March 2002

	mmO ₂ Group	O ₂ UK	per cent O ₂ UK as proportion of Group
<i>Measures of relative size</i>			
Total fixed assets at net book value (£bn)	20.1	6.6	33
Net tangible assets (£bn)	4.1	2.2	54
Turnover (£bn)	4.3	2.8	64
Customers (m)*	17.5	11.1	63
Employees ('000)	15.1	6.4	42
EBITDA (£bn)	0.4	0.7	>100

Source: CC based on information from O₂.

*Proportionate customers.

5.24. mmO₂ told us that most of its UK activities are carried on by O₂. O₂ does not prepare consolidated accounts but has a number of subsidiaries, which in the year to March 2002 had total turnover of £68 million on a non-consolidated basis. In the following paragraphs, we describe the activities and business of O₂, excluding its subsidiaries.

O₂ history and performance

5.25. O₂ was established in 1984, under the name Telecom Securicor Cellular Radio Limited, as a joint venture between BT and Securicor Group plc. The brand and trading name then was Cellnet. In 1999, BT purchased the interest of Securicor Group plc to obtain 100 per cent ownership of the company, which was then renamed BT Cellnet. The company and others engaged in mobile telephony were demerged in November 2001 into mmO₂ the shares of which were listed on the London Stock Exchange.

5.26. O₂ noted that, in implementing its strategy of increasing control over its distribution channels, BT Cellnet made a number of significant acquisitions or investments in retail businesses, for example:

- (a) in May 1997, it acquired a 40 per cent shareholding in The Link Stores Limited, a UK telecoms retailer, with Dixons plc as the main other shareholder;
- (b) in 1999, it acquired a 100 per cent interest in Martin Dawes Telecommunications;
- (c) also in 1999, it acquired the DX Communication Stores, and the outlets of Mobile Phone Stores Limited; and
- (d) at the time of the demerger, O₂ acquired all of BT's 102 retail outlets shops, although around 30 per cent have been closed since.

5.27. Table 5.6 shows O₂'s profit and loss account for the five years to March 2002. Turnover increased by 143 per cent over the five years to £2.75 billion in the year to 31 March 2002, but operating profits fluctuated between about £100 million and £200 million. Operating profit as a percentage of turnover fell from 20 per cent in the year to 31 March 1998 to under 10 per cent in the year to 31 March 2000 and thereafter.

TABLE 5.6 O₂: profit and loss accounts for the five years to 31 March 2002 (unconsolidated)

	£ million				
	1997/98	1998/99	1999/00	2000/01*	2001/02*
Turnover	1,131	1,411	2,085	2,525	2,750
Cost of sales†	<u>-445</u>	<u>-633</u>	<u>-1,211</u>	<u>-1,492</u>	<u>-1,542</u>
Gross profit	686	778	874	1,033	1,208
Selling and administrative expenses†	<u>-462</u>	<u>-620</u>	<u>-729</u>	<u>-830</u>	<u>-955</u>
Exceptional items*	<u>0</u>	<u>0</u>	<u>-47</u>	<u>4</u>	<u>-52</u>
Operating profit*	224	158	98	207	201
Net interest payable	<u>-41</u>	<u>-42</u>	<u>-46</u>	<u>-60</u>	<u>-17</u>
Profit on ordinary activities before taxation	183	116	52	147	184
Tax on ordinary activities	<u>-59</u>	<u>-38</u>	<u>-10</u>	<u>-51</u>	<u>-58</u>
Profit on ordinary activities after taxation	124	78	42	96	126
Operating profit as percentage of turnover	20	11	5	8	7

Source: O₂, formerly BT Cellnet.

*mmO₂ reported that turnover for the consolidated O₂ business was £2,756 million in the year to 31 March 2002, and £2,706 million in the year to 31 March 2001. The consolidated operating profit before exceptional items was £272 million in the year to 31 March 2002, and £269 million in the year to 31 March 2001.

†These were the classifications used for presentation to shareholders. However, in our analysis in this chapter, and in Chapter 7, we have used alternative classifications as appropriate.

5.28. In the year ended 31 March 2002, O₂ had some [≈] full-time equivalent personnel, analysed as [≈] in technology-related activities; [≈] in customer operations; and [≈] in administration. Employment costs were some £[≈] million.

5.29. Table 5.7 shows O₂'s summarized balance sheet for the five years to 31 March 2002. Tangible assets doubled from £1,051 million at March 1998 to £2,222 million at March 2002. At March 2002, O₂ had net current liabilities of £1,130 million, but this included amounts owing to group companies. Net assets increased from £401 million to £591 million in the three years to March 2001, but this changed significantly in the year to March 2002 where, as part of the demerger from BT, O₂ took the 3G licence (at a cost of £4.2 billion) but BT kept the related debt. Accordingly, O₂'s net assets increased by this amount.

TABLE 5.7 O₂: balance sheet for the five years to 31 March 2002

	£ million				
	As at 31 March				
	1998	1999	2000	2001	2002
<i>Fixed assets</i>					
Intangible assets	0	0	0	0	131
Tangible assets	1,051	1,290	1,496	2,003	2,222
Investments	<u>70</u>	<u>201</u>	<u>215</u>	<u>258</u>	<u>4,263</u>
Total fixed assets	1,121	1,491	1,711	2,261	6,616
<i>Current assets</i>	297	428	733	1,365	1,380
<i>Current liabilities</i>					
Creditors: amounts falling due within one year	<u>-629</u>	<u>-1,085</u>	<u>-1,633</u>	<u>-2,287</u>	<u>-2,510†</u>
Total assets less current liabilities	789	834	811	1,338	5,486
Creditors: amounts falling due after more than one year	-315	-245	-200	-581	-385
Provisions for liabilities and charges	<u>-73</u>	<u>-110</u>	<u>-116</u>	<u>-166</u>	<u>-275</u>
Net assets/shareholders' funds	401	479	495	591	4,826

Source: O₂.

*Investments for 2002 mostly reflect the cost of the 3G licence that was held in a 100 per cent subsidiary of O₂. In 2001, the company holding the 3G licence was not a subsidiary of O₂. The company was transferred to O₂ when mmO₂ demerged from BT in November 2001.

†Includes £1,660 million owing to holding and other group companies.

Note: May not add up because of rounding.

5.30. O₂ noted the following commitments at March 2002:

- (a) [*Details omitted. See note on page iv.*];
- (b) an agreement with Hutchison 3G to enable its customers to roam on O₂'s GSM network when they are unable to connect directly to Hutchison's network; and
- (c) an infrastructure-sharing arrangement with T-Mobile relating to the rollout of their respective 3G networks in the UK (subject at the time of writing to EC approval).

O₂'s business plan

5.31. Information from O₂'s business plan for the period to March 2006 is included in Appendix 5.9. The plan was based on an annual change in termination charges of RPI-12 per cent. [

Details omitted. See note on page iv.

]

Orange

History of Orange

5.32. The Orange business in the UK originally began in 1991, under the name of Microtel Communications Ltd, which had been formed by a consortium led and subsequently wholly owned by British Aerospace. Later in 1991, Hutchison Whampoa purchased a 30 per cent stake in Microtel, which subsequently, through stages, became a majority stake. The mobile licence was also obtained in 1991, and the network was launched in 1994. The company floated on the London Stock Exchange as Orange plc in 1996, and was bought by Mannesmann, a German industrial conglomerate, in 1999. In 2000, Vodafone Group, a UK competitor of Orange, bought Mannesmann and Vodafone Group was required under the EC Merger Regulation to divest itself of Orange. Accordingly, Vodafone Group sold Orange to France Telecom in September 2000. Subsequently, France Telecom rebranded almost all its mobile activities as Orange and organized them under Orange SA, a French subsidiary. France Telecom retains ownership of certain wireless activities that it intends to transfer to Orange SA once the necessary conditions are met and when negotiations with France Telecom's partners have been completed successfully. Orange has told us that the transfer of all the relevant France Telecom wireless assets had not yet been completed at time of writing.

5.33. In February 2001, Orange SA was floated on the Paris and London stock exchanges, with France Telecom retaining a majority interest of 86 per cent. At the end of November 2002, Orange SA had a market capitalization of around £24 billion.

5.34. The interest of the French Government in France Telecom is around 55 per cent. France Telecom is listed on the Paris stock exchange, and at the end of November 2002 had a market capitalization of around £14 billion, despite its 86 per cent stake in Orange being valued at over £20 billion.

5.35. Appendix 5.3 shows a summary of the most recently available France Telecom profit and loss account and balance sheet,¹ and Appendix 5.4 gives the equivalent information for Orange SA. At December 2001, France Telecom had long-term debt of €55 billion and short-term debt of €13 billion, totalling €68 billion (£41 billion). The company has signalled its intention to reduce its debt levels.

5.36. Orange plc is the UK holding company for Orange's UK activities, but it does not produce consolidated accounts, which are produced at the Orange SA level. Orange plc's principal operating subsidiaries are Orange, which operates the mobile phone network; and a retail subsidiary operating its network of shops. In the year to December 2001, the retail subsidiary had turnover of £[⌘] million, and broke even at the profit level. In the following section we discuss the performance of Orange.

¹The financial statements are presented in euros, and are restated in sterling.

