

CRA COMPETITION POLICY DISCUSSION PAPERS 9

The (mis)use of profitability analysis in competition law cases

December 2003



Charles River Associates Limited 1 Undershaft ♦ London EC3A 8EE ♦ +44 (0)20 7664 3700 ♦ Fax +44 (0)20 7664 3998



Charles River Associates Limited 1 Undershaft ♦ London EC3A 8EE ♦ +44 (0)20 7664 3700 ♦ Fax +44 (0)20 7664 3998

The (mis)use of profitability analysis in competition law cases

Abstract

The UK Office of Fair Trading and Competition Commission have recently taken the position that the analysis of an industry's profits can yield important information about how competitive it is. This approach is not used in the US and rarely in the EU. There are a number of good reasons for this. First, it is not true that, even in a long-run competitive equilibrium, firms will earn zero economic profits as one would normally measure them. Second, there are a number of reasons why firms might earn economic profits well above their cost of capital that should not be of concern to competition authorities. Third, measuring profitability in an economically meaningful way is virtually impossible to do for any complex business. The analysis of profitability in competition cases will not help us distinguish successfully between competitive and co-operative pricing, but it will add confusion of the issues and lead to bad policy decisions.

The model of perfect competition, much beloved by first year economic textbooks, holds that firms earn zero economic profits. At the other extreme, monopolists earn positive economic profits. A superficial analysis might suggest that one way to determine how competitive markets are is to look at how profitable the firms in that market are. Low profitability under this approach would be associated with a high degree of competitiveness; high profits would be evidence of a lack of competition. This certainly seems to be the view of the UK competition authorities.

In his recent paper presented at Fordham,¹ Sir Derek Morris, chairman of the UK Competition Commission, argued that the existence of co-ordination within a market “can in principle be identified via analysis of profitability.”² This is consistent with previous comments from Sir Derek. In November 2002 he argued that

“In particular, and companies are sometimes unhappy about this, it does mean looking at profitability levels and even efficiency levels. Where you find the main players [in a market] all seem to be consistently achieving high profits, that is one signal that maybe it’s not so competitive.”³

It is also consistent with the views of both of the UK Office of Fair Trading (OFT) and the UK Competition Commission. The UK OFT states that

“The ability of an undertaking ... to earn excessive profits may provide evidence that it possesses some degree of market power.”⁴

The Competition Commission states that

“However, a situation where, persistently, profits are substantially in excess of the cost of capital for firms that represent a substantial part of the market could be an indication of limitations in the competitive process. For instance, in some cases a high level of profitability could be indicative of significantly coordinated behaviour. Therefore, in the context of a market reference, the Commission will normally consider profit

levels, usually in terms of rates of return on capital in the market or markets concerned, as a further indicator of competitive conditions.”⁵

As a result of these views, the UK authorities typically seek to compare some measure of the profitability of a firm or sector to the cost of capital of that firm or sector. If the firm or sector is earning a return above its cost of capital, that is treated as *prima facie* evidence of excess profitability. However, it is interesting to note that profitability analysis is not used by competition authorities in the US and is rare in the EU. It is reasonable to ask why. In this Discussion Paper we argue that the apparently simple and obvious relationship between profitability and the degree of competition within a market holds only rarely, and only by chance, and should not be used generally as the basis for assessing the competitiveness of particular markets or industries. There are three main reasons for this.

- The theorem that in a long-run, perfectly-competitive equilibrium firms will earn zero economic profits is simply not true when applied to economic profits as one would normally measure them. Instead, what is true is that the marginal firm will earn zero profits.
- There are a number of reasons why firms might earn economic profits well above their cost of capital that should not be of concern to the competition authorities. In only a few cases where one observes positive economic profits should competition authorities be concerned, and these situations must be identified on grounds other than profitability.
- Measuring the profitability of a particular product line in an economically meaningful way is at best extremely difficult, and as a practical matter, is virtually impossible to do for any complex business.

The conclusion that we draw is that, contrary to the impression that Sir Derek is clearly trying to convey, other jurisdictions should not follow the UK’s lead and begin using profitability analysis. Instead, the UK should stop using it.