5.37. Table 5.8 shows that Orange represents, on most measures, about one-third of Orange SA, but something under 15 per cent of France Telecom as a whole.

TABLE 5.8 Comparison of Orange PCS with France Telecom and Orange SA for the year ended December 2001

	France Telecom	Orange SA	Orange	per cent	
				Orange as pro- portion of France Telecom	Orange as pro- portion of Orange SA
<i>Measures of relative size</i>					
Total fixed assets at net book value* (£bn)	51	14	2	4	14
Tangible fixed assets at net book value (£bn)	19	6	2	11	36
Turnover (£bn)	27	9	3	11	36
Customers (m)†	92	40	12	13	31
Employees ('000)	206	30	10	5	33
EBITDA (£bn)	8	3	1	10	40

Source: CC based on information from Orange.

*Comprises goodwill, intangible assets and tangible fixed assets. The 3G licence is shown in the figure for Orange SA, but not in the figure for Orange. The licence was held in another non-trading group company at December 2001, and was transferred to Orange in 2002.

†Proportionate customers.

Performance of Orange

5.38. Table 5.9 shows Orange's profit and loss account for the five years to 31 December 2001. Turnover increased more than fivefold, from £635 million in 1997 to £3,397 million in 2001. Operating profit also increased significantly, from £47 million in 1998 to £344 million in 2001. Interest payable exceeded operating profit until 2001 when Orange achieved a pre-tax profit for the first time.

TABLE 5.9 Orange: profit and loss for five years ended 31 December 2001

	£ million				
	1997	1998	1999	2000	2001
Turnover	635	917	1,536	2,553	3,397
Cost of sales*	-507	-687	-1,191	-1,880	-2,362
Gross Profit	127	230	345	673	1,035
Distribution costs*	-94	-108	-163	-308	-391
Administrative expenses*	-86	-75	-121	-197	-300
Operating profit	-52	47	61	168	344
Interest payable	-111	-143	-180	-211	-236
Total operating profit/loss before taxation	-164	-96	-119	-43	107
Operating profit as a percentage of turnover	-8	5	4	7	10

Source: Orange.

*These were the classifications used for presentation to shareholders. However, in our analysis in this chapter, and in Chapter 7, we have used alternative classifications as appropriate.

Note: May not add up because of rounding.

5.39. Table 5.10 shows Orange's balance sheet for the five years to 31 December 2001. Tangible fixed assets increased from £845 million in 1997 to £2,171 million in 2001. Orange has been mostly financed by loans from its parent, and at December 2001 owed some £2.8 billion to the France Telecom group. Orange had a shareholders' deficit (that is, its total liabilities exceeded the book value of its assets) over the whole of the period.

TABLE 5.10 Orange: balance sheet as at 31 December 1997 to 2001

	<i>£ million</i>				
	1997	1998	1999	2000	2001
<i>Fixed assets</i>					
Tangible assets	845	1,096	1,403	1,815	2,171
Investments	<u>2</u>	<u>4</u>	<u>0</u>	<u>0</u>	<u>0</u>
	847	1,100	1,403	1,815	2,171
<i>Current assets</i>					
Creditors: amounts falling due within one year	198	371	453	738	654
	<u>-235</u>	<u>-296</u>	<u>-442</u>	<u>-749</u>	<u>-832</u>
Total assets less current liabilities	810	1,175	1,414	1,804	1,993
<i>Long-term liabilities</i>					
Long-term debt (amount owed to parent undertaking)*	-1,409	-1,714	-2,339	-2,768	-2,829
Other long-term liabilities	<u>0</u>	<u>-173</u>	<u>-82</u>	<u>-85</u>	<u>-106</u>
	-1,409	-1,887	-2,421	-2,853	-2,935
Net liabilities/shareholders' deficit	-599	-712	-1,006	-1,049	-942

Source: Orange.

*Prior to the acquisitions by Mannesmann and France Telecom in 1999/2000, the amount owing to the parent undertaking was owed to Orange plc, the quoted UK listed company for the group.

Note: May not add up because of rounding.

5.40. At December 2001, another non-trading group company (Orange 3G Limited) held the UK 3G licence awarded in September 2000 at a cost of £4.1 billion. However, Orange acquired this asset in March 2002. A France Telecom group company lent Orange the funds to acquire this asset from Orange 3G Limited.

Orange's business plan

5.41. Information from Orange's strategic plan to 2005 is included in Appendix 5.10. Orange stated that the plan assumed no regulatory intervention in the marketplace and termination charges reducing over this period. [

Details omitted. See note on page iv.

]

T Mobile

History of T-Mobile

5.42. T-Mobile was founded in 1993 under the name of One2One as a 50:50 joint venture between Cable and Wireless and Media One International Incorporated. In August 1999, Deutsche Telekom bought it for £6.8 billion plus £1.6 billion of loans. In April 2002 it was rebranded, along with Deutsche Telekom's other mobile interests, under the name T-Mobile. Deutsche Telekom's mobile interests as a whole are referred to in the following paragraphs as TMO, to distinguish them from the T-Mobile business in the UK.

5.43. Deutsche Telekom was privatized in 1996, although its largest shareholder (43 per cent) is still the German Federal Government. In total it has around 3 million shareholders, its shares being widely held by the German public. Its market capitalization at the end of November 2002 was around £33 billion. The shares are now trading at about €12 compared with their original issue price in 1996 of €15, having reached over €100 in March 2000.

5.44. Appendix 5.5 shows a summary of the most recently available profit and loss account and balance sheet for Deutsche Telekom. At December 2001, it had long-term debt of €54 billion and short-term debt of €13 billion, totalling €67 billion (£41 billion). It has signalled its intention to reduce its debt levels to €50 billion by 2003.

5.45. As shown in Table 5.11, T-Mobile accounts for 25 per cent of TMO in terms of turnover and represents about 7 per cent of Deutsche Telekom's total business in terms of turnover. T-Mobile accounts for 6 to 7 per cent of Deutsche Telekom in terms of assets and about 3 per cent in terms of EBITDA.

TABLE 5.11 Comparison of T-Mobile with Deutsche Telekom and TMO for the year to December 2001*

				<i>per cent</i>	
	<i>Deutsche Telekom Group*</i>	<i>TMO</i>	<i>T-Mobile</i>	<i>T-Mobile as proportion of Deutsche Telekom</i>	<i>T-Mobile as proportion of TMO</i>
<i>Measures of relative size</i>					
Total tangible and intangible fixed assets at net book value (£bn)	89	N/A	6	7	N/A
Total tangible fixed assets at net book value (£bn)	36	N/A	2	6	N/A
Turnover‡ (£bn)	30	8	2	7	25
Customers (m)†	>100	46	10	<10	22
Employees ('000)†	242	30	7	3	23
EBITDA (£bn)	11	2	0.3	3	15

Source: T-Mobile.

*Figures presented in € and converted based on €1 equals £0.61.

†Group figures include proportionate share for partly owned businesses.

Note: N/A = Not available.

5.46. The T-Mobile business consists of a holding company (T-Mobile Holding Limited), two trading entities (T-Mobile (UK) Partnership and T-Mobile (UK) Retail Limited) and a number of non-trading companies. T-Mobile (UK) Retail Limited had a turnover of £[\approx] million and a loss of £[\approx] million in the year to 31 December 2001. The figures and analyses presented in this chapter for T-Mobile are based on the partnership only.

5.47. T-Mobile has a 50 per cent interest in Virgin Mobile (a virtual mobile network operator). Virgin Mobile is discussed in Chapter 6. T-Mobile also had a 50 per cent interest in Mobile Direct Communications Ltd, which sold One2One handsets via direct marketing and telesales. We do not consider this company further.

T-Mobile's performance

5.48. T-Mobile UK told us that its early strategy was to concentrate on the London M25 customer base and other urban areas for its first few years of business, and then to expand its network over the rest of the UK. To compensate for the limited geographic network, T-Mobile competed aggressively for customers offering some tariffs with unlimited off-peak usage. T-Mobile later withdrew this tariff as it caused unexpected network congestion in off-peak hours, which deterred some customers. As the market for mobile customers grew and customers became more demanding in terms of quality and coverage, T-Mobile changed its strategy investing heavily to improve and expand its network in order to attract higher-value consumer and business customers.

5.49. T-Mobile said that the combination of it being a late entrant to the UK market (relative to Vodafone and O₂), being one of the first networks in Europe (with Orange) to start operating a 1800 MHz network with higher network costs and higher handset costs, and its previous strategy decisions had contributed to T-Mobile having:

- (a) the smallest customer base, although it is not now far behind; and
- (b) lower ARPU due to its mix of prepay and contract customers.

5.50. Table 5.12 shows T-Mobile's profit and loss account for the three years to March 1999 and, following the change of ownership, for the periods to December 2001. As T-Mobile UK expanded its

market share, turnover increased from £262 million in 1996/97 to £2,062 million in 2001. It made operating losses for all years to date, with the largest losses in 2000 and 2001, partly due to amortization of the 3G licence, and costs related to the licence. For the whole of the period, T-Mobile UK had been financed mostly by group debt, rather than equity, and therefore had incurred significant interest costs over the years.

TABLE 5.12 T-Mobile profit and loss accounts, 1997 to 2001

£ million

	March year ends			December year ends		
	1996/97	1997/98	1998/99	1999 nine months	2000	2001
Turnover	262	548	781	906	1,766	2,062
Cost of sales*	<u>-246</u>	<u>-456</u>	<u>-546</u>	<u>-659</u>	<u>-1,167</u>	<u>-1,234</u>
Gross profit	16	92	235	247	599	828
Selling and distribution costs*	-93	-123	-176	-294	-538	-531
3G licence amortization	-	-	-	-	123	184
Other administrative expenses*	<u>-90</u>	<u>-95</u>	<u>-111</u>	<u>-142</u>	<u>-297</u>	<u>-376</u>
Operating loss	-167	-126	-52	-189	-359	-263
Exceptional items	-50	0	0	0	0	0
Interest payable	-59	-103	-123	-100	-342	-447
Income from shares in group undertakings	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>2</u>
Loss before tax	-276	-229	-175	-289	-699	-708
Operating loss as percentage of turnover	-64	-23	-7	-20	-20	-13

Source: T-Mobile (formerly One2One Partnership).

*These were the classifications used for presentation to shareholders. However, in our analysis in this chapter, and in Chapter 7, we have used alternative classifications as appropriate.

Note: Depreciation and amortization in T-Mobile's 2001 accounts totalled £0.6 billion, hence EBITDA is £0.3 billion in Table 5.11.

5.51. Table 5.13 shows T-Mobile's balance sheet at 31 March 1997 to 1999 and, following a change of year-end, 31 December 1999 to 2001. The majority of borrowings were from Deutsche Telekom Group companies (£5.3 billion at 31 December 2001). External bank loans were £2.8 billion at 31 December 2001. At December 2001, T-Mobile had a shareholders' deficit of £2.4 billion, which compares with £228 million at March 1997.

TABLE 5.13 T-Mobile: balance sheets from 1997 to 2001

£ million

	at 31 March			At 31 December		
	1997	1998	1999	1999	2000	2001
Fixed assets						
Intangible fixed assets (3G licence)	47	74	0	0	3,881	3,696
Tangible fixed assets	640	864	1,076	1,275	1,986	2,163
Investments	<u>0</u>	<u>0</u>	<u>0</u>	<u>15</u>	<u>15</u>	<u>15</u>
	687	938	1,076	1,290	5,882	5,874
Current assets	70	129	250	484	591	595
Current liabilities						
Creditors: amounts falling due within one year	-207	-258	-353	-605	-1,195	-1,264
Total assets less current liabilities	550	809	973	1,169	5,278	5,205
Creditors: amounts falling due after more than one year*	-778	-1,265	-1,667	-2,153	-6,961	-7,596
Net liabilities/shareholders' deficit	-228	-456	-694	-984	-1,683	-2,391

Source: T-Mobile.

*[

Details omitted.
See note on page iv.

]

T-Mobile's business plan

5.52. Information from T-Mobile's business plan to 2006 is included in Appendix 5.11. T-Mobile presented two plans:

- (a) the plan in place prior to Oftel's September 2001 statement which showed termination rates falling by [§<] per cent a year; and
- (b) a further plan reflecting termination rates being capped under a price control of RPI-12 per cent.

The only material difference between this second plan and the first plan was the adjustment to termination revenues and costs. T-Mobile stated that this plan did not take into account the consequent changes in investment, outbound charges or customer numbers as a result of the termination charge cap.

5.53. [

Details omitted. See note on page iv.

]

Calculation of MNOs' returns using Oftel's approach

5.54. In this section, we present Oftel's calculation of ROCE for each MNO, for its UK business, and a calculation of ROCE using information available in the published accounts for each MNO's main UK business. We asked the MNOs for explanations of differences between the numbers used by Oftel and their published data. Three of the MNOs also chose to present adjustments they considered should be made to Oftel's ROCE calculations.

5.55. ROCE for the MNOs were calculated for Oftel by National Economic Research Associates (NERA) using information supplied by the MNOs. NERA defined capital employed as total assets (excluding 3G licences) less current liabilities, but excluding from current liabilities: (a) the current portion of long-term debt, including intra-group debt; (b) dividends payable; and (c) corporation tax. NERA defined profit as profit before interest on long-term borrowings and tax, ie PBIT less short-term interest. In the following text we refer always to Oftel rather than NERA, although in some instances the detailed calculations and conclusions we ascribe to Oftel may have been made by NERA for Oftel.

5.56. Oftel argued that long-term and short-term debt could be treated differently in its calculations, as short-term debt could be regarded as a means of financing day-to-day operations as opposed to a source of long-term finance. Corporation tax was excluded by Oftel from current liabilities on the grounds that it might be argued that the tax authorities, albeit involuntarily, are providers of finance to the business.

5.57. The financial information submitted to Oftel by the MNOs differed in some respects from their published accounts. Oftel then made adjustments to the information submitted by the MNOs. This created difficulties when we sought to obtain reasons for the differences between the MNOs' published accounts and the figures used by Oftel, because the MNOs did not necessarily know what adjustments Oftel had made or why.

5.58. In the following paragraphs we summarize and comment on the calculations for each MNO. Our conclusions are set out in Chapter 2. Oftel's calculations were made up to the most recent date for which information was available, which differed among the MNOs. Table 5.14 shows the results of Oftel's calculations for each of the four MNOs.

TABLE 5.14 Results of Oftel's ROCE calculations from 1998

	<i>per cent</i>			
	1998	1999	2000	2001
Vodafone UK (31 March)	92	76	53	50
O ₂ (31 March)	20	12	8	*
Orange (31 December)	5	5	10	*
T-Mobile (31 March)†	-18	-5	-23	*

Source: Oftel.

*Not calculated by Oftel.

†The figures for T-Mobile are for the years to 31 March 1998 and 1999 and the nine-month period to 31 December 1999 annualized.

Vodafone ROCE

5.59. Oftel calculated Vodafone's ROCE up to the year ended 31 March 2001. In submissions to us Vodafone included what it believed Oftel's calculation for the year ended 31 March 2002 would have been.

5.60. Oftel's calculations were based on the total of Vodafone's UK businesses, that is, for Vodafone UK not Vodafone Limited (see paragraph 5.10). The businesses within Vodafone UK but not within Vodafone have become fewer as the service provider businesses have been progressively absorbed within Vodafone, mostly during and after 2000. However, in the years up to 2000 there was little if any difference between Vodafone UK's profit as calculated by Oftel and that recorded in Vodafone's published accounts. (A reconciliation between Vodafone and Vodafone UK's profits for the years ended March 2001 and March 2002 is shown in Appendix 5.6.)

5.61. Vodafone stated that there were errors in the original data it supplied to Oftel, which was used by Oftel for its calculations, and provided us with corrected data. We put the corrected data to Oftel, who responded that Vodafone had not provided details of the calculations underlying the 'corrected' data, so Oftel was not in a position to comment on their reasonableness. However, Oftel said that even if the changes to the data were made they would not change its analysis or its conclusions. As a result Oftel did not consider it necessary to dispute the corrections. Vodafone told us that Oftel should have calculated its ROCE on a basis different in four respects from that adopted, but Oftel, whilst accepting some of these changes in principle, did not pursue these adjustments.

5.62. Table 5.15 summarizes Oftel's original figures for Vodafone UK's ROCE, the ROCE after the corrections of data errors as identified by Vodafone and the ROCE after these corrections and the further adjustments that Vodafone proposed. The figures for the individual adjustments are given in Appendix 5.6.

TABLE 5.15 Calculations of Vodafone UK's ROCE

Line References	Years to 31 March					£ million
	1998	1999	2000	2001	2002*	
<i>Profit before interest on long-term debt and tax:</i>						
a	Vodafone UK per Oftel	580	607	600	845	980
	Corrections of data errors†					
b	Vodafone UK revised					
	Further adjustments proposed by Vodafone for: deferral of customer acquisition cost capitalization of operating leases acquisition of service providers					
c	Vodafone UK per Vodafone	529	674	881	1,096	1,108
<i>Mean capital employed:</i>						
d	Vodafone UK per Oftel	629	799	1,127	1,688	2,169
	Corrections of data errors†					
e	Vodafone UK revised					
	Further adjustments proposed by Vodafone for: deferral of customer acquisition costs capitalization of operating leases acquisition of service providers					
f	Vodafone UK per Vodafone	1,657	1,898	2,388	3,129	3,890
<i>ROCE for Vodafone UK (per cent):</i>						
a/c	Per Oftel	92	76	53	50	45
b/e	With correction of data errors†	72	62	55	48	
c/f	Per Vodafone	32	36	37	35	28

Source: CC based on information from Vodafone and Oftel.

*Calculation not done by Oftel for the year ended 31 March 2002. All figures for this year are as submitted by Vodafone.

†Oftel said that it did not consider that the adjustments would have changed its analysis or its conclusions.

Note: See Appendix 5.6 for figures for individual adjustments.