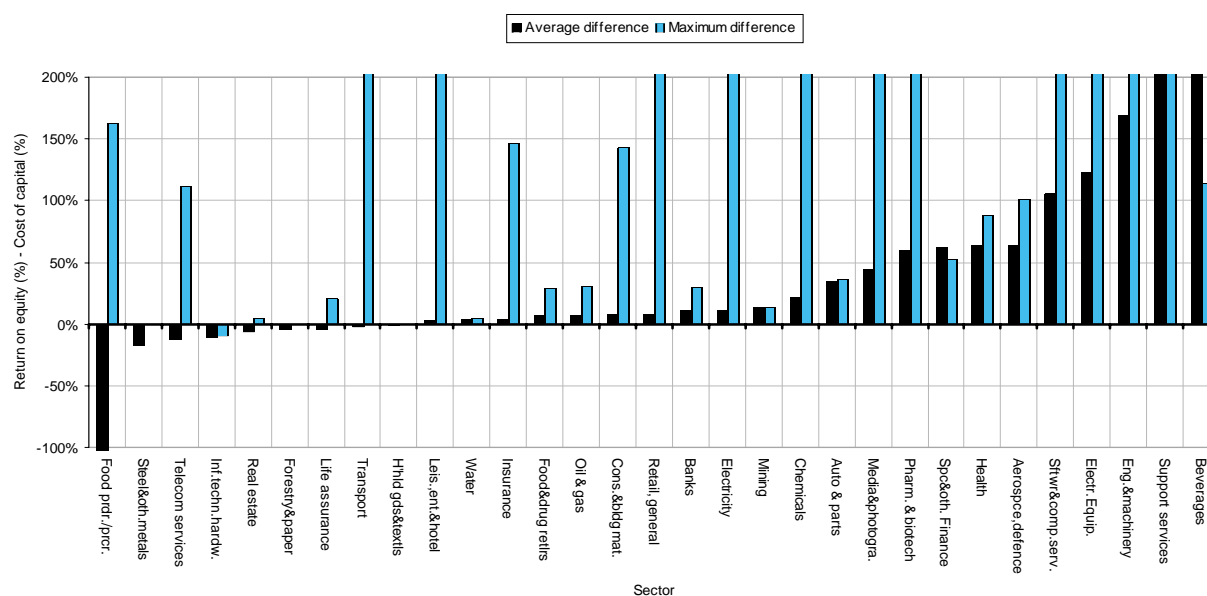
What the basic competitive theory tells us about profits

The theory is quite simple. In a perfectly competitive market where all firms are price takers, price is determined by the intersection of the supply and demand curves. The industry supply curve is the horizontal summation of the marginal cost curves for each firm, which are also the firms' supply curves. If firms in the industry are earning a return on investment that is above their required return, e.g., 10%, then new firms will enter the market. This will shift the supply curve to the right and the market price will fall to a point where the last firm to enter earns a 10% return. In this example the cost of capital is 10%, and entry will stop when the return to the marginal firm is just 10%. If all firms have identical costs then all firms will earn 10% and have zero economic profits. However, generally some firms are more efficient than others and so some firms have lower costs than others. The theory predicts that the marginal firm in long-run equilibrium earns zero economic profits, but firms with lower costs will earn positive economic profits.

This implies that we should expect firms on average to earn more than their cost of capital. This should come as no surprise. Firms will only enter a market, or embark on a new investment, if they expect to earn *at least* their cost of capital as a return. We know as a practical matter that firms evaluate investments and choose only those they expect to exceed their cost of capital. Investments that earn just the cost of capital are breakeven and add nothing to shareholders' net worth. Firms will, of course, make some mistakes, but one would still expect many firms to earn above their cost of capital.

Empirical evidence is consistent with these views. CRA looked at the rates of return based upon accounting data for firms in the FTSE 500, broken out by sector. These results are presented below. Notice that in most sectors, firms on average earn far above their cost of capital and, even in those where the average return is at or below the cost of capital, there are firms in the industry earning far above their cost of capital. This is consistent with one of two propositions. Either the competition authorities should be intervening in virtually every sector of the economy, or accounting profits

Figure 1 – Average and maximum difference in return on equity less cost of capital, FTSE 500 sectors 1998-2000



Source: CRA analysis. There are firms where net book values excluding intangibles are negative but the firms are not in distress. In the case of "Beverages" and "Speciality and Other Financials" this leads to the maximum difference being lower than the average.

above the cost of capital are not indicative by themselves of a competition problem.