Vodafone's proposed further adjustments

5.63. In paragraphs 5.64 to 5.83 we give details of the four adjustments that Vodafone proposed in order to calculate Vodafone UK's ROCE properly. Vodafone said that, after making the adjustments, its returns were much closer to its cost of capital than was suggested by Oftel. Vodafone believed that its returns in excess of cost of capital were entirely consistent with its view of superior performance in an industry that was effectively competitive. It said that it was normal and appropriate for the most efficient operator in a market to be rewarded with high profitability. Vodafone's view was that evidence of an individual operator's profitability was inconclusive as an indicator of competitiveness in the sector. The CC's view is that at this point in time, the overall profitability of each MNO is not critical as an indicator of competition in the wholesale or retail market (or any part or parts thereof). We do not believe that Vodafone's high level of profitability, over a period in which the mobile phone market has expanded extremely rapidly, does on its own indicate ineffective competition. As a consequence we have not examined in detail the four adjustments that Vodafone proposed. We set out below under each heading some observations on Vodafone's suggested adjustments.

Capitalization of customer acquisition costs

5.64. The first adjustment proposed by Vodafone was to record customer acquisition costs and related overheads as a capital cost with a three-year life, using straight-line depreciation, instead of writing off such costs as incurred. The amounts Vodafone proposed capitalizing principally related to handset subsidies and distributor commissions. The remaining costs related to the salaries and related overheads of employees dedicated to acquiring and connecting customers, with the amounts of overheads being a minor element of the amount capitalized.

5.65. Oftel accepted in principle that there might be circumstances in which it would be valid to capitalize subscriber acquisition costs. But, according to Oftel, it was not clear that such an adjustment would be appropriate in this case because:

- (a) Vodafone provided insufficient detail on these costs for Oftel to form a view as to their appropriate treatment;
- (b) there was a danger that such costs reflected the expectation of future supernormal profits, including those earned on call termination, and so would be higher than if markets were competitive; and
- (c) Oftel considered that the effect on Vodafone's ROCE of capitalizing subscriber acquisition costs in the current market circumstances might be ambiguous.

5.66. We believe that the capitalization of customer acquisition costs has a valid basis in economic principle. Expenditure is incurred before the customer is acquired, and a return on the investment can be justified. However, Vodafone's computation of the amount to be capitalized would need to be subject to rigorous analysis if the results were to be relied upon:

- (a) Part of the cost is represented by handset subsidies. In answering our questions on handset subsidies, the MNOs said that there were difficulties in defining and quantifying handset subsidies. Most of the amounts Vodafone proposed capitalizing related to contract customers where there was an issue as to whether some of subsequent subscription revenue, and if so how much, should be offset against the up-front cost. Vodafone acknowledged this problem, but believed that it did not undermine the correctness of the overall approach.
- (b) According to the MNOs, many of their customers were of little value, whatever the cost of acquiring them, because of their low volume of calls. Such customers might have a value less than the cost of acquiring them. Vodafone said that such low-value customers were likely to prepay with a relatively low acquisition cost. The amounts it proposed capitalizing related mainly to higher-value contract customers. Vodafone also stated that while there were some customers with a lifetime value below acquisition cost, there were also customers with values above the acquisition cost. It considered that provided a reasonable estimate was made of the average life of a customer the carrying value of customer acquisition costs in total would not be in excess of fair value.

5.67. Vodafone submitted arguments that its calculations would survive analysis along the above lines. We did not pursue the matter further, as it was, in the event, not relevant to our conclusions.

Capitalization of operating leases

5.68. The second adjustment proposed by Vodafone was to record operating leases as though they were finance leases (see Appendix 5.7 for further explanation), but using an annuity method (involving increases over time) of depreciation instead of the straight-line method (constant over time).

5.69. The initial accounting effect of capitalizing a lease (that is, treating it as a finance lease, not an operating lease) is to increase assets and borrowings. Changes to the equity interest may occur within the term of the lease if (as often occurs) the asset is depreciated over a different profile from that over which the lease obligation unwinds. The change in equity interest will reverse within the term of the lease.

5.70. In the profit and loss account, the effect is to replace a rental charge with a combination of depreciation (of the capitalized asset) and interest (on the notional borrowings). Thus earnings before interest will increase. Profit after interest over the whole term of the lease will not change, but the timing of profit after interest within the term of the lease may change.

5.71. Thus, in summary the effect of capitalizing a lease is to increase gross total assets, borrowings, and gearing, but to leave net assets substantially unchanged. In this section, we are looking at ROCE where capital employed has been defined as total assets less current liabilities. Therefore, capitalizing a lease will increase capital employed (as part of the liability will be in long-term liabilities). The effect on the profit and loss account is to reduce operating costs and increase depreciation, profit before interest and interest expense, but to leave profit after interest substantially unchanged.

5.72. Vodafone believed that, for the purpose of Oftel's review of its ROCE, and thus for the CC's inquiry, its operating leases should be accounted for in the way prescribed by standard accounting practice for finance leases, even though such a method was not in accordance with current standard accounting practice for operating leases, and was not used in its statutory accounts. Vodafone's argument was twofold: first, that the finance lease method was more valid in economic terms; and second that, without this adjustment, in Vodafone's particular circumstances, the measurement of its ROCE for Oftel's purposes, and the comparison of Vodafone's ROCE with that of the other MNOs, would be distorted.

5.73. Vodafone's reasons and authority for making this adjustment in the way proposed are set out in more detail in Appendix 5.7.

5.74. Oftel rejected the second adjustment for the following reasons:

- (a) Oftel accepted that, in principle, such an adjustment could be appropriate, as being consistent with the principle that the measured rate of return should be independent of the means of finance. However, in this instance Oftel believed that its approach, whereby operating leases were not adjusted from the treatment in Vodafone's accounts, was correct.
- (b) Oftel believed that Vodafone should not 'cherry-pick' adjustments to its financial data in order to help its case. Oftel thought that there might be other adjustments that increased Vodafone's returns. It added that there was potentially a significant adjustment to correct for understatement of ROCE relative to its value in a steady state because of the high proportion of new, relatively undepreciated assets in an MNO's growing asset base. In other words, accounting depreciation in the early years of an asset's life might be too generous and not reflect the economic usage of the asset. In such circumstances, the ROCE calculated using the accounting depreciation would understate returns in the early years of the asset lives. Vodafone rejected Oftel's assertion that Vodafone cherry-picked adjustments.

5.75. We consider that it may in certain cases be appropriate to include assets and liabilities related to leases that are currently treated as operating leases on a company's balance sheet for some purposes. This may be the direction in which standard accounting practice is moving as set out in the Accounting Standards Board's (ASB) discussion paper,¹ but this depends on reaction to the discussion paper and the ASB's subsequent response. The ASB's discussion paper has not become standard accounting practice and the issues put forward are still subject to debate, especially as regards quantification of the asset and corresponding liability. Given the limited role of profitability analysis in this inquiry, with the CC not viewing overall profitability as a critical indicator of competitiveness in the industry at this time, we have not reached a conclusion on this matter.

5.76. We have also decided not to reach a conclusion on the implications of an operating lease adjustment for comparing ROCE with an entity's cost of capital. Capitalizing operating leases reduces ROCE primarily because gearing is increased and capital employed (total assets less current liabilities) is increased. Such an increase in gearing would (other things being equal) reduce the weighted average cost of capital, in so far as the gearing used in the cost of capital calculation is derived from actual gearing in the industry. It is not obvious that the adjustment would lead to a significant change in the difference between ROCE and cost of capital, the computation of which is one of the purposes of calculating ROCE, although the gap might narrow.

¹*Leases: Implementation of a New Approach*—ASB December 1999.

5.77. Even if operating leases were capitalized for the purpose of calculating ROCE, as advocated by Vodafone, we disagree with the use of the annuity method of depreciation for assets held under operating leases alone, instead of the straight-line method as suggested by Vodafone. Vodafone's advisors drew our attention to the fact a proposed amendment to accounting standards (exposure draft¹) specifically mentioned that accounting by operating lease lessors was an occasion when annuity-based depreciation might be used. Vodafone's advisers argued that, whilst the exposure draft did not discuss lessee accounting because under current accounting standards the lessee does not capitalize operating leases, if operating leases were to be capitalized then a similar argument could be made. In fact the exposure draft prohibits the use of such a method of depreciation with the sole exception of lessors' accounting and the circumstances providing the rationale for operating lessors to use annuity-based depreciation are not present for lessees. Vodafone said that its main argument for annuity-based depreciation was its basis in economic principles and that the difference between using the annuity method and straight-line method for this adjustment was not substantial (see Appendix 5.7, paragraph 12). Whether, for the purpose of calculating ROCE, annuity-type depreciation should be adopted instead of straight-line depreciation for all depreciable assets is a much larger question: it was not advocated by Vodafone, or by any other party in this inquiry, and we have not addressed the merits of the argument.

Capitalization of intangible assets purchased

5.78. Vodafone's third adjustment was to capitalize the element of the amount paid for the acquisition of service providers that relates to intangible assets. It considered this represented an identifiable intangible asset for inclusion in the ROCE calculations. It recognized the argument that goodwill should be excluded on the basis that it may merely represent payment for excess profits. Vodafone did not believe, however, that all intangible assets should necessarily be excluded on this basis. It noted that recent accounting standards allowed for the recognition of intangible assets from acquisitions, which previously might have been included in the goodwill balance. If recognized as an intangible asset, such values should be added to the capital base for the purpose of calculating returns.

5.79. Vodafone said that most of its acquired goodwill related to the acquisition of service provider businesses between 1997 and 2002. Vodafone had considered whether these businesses had material intangible assets at the dates of acquisition. It noted that such acquisitions produced significant amounts of goodwill (around £[]), and that the businesses were acquired to enhance Vodafone's customer base (that is, to gain the retail margin earned by the service providers), and to obtain additional sales channels through which future connections could be made. Vodafone said that it was careful to avoid double counting with customer acquisition costs, where the customers involved with the service providers were already with the Vodafone network. Vodafone considered that it was possible to calculate the intangible asset for inclusion in the capital employed ROCE by calculating the present value of future retail profits (taking account of the number of contract customers acquired, the monthly profit per customer, and a prudent assumption for the customer disconnection rate). Vodafone believed that the resulting adjustments to ROCE were conservative as the calculated intangibles represented more than [] per cent of the goodwill on acquisitions.

5.80. Oftel said that it rejected any goodwill adjustment as proposed by Vodafone, and considered it was invalid.

5.81. Vodafone's argument for capitalizing part of purchased goodwill also seems invalid to us. According to Vodafone's submission, the goodwill derives from Vodafone's ability to gain the retail margin earned by service providers and its ability to obtain future connections through additional sales channels and these amounts to be capitalized are over and above the costs of acquiring such customers as already included under paragraph 5.64. Assuming payments for such goodwill to be rational, the existence of the goodwill, in excess of underlying customer acquisition costs, can only derive from the fact that the returns to be earned (and expected by Vodafone to continue to be earned) exceed Vodafone's cost of capital and such goodwill seems to us to represent evidence that returns exceed (and are expected to continue to exceed) the cost of capital, rather than being the basis for an adjustment designed to reduce the perceived amount by which returns exceed the cost of capital.

¹A proposed amendment to Financial Reporting Standards (FRS) 15 'Tangible fixed assets' and 10 'Goodwill and intangible assets', issued by the ASB in exposure draft form in June 2000 for public comment.

5.82. Vodafone did not accept these views but did not persuade us that the transactions concerned reflected the acquisition of an identifiable intangible asset.

Further adjustments proposed

5.83. Finally, Vodafone considered whether amounts should be included in capital employed for other intangible assets such as its brand name, computer systems and trained workforce. However, it concluded that the effect on ROCE would be immaterial, or, in the case of brand, that the issues associated with removing any circularity rendered it impracticable to calculate an appropriate adjustment. Nonetheless, in Vodafone's view, the omission from the measure of capital employed of any element of the brand expenditure, the inclusion of which would be likely to have a large effect, should be taken into account in an assessment of the relationship between Vodafone's returns and its cost of capital. We have not addressed the merits of the arguments because Vodafone did not put forward a value for these adjustments.

Summary of trend in Vodafone's ROCE

5.84. Vodafone explained its significantly higher returns as being entirely consistent with evidence of its superior performance in an industry that is effectively competitive. It added that it was normal and appropriate for the most efficient and successful company to be rewarded with high profitability. It noted the fall in its ROCE in recent years and expected its ROCE to continue to decline in future to levels consistent with its cost of capital.

5.85. As shown in Table 5.15 Oftel's calculations of ROCE for Vodafone UK show an average decline of 12 percentage points each year from a return of 92 per cent in 1998 to 45 per cent in 2002. However, once Oftel's calculations have been replaced by Vodafone's preferred calculations, the average decline in ROCE is only one percentage point each year, from 32 to 28 per cent, with ROCE being between 35 and 37 per cent in the years 1999 to 2001.

5.86. Vodafone's ROCE as discussed above compares with its cost of capital as discussed in Chapter 7.

O₂'s ROCE

5.87. Oftel calculated O₂'s ROCE up to the year ended 31 March 2000. At the time of Oftel's work, O₂'s figures for the year ended 31 March 2001 were not yet available.

5.88. O₂'s published accounts are unconsolidated, although it has subsidiaries. Oftel based its calculations on the combined figures for O₂ and two subsidiaries¹ (using estimates for the purpose of the combination for the year ended 31 March 2000), while noting that the combination had no effect on the measurement of profit. The difference between Oftel and O₂'s figures for capital employed at 31 March 2000 was £79 million. O₂ told us that it had been unable to understand how Oftel combined the O₂ subsidiaries so it could not explain the difference.

5.89. O₂ told us that it believed Oftel had made certain errors, but except for some immaterial amounts, which changed the ROCE in 1998 and 1999 by 0.3 and 0.1 percentage points respectively, these errors related to years prior to those under consideration. O₂ did not query the underlying methodology used by Oftel but did raise queries about the way in which figures were derived from O₂'s statutory accounts and presented its revised figures which it reconciled to its statutory accounts.

5.90. Table 5.16 compares Oftel's view of O₂'s profit, capital employed and ROCE with that shown in the published accounts of O₂, and also includes the relevant figures from O₂'s published accounts for years later than those covered by Oftel's calculations.

¹Lumina and DX Communications.

TABLE 5.16 Calculations of O₂'s ROCE

	Years to 31 March			£ million	
	1998	1999	2000	2001	2002
<i>Profit before interest on long-term debt and tax:</i>					
Per O ₂ published accounts	224	158	98	207	201
Per Oftel	232	158	137		
<i>Closing capital employed:</i>					
Total assets less current liabilities per O ₂ published accounts	789	834	811	1,338	5,486
Eliminate current portion of long-term debt (including intra-group), and corporation tax liabilities	425	679	985		
Closing capital (excluding intra-group debt), and corporation tax liabilities	1,214	1,514	1,797		
Per Oftel	1,186	1,462	1,876		
<i>Mean capital employed:</i>					
Based on published accounts	1,141*	1,364	1,655		
Per Oftel	1,136†	1,324	1,669		
<i>ROCE (per cent):</i>					
Based on published accounts	20	12	6		
Per Oftel‡	20	12	8		

Source: CC based on information from O₂ and Oftel.

*Average of £1,214 million and £1,067 million being the 31 March 1997 equivalent.

†Average of £1,186 million and £1,085 million being the 31 March 1997 equivalent.

‡O₂ provided some revised figures for profit before interest on long-term debt and closing and mean capital employed. We have not included these figures in the table as these changes changed ROCE very slightly. In O₂'s figure the ROCE in 1998 was changed from 20.5 per cent to 20.8 per cent and in 1991 from 11.9 per cent to 12.0 per cent and was unchanged in 2000 at 8.2 per cent.

5.91. For the years ended 31 March 1998 and 1999, differences between O₂'s published accounts and Oftel's figures are not material. The substantial difference in profit for the year ended 31 March 2000 appears to result from Oftel eliminating an exceptional charge of £[] in that year, most of which related to the impairment in value of O₂'s analogue network.

5.92. We have not calculated the ROCE figures in the 2001 and 2002 columns as to do so we would be required to take a view on how Oftel would have treated goodwill and the 3G licence included in O₂'s 2002 balance sheet.

5.93. Figures for the years ended 31 March 2001 and 2002, in respect of which Oftel expressed no view on ROCE, cannot be regarded as comparable with the earlier years in respect of which Oftel did express a view. The current portion of long-term debt included in current liabilities increased very substantially in 2001 (to £[]), and increased further in 2002 (to £[]). Capital employed at 31 March 2002 included the 3G licence at a cost of £4,147 million and goodwill of £[] arising on the purchase of a mobile-related business in the year. Profit for the year ended 31 March 2002 is stated after charging exceptional items totalling £[] million most of which related to restructuring of various operations, the write-off of equipment and £[] million of goodwill amortization.

5.94. We do not know how Oftel would have treated the items mentioned in the preceding paragraphs although, however they were to be treated, it does not seem likely that ROCE would have exceeded 11 per cent for either of the two years.

Orange's ROCE

5.95. Oftel calculated Orange's ROCE up to the year ended 31 December 2000. Table 5.17 compares Oftel's view of Orange's profit, capital employed and ROCE with that shown in the Orange

published accounts, and includes the relevant figures in Orange's published accounts for the year ended 31 December 2001, which were not covered by Oftel's calculations.

TABLE 5.17 **Calculations of Orange's ROCE**

	<i>£ million</i>			
	<i>Years to 31 December</i>			
	1998	1999	2000	2001
<i>Profit before interest on long-term debt and tax:</i>				
Per Orange published accounts	<u>47</u>	<u>61</u>	<u>168</u>	344
Per Oftel	<u>47</u>	<u>60</u>	<u>162</u>	
<i>Closing capital employed:</i>				
Total assets less current liabilities per Orange published accounts	1,175	1,414	1,804	1,993
Eliminate current portion of long-term debt (including intra-group), and corporation tax liabilities	<u>20</u>	<u>20</u>	<u>26</u>	
Closing capital (excluding intra-group debt), and corporation tax liabilities	<u>1,195</u>	<u>1,434</u>	<u>1,830</u>	
Per Oftel	<u>1,192</u>	<u>1,434</u>	<u>1,830</u>	
<i>Mean capital employed:</i>				
Based on published accounts	1,006*	1,315	1,632	
Per Oftel	1,013†	1,313	1,632	
<i>ROCE (per cent):</i>				
Based on published accounts	5	5	10	
Per Oftel	5	5	10	

Source: CC based on information from Orange and Oftel.