Different sources of profit

The starting point for thinking seriously about the use of profitability as a measure of market power for competition law investigations is to think about the possible sources of economic profits. Potential sources of profits include:

- Rewards for taking risks and innovating (Schumpeterian rents);
- Rewards to superior efficiency or better management (Ricardian rents); and
- The result of having and exercising market power.

Only the last of these three categories of possible sources of profits should concern regulators.

Entrepreneurs who take large risks in investing in projects with highly uncertain returns do not do so in the expectation that if the project turns out to be a success, they will earn a return equal to their cost of capital. Instead, they invest in the expectation that they might well lose all their investment, but that if the investment turns out to be successful, they will earn substantially in excess of their initial investment. An example of the former is the Iridium satellite telephone system, which cost billions of dollars to start and was a commercial disaster, leading to the investors losing virtually all of their initial investment. An example of the latter is the Dyson vacuum cleaner, which has earned its inventor many times his initial investment. High profits that are the result of taking a large risk are not a competition policy concern. What may look like excessive profits once the investment has turned out to be a success might represent only a modest “risk-adjusted” return based on the *ex ante* risk of the project. If a particular investment has only a 10% chance of success, a firm will only make that investment if it expects to earn returns of more than 10 times its original investment if the project is a success. This is necessary to compensate the firm for accepting the 90% risk that it will earn nothing from the investment.

Profits that arise from risk taking on the part of companies are referred to as Schumpeterian rents after the

Austrian economist Joseph Schumpeter who argued that high profits were the engine of economic progress.⁶ The possibility of high profits spurred companies to take risks, such as investing in research and development projects that might yield no commercially useful product but equally might yield a new invention or new valuable piece of intellectual property (e.g. a patent). Schumpeter referred to the process of “creative destruction” whereby innovation and entrepreneurship create new products, ideas and industries.⁷

It is sometimes said by regulators that if the cost of capital is correctly calculated, then the current profitability of a firm is an accurate indicator of whether or not it is making excess returns. This is not true of Schumpeterian rents. The current cost of capital of a firm is a forward-looking indicator based on the riskiness of the firm’s revenue stream going forward. It does not tell one how risky the firm’s revenue stream was when the initial investment was undertaken. The current cost of capital of a firm cannot reveal how risky the project initially was. In the example above, the current cost of capital of a firm once the investment has been shown to be successful will not reflect the 90% initial chance that it would be a failure. Equally, the current cost of capital of the mobile telephony industry does not convey any useful information on how risky the mobile phone companies initial investment was. It is now clear that there is huge consumer demand for mobile telephony: that was not at all clear in the mid 1980s when Vodafone and BT Cellnet began investing in their UK networks, or even in the early 1990s when Orange and One2One (now T-Mobile) began investing in their UK networks. For evidence of this, witness how much the UK Monopoly and Merger Commission’s (MMC) 1999 forecast of demand for mobile telephony under-estimated actual 2003 demand (i.e. by nearly 50%).

Another legitimate source of high profitability is superior efficiency relative to one’s competitors (e.g. lower costs or better management), often termed Ricardian rents. As discussed above, economics predicts that even in a competitive market, it is only the marginal firm that makes zero economic profits in long-run equilibrium. Those firms that are more efficient than the marginal

firm will make positive economic profits, whilst those that are less efficient will either exit the market or never enter it. Thus we should expect to see many firms earning more than their cost of capital without therefore concluding that there are competition policy problems.

The third source of profits is the exercise of market power. It is important to understand how this source of profits differs from Schumpeterian or Ricardian rents in terms of its effect on consumers. A monopolist raises prices above the competitive level, and earns excess profits, by restricting output below the competitive level. This harms consumers in two different ways. First, those consumers who buy the product at the monopoly price are harmed because they pay more for the product than they would at the competitive price level. Second, some consumers who would buy the product at the competitive price level do not buy it at the monopoly price level. In addition to harming consumers, the monopolist also harms society as a whole as it reduces total social welfare: the increased profits earned by the monopolist are outweighed by the losses suffered by consumers.⁸ However, Schumpeterian and Ricardian rents do not have these effects. Those who invest in risky projects do not restrict output. They seek to create products that would not otherwise exist i.e. they seek to expand output. Equally, profits earned from being more efficient than one's rivals are also not typically earned by restricting output. Indeed, low cost firms usually price lower than high cost firms (certainly, they do not price higher) and so expand their output. So the profits earned from these two sources are not profits that should concern policy makers.

It is also important to note that economic theory only holds that firms operating in competitive conditions make zero economic profits *in equilibrium*. When markets are not in equilibrium, then firms may make economic profits or losses during the period of disequilibrium. For instance, a new lower cost production technique available to all participants in a market will likely lead to the participants earning positive profits in the short run, until the market settles down to a new equilibrium. In many of the dynamic markets of the new economy (e.g. software, video games), equilibrium may never be reached as each product is super-

seeded by a new and better product before the market has reached the long-run equilibrium for the initial product. In such markets, we are unlikely to find firms consistently earning zero economic profits.

The difficulty of measuring economic profitability

Even if the economic theory behind using profitability analysis was sound, the practical difficulties of using profitability analysis are likely to be insurmountable in the vast majority of cases. While economic profits are a viable economic concept, in practice they are almost impossible to measure from accounting data, particularly at the level of individual products for a multi-product firm. For a start, accounting costs often do not reflect economic costs and so in any given year the economic measure of profit is likely to diverge from the accounting measure of profit. For instance, depreciation costs used in financial accounting generally are calculated in a way to minimize tax costs and hence seldom (if ever) reflect economic depreciation. A further complication is that the rate of return, which determines economic profitability of a firm, must be measured over the time period of each investment that the firm makes. This means that one can seldom draw any meaningful conclusions about a firm's economic profitability from just a few years of accounting data.

The correct measurement of the expected economic profitability of an investment involves measuring the costs and revenues associated with all possible outcomes of that investment throughout its entire lifetime. It is crucial that not only the realized outcome of the investment be evaluated, but also each of the possible alternative outcomes that existed when the initial decision to go forward with the investment was made. This needs to be measured by modelling the activity, over the project lifetime, using discounted cash-flow techniques and explicitly accounting for the uncertainty that exists at the beginning of the project. In stylised form, most projects involve an initial investment period, when accounting profits are low or negative, a mature phase when accounting profits are high, and a sunset phase when accounting profits fall to zero and the activity is discontinued. Observing high accounting profits in the mature phase of a product's life conveys no useful infor-

mation on whether excess profits are being earned over the lifetime of the project. Economists refer to such profits as *quasi*-profits. They appear as if they are real (excess) profits, but in fact they are only an artefact of taking a snapshot at a particular stage of the product lifecycle.⁹

A good example of the dangers of looking only at a snapshot is provided by the MMC market inquiry into Video Games in 1995.¹⁰ The MMC concluded that

“It is reasonable to conclude that Nintendo is an exceptionally profitable enterprise and, at least until 1993/94, Sega was also very profitable.”
(para. 2.55)

The MMC treated this as evidence of a competition problem. However, this was an incorrect conclusion to draw. It took no account of the level of risk that Sega and Nintendo incurred when they entered a market that, by 1987, had virtually disappeared, or of the fact that there was ample evidence that the firms did not have any lasting market power. History showed that even very large players had failed in this market (Atari, Commodore, Philips) and it was public knowledge that Sony was about to enter the market. Sony became the worldwide market leader by the late 1990s and Sega exited the market in 2001. The high levels of profitability generated by Sega and Nintendo in the mid-1990s conveyed no useful information about the state of competition. The MMC should have looked to evidence of competitive behaviour and barriers to entry to assess whether the market was competitive.¹¹

Most firms produce more than one product line and/or operate in more than one geographic area. When there are shared costs (common costs) across different product lines or areas, measuring the profitability of any particular product line or in any particular area becomes difficult. A firm will earn positive profits as long as the overall revenues that it earns exceed its overall costs. In the presence of common costs, the firm will need to ensure that in aggregate it earns an amount above its variable costs that is enough to cover all of its common costs. If a regulator wishes to decide whether, for instance, a particular product is “excessively prof-

itable” it will have to decide what proportion of the common costs it should allocate to that product. This allocation procedure will be highly controversial as, from an economic perspective, there is no single “right” way to allocate common costs.¹²

As we show below (see box), there is no single economically correct way to allocate common costs. If a regulator wishes to look at profitability, then we would strongly advocate looking at profitability at a high enough level within the firm that common cost allocation issues do not drive the results. In our example below, that would imply looking at the summation of Product A and B, not just at Product A alone. However, even here there are serious problems with profitability analysis. Aggregating across products or markets may solve the problem of allocating common costs, but only at the cost of weakening the link between profitability and the possible exercise of market power within a particular market. If an analyst were to find excess profits on the basis of a profitability analysis at an aggregated level, it is very unclear that this tells the analyst anything useful about the state of competition in any particular market.