*Average of £1,195 million and £816 million being the 31 December 1997 equivalent.

†Average of £1,192 million and £834 million being the 31 December 1997 equivalent.

5.96. We have not calculated ROCE in 2001, as to do so we would be required to take view on what adjustments Oftel would have made.

5.97. Differences between Orange's published accounts and Oftel's figures are small, and Orange did not dispute Oftel's calculations. Orange's ROCE was below its cost of capital, as estimated by Oftel, for all years covered by Oftel's calculations. For the year ended 31 December 2001, Orange's ROCE appears to be of the order of 18 per cent, subject to any adjustments that Oftel might have made to the figures in Orange's published accounts.

5.98. Orange made a submission to us in which it recalculated its ROCE for 2001 on the basis of capitalizing operating leases in a manner similar to Vodafone's adjustment (see paragraphs 5.68 to 5.76). This resulted in a ROCE of approximately 14 per cent for the year compared with our estimate of 18 per cent. In the absence of persistent high profits made by Orange to date, we did not consider it necessary to investigate this matter further.

T-Mobile's ROCE

5.99. Oftel calculated T-Mobile's ROCE up to the year ended 31 March 2000. Table 5.18 compares Oftel's view of T-Mobile's losses, capital employed and ROCE with that shown in the T-Mobile published accounts, and includes the relevant figures in T-Mobile's published accounts for the years ended 31 December 2000 and 2001, which were not covered by Oftel's calculations.

TABLE 5.18 Calculations of T-Mobile's ROCE

	£ million				
	Years to 31 March			Years to 31 December	
	1998	1999	2000*	2000	2001
<i>Loss before interest on long-term debt and tax:</i>					
Per T-Mobile published accounts	-126	42§	-252	-359	-263
Per Oftel	-125	-42	-252		
<i>Closing capital employed:</i>					
Total assets less current liabilities per T-Mobile published accounts	809	973†	1,169	5,278	5,205
Eliminate current portion of long-term debt (including intra-group), and corporation tax liabilities	7	5	7		
Closing capital (excluding intra-group debt), and corporation tax liabilities	816	978	1,176		
Per Oftel	808	1,036	1,169		
<i>Mean capital employed:</i>					
Based on published accounts	690‡	897	1,077		
Per Oftel	679§	922	1,103		
<i>ROCE (per cent):</i>					
Based on published accounts	-18	-5	-23		
Per Oftel	-18	-5	-23		

Source: CC based on information from T-Mobile and Oftel.

*T-Mobile changed year-ends subsequent to March 1999 from March to December. PBIT of -£189 million for the nine-month period to 31 December 1999 was extrapolated into a 12-month PBIT to 31 March 2000 of -£252 million by Oftel, in order to be comparable to the other 12-month periods. The balance sheet for March 2000 has been based on the 31 December 1999 T-Mobile accounts.

†T-Mobile's accounts for year to 31 March 1999 showed a loss before interest and tax of £52 million. The loss was restated to be £42 million as a result of prior year adjustment, changing the accounting policy for customer acquisition costs, at the time of the December 1999 accounts. The capital figure is also per the restated accounts.

‡Average of £816 million and £564 million being the 31 March 1997 equivalent.

§Average of £808 million and £551 million being the 31 March 1997 equivalent.

5.100. We have not calculated the ROCE figures in the 2001 and 2002 columns as to do so would be required to take a view on whether Oftel would have adjusted for the 3G licence included in T-Mobile's 2001 and 2002 balance sheet.

5.101. Differences between T-Mobile's published accounts and Oftel's figures are small, and T-Mobile did not dispute Oftel's calculations. Figures for the years ended 31 December 2000 and 2001, in respect of which Oftel expressed no view on ROCE, cannot be regarded as comparable with the earlier years in respect of which Oftel did express a view. Long-term debt included in current liabilities increased substantially in 2000. Capital employed at 31 December 2000 and 2001 included the 3G licence at figures of £3,881 million and £3,696 million respectively. Losses for the periods ended on those dates included charges of £123 million and £185 million respectively for amortization of the 3G-licence cost.

5.102. We do not know how Oftel would have treated the items mentioned in the preceding paragraphs but, however they were to be treated, it seems clear that T-Mobile would have recorded a negative ROCE for the whole of the period to 31 December 2001.

Financial analysis by call type

Introduction

5.103. We wished to gain an understanding of the relationship between call charges and network costs, and among the various components of the total amounts charged to customers and to other networks.

5.104. Accordingly we asked the MNOs to analyse their profit and loss account for the most recent financial year to show revenue from the various call types, with particular emphasis on:

- (a) outgoing calls, showing on-net mobile to mobile, off-net mobile to mobile, calls to fixed-line telephones and calls to the rest of the world;
- (b) incoming calls, showing incoming calls from other mobile networks, from fixed-lines and from the rest of the world; and
- (c) other activities such as text (SMS) and roaming charges.

5.105. After determining revenue as discussed above, the MNOs were asked to deduct from revenue, for each call type, the network costs as well as, for outgoing calls, any charges paid to other operators for terminating calls. The aim was to arrive at the contribution for the various call types before allowing for non-network costs.

5.106. We also asked for information on the number of minutes for each of these activities so we could calculate revenue, costs and contribution per minute.

Comments on methodology used to determine contribution by call type

5.107. All the MNOs expressed reservations about the conclusions that could be drawn from our analysis. Individual MNOs' objections are explained further in Appendices 5.12 to 5.15, but the MNOs' main reservations were as follows:

- (a) The analysis requested did not reflect analyses the MNOs used for business purposes. Accordingly, in some respects, the analysis was estimated by reference to ad hoc criteria, in particular the identification and arbitrary allocation of common costs, and might for that reason be unreliable.
- (b) A rejection of our simplifying assumption of equal physical use of the network by different types of call. Three of the four MNOs produced an allocation of network costs into the call types using their preferred method instead, which we have used. The implications of this are discussed in paragraph 5.122 to 5.128.
- (c) A belief that it was invalid to conceive of profits for different elements of mobile telephony. The MNOs argued that mobile telephony represented one product, not several; what might appear to be a separate price for a separate product was in reality part of a price for part of a product. Most costs (all or most network costs, handset costs and incentive payments to ISPs, customer acquisition and retention costs, marketing costs and administration costs, but not termination charges paid to other networks) were common to all parts of the single product. Further, individual price elements were interdependent and were set by reference to commercial imperatives including critically, MNOs' perceptions of relative own- and cross-price elasticities. Our conclusions on this issue are set out in Chapter 2.

5.108. A further issue relevant to the analysis was how to treat periodic (usually monthly) subscription revenue from contract customers. There is no one right answer to this question. There are clearly various methods that could be used, the main questions that arise being:

- (a) whether it is appropriate to treat all subscription revenue as call revenue or whether it would be more appropriate to attribute any part of it to:
 - (i) handset sale proceeds, on the basis that the contracts which include subscriptions usually attract larger handset subsidies, with the subscriptions being payable whether or not calls are made; and/or
 - (ii) offset customer acquisition and retention costs more generally.
- (b) whether any part attributable to outgoing call revenue should be allocated only to the types of calls included in the monthly bundles of free calls or allocated across all outgoing calls.

5.109. The MNOs do not apportion subscription revenue in their management accounts, and have expressed reservations about whether apportionment is meaningful. In their analyses for us the MNOs treated subscription revenue in different ways, as follows:

- (a) Vodafone stated its tariffs were not constructed by reference to a model that sought to apportion monthly payments into categories labelled 'subscription' and 'calls' and therefore there was no pre-existing model to do so. Hence it stated that any attempt to do so, ex post, must involve a degree of arbitrariness. In the figures originally supplied for this exercise, Vodafone attributed all its subscription revenue from contract customers to outgoing calls, in proportion to the number of minutes of the various types of outgoing calls. It subsequently produced two alternative possible allocations, which attempted to identify the upper and lower bounds of any possible allocation to call revenue, both methods involved attributing less than 100 per cent of subscription revenue to call revenue. These alternatives are set out in Appendix 5.12. As Vodafone did not express a preference we have used its original allocation method in the figures given below.
- (b) O₂ originally allocated its subscription revenue from contract customers mostly to outgoing calls, but also to SMS and other services such as voicemail. It said it believed that this was what the CC had requested. O₂ told us that it did not consider cost allocations particularly helpful, as it did not set its prices according to cost allocation methodologies. When asked what was its preferred methodology, it calculated the call revenue forgone on bundled minutes actually used (see paragraph 6.135 on unused minutes) and used this to estimate how much subscription revenue should be allocated to outgoing calls. It estimated the amount of subscription revenue that should be allocated to outgoing calls according to types of calls used in the bundled minutes. The figures below reflect O₂'s preferred allocation methodology.
- (c) Orange attributed a proportion of its subscription revenue from contract customers to calls. The amount attributed to call revenue was based on the prices of the bundled minutes available and used on the various contract tariffs. The resultant total attributed to calls was allocated to outgoing calls according to the types of call included in the bundles (almost entirely to on-net and mobile to fixed). The remainder of the subscription revenue was not attributed to call revenue. In our analysis we have treated the remaining revenue as an additional income item before deduction of non-network costs.
- (d) T-Mobile originally attributed all its subscription income from contract customers to calls. It allocated the revenue to on-net calls and calls to fixed lines because these were the free minutes in the subscription bundles. The allocation was based on the total minutes for these two call types. A second approach was undertaken to meet a request by the CC, through estimating the value of bundled minutes used, whereby the minutes used were multiplied by the standard tariff ex VAT for calls to fixed lines of 8.5 ppm (that is, 10 ppm less VAT). T-Mobile considered that all approaches to allocating subscription revenue to calls were arbitrary and it did not believe one method provided a truer representation of costs than another. However, the first approach represented T-Mobile's preferred method out of the two. This methodology is the one used in the figures given below.