The issue of how to allocate common costs arose in the recent Competition Commission inquiry into calls to mobile phones.¹³ In its Hypothetical Remedies Statement,¹⁴ the Commission asked

“whether excessive profits are being earned by any of the MNOs either overall or in respect of any part of their business and if so, whether this is indicative of insufficient competitive pressure being exerted on one or more of the services offered by the MNOs.” (page 5)

The Commission concluded in the Hypothetical Remedies Statement that only one of the four operators was earning more than its cost of capital overall, but simultaneously suggested that all four operators were earning “excess profits derived from above-cost call termination charges”.¹⁵ Given the overall lack of excess profitability, this latter conclusion clearly can only be sustained on the basis of some arbitrary¹⁶ allocation of costs between the different services.

An example of allocating common costs

The two tables below provide an example to show how different allocations of common costs alter the apparent profitability of a product line. In this example there are common costs of 400 between Products A and B, variable costs of 50 for Product A and variable costs of 150 for Product B. Product A earns revenues of 400, whilst Product B earns revenues of 200, so both products cover their variable costs. Total costs and total revenues are both 600, so the firm makes zero profits on these products. These figures are shown in Table 1.

Table 1: Hypothetical costs and revenues leading to zero overall profit

	Common costs	Revenues	Variable costs	Contribution
Product A	400	400	50	350
Product B		200	150	50

However, depending how the common costs are allocated, Product A might appear excessively profitable. Table 2 shows three possible allocations:

- Allocation 1: common costs are allocated in the same proportion as variable costs are incurred (i.e. 25% to Product A, 75% to Product B)
- Allocation 2: common costs are allocated in the same proportion as revenues earned (i.e. 67% to Product A, 33% to Product B)
- Allocation 3: common costs are allocated so as to make the implied return (margin over variable costs) on both Products the same (i.e. 350 to Product A, 50 to Product B)

Table 2: Alternative allocations of common costs

	Allocation 1	Implied return	Allocation 2	Implied return	Allocation 3	Implied return
Product A	100	167%	267	26%	350	0%
Product B	300	-56%	133	-29%	50	0%

When the common costs are allocated on the basis of variable costs (allocation 1), Product A looks to be excessively profitable as it has total cost of 150, but earns revenues of 400. When the common costs are allocated on the basis of revenues (allocation 2), Product A's return is much less. When the common costs are allocated to lead to equivalent implied returns on the two products (allocation 3), then both earn zero return. Also note that even though Product B covers its variable costs (i.e., it provides a positive contribution of 50 to the business), the implied return on this product is negative under two of the three allocation mechanisms. So the way in which common costs are allocated has important implications for calculations of profitability.

Measuring and interpreting the cost of capital

Other measurement difficulties arise over the cost of capital: Firstly, the textbooks point out that this should be computed on the basis of individual project invest-

ments although, as a practical matter, this is impossible because of data limitations. Instead, overall cost of capital numbers are calculated for firms that may have many investments, in many different product and geo-

graphic markets. The estimated cost of capital is therefore the expected average return on all the investments of a firm and this may bear little relationship to the return required on a particular project in a specific product or geographic market, which will be driven by the particular risk characteristics of that market. Second, the estimation of the key cost of capital parameters can be contentious and a significant degree of uncertainty about the true level will always be present.¹⁷

More fundamentally, the profitability model adopted is intrinsically flawed because of a misconception about the cost of capital. The cost of capital is a concept that arises in *portfolio* theory. The cost of capital that applies to a firm is the return that is expected from a *portfolio* of firms bearing a similar systematic risk. The firms within the portfolio will be subject to very different firm specific risks and within a portfolio the returns on investment will vary enormously. For example, if the cost of capital for innovative telecoms firms is 15%, then a portfolio investor would expect to earn 15% after taking into account both winners (e.g. Vodafone) and losers (e.g. Iridium). To correct for this we could in principle probability weight the returns of the successful firms under investigation. Alternatively, we could compare the net present value of returns earned by successful firms against the investment made in both successful and unsuccessful firms. However, the approach adopted by the UK regulators of looking at successful firms alone and comparing their returns against their cost of capital is inherently biased in favour of finding returns in excess of the cost of capital.