5.110. The issue of how much of subscription revenue could be regarded as call revenue was also faced by the economic modellers when they attempted to estimate the demand for subscription and mobile-originated calls separately. The methods used to do this by DotEcon and Frontier Economics are set out in paragraphs 8.14 and 8.17 respectively.

5.111. In paragraphs 5.112 to 5.136 we summarize the results of the analysis for the four MNOs for their most recent financial years (year ended 31 March 2002 for Vodafone and O₂; year ended 31 December 2001 for Orange and T-Mobile).¹ Individual MNOs' figures are set out in Appendices 5.12 to 5.15 and the derivation of all the averages and totals is shown in Appendix 5.16.

¹The financial and traffic information for the MNOs is taken from different time periods, ie consistent with their respective financial year-ends. Traffic volumes have been rising significantly over recent periods and the data for Orange and T-Mobile (year to December 2001) predates those of Vodafone and O₂ by three months (year to March 2002). Therefore any comparisons need to be treated with caution.

Comparisons of traffic levels

5.112. Of tel's data¹ for the year to 31 March 2002 showed a much greater volume of outgoing calls carried by Vodafone and Orange (14.3 and 13.3 billion minutes respectively) than for O₂ and T-Mobile² (9.6 and 9.1 billion minutes respectively).

5.113. A similar pattern was seen in terms of incoming minutes in Of tel's figures for interconnection minutes for the year to 31 March 2002, where Vodafone and Orange received 6.9 and 6.5 billion minutes respectively, while O₂ and T-Mobile³ received 5.5 and 4.8 billion minutes respectively.

5.114. The underlying data for three of the operators (shown in Appendices 5.12 to 5.15) show that in the years reviewed by us, traffic, revenues and costs were closely aligned for each MNO, that is, each MNO had a relatively small balance of trade surplus or deficit with the other three MNOs in aggregate. Table 5.19 summarizes the position in terms of flows of money. Orange was not able to provide its analysis of incoming calls from MNOs. We estimated its figures on the assumption using information on the split of the other MNOs' incoming calls and information from the other MNOs on their outgoing calls to Orange. This also showed a small balance of both minutes and revenue.

TABLE 5.19 Payments between MNOs for termination charges in 2001/02*

	Vodafone	O ₂	Orange	T-Mobile	£ million	
<i>Termination charges for calls between MNOs</i>						
Off-net mobile to mobile—paid to other MNOs in respect of outgoing calls	[<i>Figures omitted. See note on page iv.</i>]	-674
Incoming from mobiles—received from other MNOs in respect of incoming calls						661
Net balance of revenue/(payments)						13

Source: CC based on information from the MNOs.

*The information is based on Vodafone and O₂ figures for the year to March 2002, and Orange and T-Mobile figures for the year to December 2001. The source of the information is shown in the respective Appendices 5.12 to 5.15 for the MNOs.

†The split of Orange's incoming calls were estimated by the CC using information on the split of the other MNOs' incoming calls and information from the other MNOs on their outgoing calls to Orange.

5.115. Table 5.20 shows the traffic between MNOs in total and the fixed networks, and the total costs and total revenues arising from this traffic. The termination revenue that each operator was able to charge (based on current price controls for Vodafone and O₂, and agreements for Orange and T-Mobile) was considerably greater at between 10 and 11 ppm, than the termination charge levied by fixed-line operators, which averaged less than 1 ppm.⁴

5.116. However, it should be noted that the cost of termination on mobile networks is higher than on fixed networks.

5.117. Consequently, the MNOs each obtained significant net revenue from this traffic, even though they each passed more traffic to the fixed networks than they received. Although Orange said that it was not able to analyse its incoming traffic we have, as stated above, estimated the split of its incoming calls to derive the figures in this table. In total, this revenue from fixed lines contributed significantly to the MNO's total revenue from calls.

¹The figures provided by the MNOs to Of tel include types of calls excluded from the MNOs responses to us as set out in Appendices 5.12 to 5.15. O₂ provided a reconciliation that showed the main categories of call volumes included in the figures it provided to Of tel but not in the figure it provided for our analyses were calls to WAP portals, calls to voicemail and private circuits.

²The figures published by Of tel for outgoing minutes include calls made by T-Mobile's Wholesale Partners (including Virgin Mobile). The figures T-Mobile provided to us and used in the deriving the figures in the following tables are for T-Mobile Retail only.

³The figures published by Of tel for inbound minutes include inbound calls to customers of T-Mobile's Wholesale Partners (including Virgin Mobile). The figures T-Mobile provided to us and used in the deriving the figures in the following tables are for T-Mobile Retail only.

⁴The main termination tariff from BT is 0.6 ppm on average. T-Mobile, Orange and Vodafone have included all calls to UK numbers excluding calls to mobile networks in the outgoing calls to fixed lines. Hence this category included calls to UK non-geographic numbers for which termination charges are substantially higher than the "standard" termination charge paid to BT. O₂ included calls to 0845 numbers but not calls to premium-rate numbers.

TABLE 5.20 Comparison of traffic and payments between MNOs and fixed networks for 2001/02*

	<i>£ million</i>
	<i>Total</i>
<i>Termination charges for calls between MNOs and fixed networks</i>	
Mobile to fixed—paid to fixed operators	-209
Incoming from fixed lines—received from fixed operators	<u>1,644†</u>
Net favourable balance of revenue	1,435
	<i>bn minutes</i>
<i>Traffic flows</i>	
Mobile to fixed	-23.26
Incoming from fixed	<u>15.22†</u>
Net balance of traffic to fixed operators	-8.04

Source: CC based on information from the MNOs.

*This information is based on Vodafone and O₂ figures for the year to March 2002, and Orange and T-Mobile figures for the year to December 2001. The source of the information is shown in the respective appendices 5.12 to 5.15 for the MNOs.

†The split of Orange's incoming calls was estimated by CC using information on the split of the other MNOs incoming calls and information from the other MNOs on their outgoing calls to Orange.

Comparisons of revenue, costs, and contribution per minute

Revenue per minute

5.118. Table 5.21 shows the average outgoing call revenue for the four MNOs, by call type; first including subscription revenue using each MNO's preferred method, and then excluding subscription revenue.¹

TABLE 5.21 Comparison of outgoing revenue per minute by call type for the four MNOs in 2001/02*

	<i>ppm</i>
	<i>Average†</i>
<i>Including subscription revenue</i>	
1. On-net mobile to mobile	9.1
2. Off-net mobile to mobile	25.5
3. Mobile to fixed	9.2
4. Mobile to rest of the world	50.3
<i>Excluding subscription revenue</i>	
1. On-net mobile to mobile	5.6
2. Off-net mobile to mobile	24.3
3. Mobile to fixed	5.8
4. Mobiles to rest of the world	49.1

Source: CC based on information from the MNOs.

*Vodafone and O₂ information is for the year to March 2002, and Orange and T-Mobile information is for the year to December 2001.

†The averages given in this Table and in those that follow in this section are simple arithmetic means of the figures for the four MNOs.

5.119. For all the networks, calls to the rest of the world produced the highest per minute revenue but, because overall volumes were relatively small, revenue was also small at less than 10 per cent of

¹Vodafone stated that the subscription revenue excluded referred to the substantial revenue received for inclusive or 'bundled' minutes and that excluding such revenue but dividing the resultant revenue figure by the total volume of minutes including the bundled minutes was not meaningful. By excluding subscription revenue from call revenue, we did not mean to imply that we did not believe subscription revenue related at least in part to call revenue. We excluded it as the MNOs had taken such different approaches to subscription revenue in the figures for call revenue.

outgoing revenue for the MNOs except for O₂ which included all roaming minutes in this category (see Table 2 in Appendices 5.12 to 5.15). Revenue per minute varied significantly among the MNOs for this category, but the comparison was distorted by different treatments of roaming revenue and charges. No further consideration has been given to this call type.

5.120. Including subscription revenue, revenue per minute for both on-net mobile calls and calls to fixed lines was on average around 9 ppm for the four networks. Excluding subscription revenue,¹ revenue per minute for on-net calls and calls to fixed lines averaged 5.6 and 5.8 ppm respectively. Off-net calls produced much higher revenue per minute for all the MNOs. Across the four networks, off-net calls produced averages of 25.5 ppm including subscription revenue and 24.3 ppm excluding subscription revenue.

5.121. Turning to incoming calls, the average revenue across the four MNOs for calls from mobiles and from fixed lines was 10.8 ppm. The average revenue from incoming calls is capped either by regulation, or agreement that keeps charges close to the regulated levels (see paragraphs 6.42 to 6.45). The average charges per minute were lower for Vodafone and O₂ (the two regulated companies); and higher for T-Mobile and Orange (the two non-regulated companies). The termination rates for Orange and T-Mobile were higher than those for Vodafone and O₂ reflecting the additional cost at the time the rates were set of operating a GSM 1800 MHz network compared with a GSM 900 MHz network.

Network costs per minute

5.122. In our guidelines to the MNOs, we noted that for any call there are two legs, leg A being the cost of getting the outgoing call from the mobile phone to the mobile network, and leg B being the cost of finding the destination mobile phone and directing the call to this location. This results in the following:

- (a) for an on-net call, the costs related to both legs (A and B) are incurred by the mobile operator under consideration;
- (b) for an outgoing call to another mobile network or a fixed-line network only the first leg (leg A) costs are incurred by this operator; and
- (c) for incoming calls only the second leg (leg B) costs are incurred by this operator.

We first suggested using the simplifying assumption that the network cost of originating a call is the same as the cost of terminating a call, that is, the cost per minute for leg A equalled the cost per minute for leg B.

5.123. The MNOs pointed out that this was not sufficiently accurate, and that proportionally more costs should be weighted to the incoming leg B than the outgoing leg A.

5.124. Orange provided information using the simplifying assumption that the cost per minute for leg A and leg B were equal, but said that costs associated with individual call types should be derived through a detailed traffic routing factor table, and an economically valid approach was needed for the allocation of common costs. It produced an alternative presentation of the network ppm figures giving incremental costs for the call types and identifying the common costs, which is set out in Appendix 5.14. As this did not allocate network costs between call types, we have used in the tables below Orange's original figures based on our simplified fully allocated costings with equi-proportionate mark-up.

5.125. O₂ originally provided information using the simplifying assumption that the costs of leg A and leg B were equal, but stated that an incoming call utilized the network more intensively than an out-

¹See previous footnote.

going call. It subsequently produced alternative figures using network route factors to allocate the costs according to the extent each call type utilized individual network components and these figures have been used in our tables.

5.126. Vodafone and T-Mobile both calculated network costs on what they considered were more realistic assumptions (rather than using the simplifying assumption), taking account of the engineering assumptions for traffic flows.

5.127. The calculations produced by Vodafone, O₂ and T-Mobile differed from our simplified assumptions in two main respects:

- (a) Incoming unit call costs were higher than outgoing unit call costs:
 - (i) an average incoming call uses more of an MNO's network than an average outgoing call since, in the case of call termination, the originating operator typically has no knowledge of the location of the called party and the call is handed to the terminating MNO at the most convenient point of interconnect for the originating operator. The terminating operator conveys the call to the relevant location for termination thus using more of the network for incoming calls and hence a higher allocation of costs; and
 - (ii) an incoming call, in addition to using more of the same network components as an outgoing call, also uses network components which are not used at all in providing outbound call services. The MNO concerned has to locate the called party. Such costs were thus regarded by the MNOs as cost of incoming calls only.
- (b) An on-net call uses less of the network than the sum of a call origination leg and a call termination leg because no communication is necessary between networks and any duplication or inefficiencies in routing resulting from locations of points of interconnect can be avoided.

5.128. The network costs per minute submitted by the four MNOs for this exercise¹ are shown in Appendices 5.12 to 5.15. These costs included only items charged to the accounting profit and loss account and therefore excluded the cost of capital. Differences in the network costs produced for this exercise may be to some extent the result of how the MNOs chose to allocate cost: both between network and non-network activities and then in the method of allocating network costs between services. Other possible reasons for differences in network costs (that are discussed further in Chapter 7) include economies of scale, quality of service, efficiency and cost differences between 900 MHz and 1800 MHz bandwidth.

Termination charges per minute

5.129. Termination charges paid to the other MNOs averaged around 11 ppm (see paragraph 5.121 above on incoming revenue).

5.130. Termination charges paid to fixed-line operators averaged around 1 ppm. The major termination tariff from BT is 0.6 ppm. T-Mobile, Vodafone and Orange included all calls to UK numbers excluding calls to mobile networks in the outgoing calls to fixed lines. Hence this category included calls to UK non-geographic numbers for which termination charges are substantially higher than the 'standard' termination charge paid to BT. O₂ included calls to 0845 numbers but not calls to premium rate numbers. Table 5.20 shows the effect of the differential in termination charge payments and traffic between MNOs and fixed networks.

¹The MNOs stated that they did not believe that figures derived from their accounts were the appropriate figures for setting prices. They considered that prices should be derived from a LRIC methodology, which uses economic rather than accounting depreciation as well as an appropriate means of identifying and apportioning fixed and common costs.

Contribution per minute

5.131. Table 5.22 shows the average contribution by call type for the four MNOs in 2001/02. As with revenue, the contribution figures for outgoing calls shown were very sensitive to the method used for allocating subscription revenue, as discussed in paragraphs 5.108 to 5.110. The figures shown are those provided by each MNO with their allocations of subscription revenue and also those excluding all subscription revenue.¹

TABLE 5.22 Comparison of average contribution per minute by call type between MNOs for 2001/02*

	<i>ppm</i>
	<i>Average 4 MNOs</i>
<i>Contribution</i>	
<i>Outgoing calls—including subscription revenue</i>	
1. On-net mobile to mobile	3.4
2. Off-net mobile to mobiles	11.7
3. Mobile to fixed	5.4
<i>Outgoing calls—excluding subscription revenue</i>	
1. On-net mobile to mobile	-0.1
2. Off-net mobile to mobiles	10.5
3. Mobile to fixed	2.1
<i>Incoming calls</i>	
Incoming from MNOs and fixed	7.3

Source: CC based on information from the MNOs.

*Vodafone and O₂ information is for the year to March 2002, and Orange and T-Mobile information is for the year to December 2001. The source of the information is shown in the respective Appendices 5.12 to 5.15 for the MNOs.

5.132. The table shows that it is off-net calls that make the greatest contribution per minute and the underlying figures shows this to be the case for all four networks. Whether subscription revenue is included or excluded, the contribution is much greater on average² than that for on-net calls or calls from mobile to fixed. During 2002, the MNOs started to offer tariffs that included off-net mobile calls in the bundle for contract customers (see paragraph 6.134). Consequently, it may be that, if a similar analysis were conducted for the following year, the average contribution for off-net mobiles calls would have declined slightly. We are not clear why a significant differential between on-net and off-net margins has remained although the four networks have broadly similar market shares, and why a more cost-reflective price structure has not evolved.

5.133. The contribution of incoming calls averaged 7.3 ppm across the four networks. This is less than the unit contribution from off-net calls but higher than that earned on on-net calls or calls to fixed lines.

Average revenue and costs

5.134. Table 5.23 summarizes revenues, termination charges paid, network costs and contributions across the four networks taken together.

¹Given the sensitivity of the results to the allocation methods used by each MNO, comparisons between the figures for each MNO given in Appendices 5.12 to 5.15 and the average of the four networks must be treated with a degree of caution.

²There is a wide range in the underlying figures for contribution per minute for these various call types between the various MNOs. They all receive more contribution from off-net than on-net calls or calls to fixed lines, but the size of this differential varies markedly.

TABLE 5.23 The four MNOs: summary of average revenue, termination charges, network costs, and contribution by call types for 2001/02*

	Outgoing			Incoming from mobiles and fixed
	On-net	Off-net to mobiles	Mobile to fixed	
Revenue including subscription revenue	9.1	25.5	9.2	10.8
Revenue excluding subscription revenue	5.6	24.3	5.8	10.8
Termination charges paid	0.0	-11.0	-0.9	0.0
Revenue less termination charges:				
Including subscription revenue	9.1	14.5	8.3	10.8
Excluding subscription revenue	5.6	13.3	4.9	10.8
Network costs†	-5.7	-2.9	-2.9	-3.5
Contribution:				
Including subscription revenue	3.4	11.7	5.4	7.3
Excluding subscription revenue	-0.1	10.5	2.1	7.3

Source: CC calculations based on figures provided by the MNOs.

*Vodafone and O₂ information is for the year to March 2002, and Orange and T-Mobile information is for the year to December 2001. The source of the information is shown in the respective appendices 5.12 to 5.15 for the MNOs.

†The average network costs are distorted by the figures for Orange, which were not produced in the same way as the other three MNOs.

5.135. In comparing the different call types, it is clear that revenue after deducting termination charges, whether computed to include or exclude subscription revenue, bears no consistent relationship to the network cost of the calls. The MNOs' stance (see paragraph 5.107(c)) is that no such relationship would be expected. See paragraph 6.114 onwards for a discussion of the MNO's views on whether their retail prices are consistent with Ramsey pricing.

5.136. Incoming call charges (termination charges) are not retail prices, being paid by other networks. The price paid by the caller is the termination charge (for leg B) plus a charge by the caller's network in respect of leg A. See paragraph 6.62 et seq for a discussion of the relationship between termination charges and retail prices. The MNOs termination charges are shown in Table 6.12 and BT's prices for calling a mobile are shown in Table 6.35.