Conclusions

In general profitability analysis will not provide useful information for competition analysis, and worse yet, is likely to be highly misleading. Measuring the profitability of a firm in an economically meaningful way is at best extremely difficult, and as a practical matter, is likely to be impossible to do for any complex business. Standard accounts do not typically measure the true economic costs or asset values. The concept of eco-

nomic profits must be looked at over time against the benchmark of an appropriate risk-adjusted rate of return, the cost-of-capital, which itself is subject to a substantial range of uncertainty. Crucially, profits are measured at the level of the firm, whereas competition policy analysis usually takes place at the level of individual product and geographic market. This was certainly true of the Competition Commission's *SME Banking* inquiry, their *Supermarkets* inquiry and the recent *Mobile telephony* inquiry. The result is that developing a reasonable measure of economic profitability for antitrust purposes is not practically possible.

In addition economic theory does not imply that highly competitive economic environments necessarily are associated with low profits. Therefore even if you could measure profits in an economically meaningful way, they would not tell us much about the state of competition or, equally importantly, whether regulatory intervention would be appropriate. This is why the US and EU are correct in not using profitability as a measure of competition.¹⁸

We would not go so far as to say that looking at the profitability of an industry could never yield information that might be useful for a competition policy investigator. For instance, it would be surprising to find long-run high returns in a mature capital-intensive single product commodity industry in which brand names and advertising were not important and very little ongoing innovation is being undertaken. However, few industries fit this description. Furthermore, even here high profitability would only serve to suggest that you want to look further to ascertain whether a firm or group of firms is exercising market power to the detriment of consumers in this market. Profitability analysis alone is not itself able to provide this information. However, as we move away from industries of this type towards dynamic industries that are not in equilibrium, that involve significant *ex ante* risk and where knowledge and other intangible assets are important, profitability analysis will be of no use. Add in a few other issues, such as cost allocation problems, and the exer-

cise will be totally meaningless and certainly misleading.

It is noteworthy that when Sir Derek claims that the UK authorities have the necessary experience to undertake profitability analysis successfully, he refers to their experience of price regulating “telecommunication, gas, electricity, water, airports and railways to name only some”.¹⁹ Two lessons should be learnt from this experience. First, the UK experience of measuring profitability has been carried out mostly on the type of industry where it should be easiest: primarily mature capital-intensive commodity industries with little innovation. Second, even for these industries the calculation of profitability, cost of capital, allowable rates of return and so on were undertaken by regulators dedicated to each specific industry (with the exception of airports). Third, there is no independent evidence that the regulators have got it right. In the mobile phone and banking investigations, for instance, we know they got it wrong for the reasons we have elaborated. This hardly suggests that the Competition Commission on its own is likely to be able to successfully carry out such analyses across a range of industries where the practical problems are much harder.

More generally, at a minimum any competition policy authority alleging excess profits must show that their alleged excess profits are not the result of investment in innovation or greater efficiency, i.e. Schumpeterian or Ricardian rents. Because returns to innovation and to superior efficiency are the “engine” of free-market economies, we believe the burden of proof should be on the competition authorities to show that alleged excess profits are not the result of innovative investment or greater efficiency.²⁰ It is not enough to assert that an industry is mature and therefore should be earning no more than its current cost of capital: “maturity” is not a well defined economic concept and there is no serious empirical analysis that we are aware of that ties it to either high or low economic profitability.

Although there is some superficial attractiveness to the position that profitability analysis is useful, it nonetheless remains the case that public policy interventions

should not be based upon flawed measures of the degree of competition in a market. Sir Derek is right that it may sometimes, perhaps even often, be hard to distinguish between competitive and oligopoly behaviour. However, this does not mean that we should therefore resort to using a flawed measure that is itself likely in almost all cases to fail to distinguish successfully between competitive and oligopoly pricing.

1 “Dominant Firm Behaviour under UK Competition Law”: paper presented by Sir Derek Morris to the Fordham Corporate Law Institute, October 2003.

2 Ibid. at page 19.

3 Quoted in the *Financial Times*, 17 November, 2002.

4 Para 2.23 of OFT 414 (1999) *Assessment of Individual Agreements and Conduct*.

5 Para 3.82 of “Market Investigation References: Competition Commission Guidelines” (June 2003)

6 Sir Derek himself notes that “profits are the key signal and incentive for the proper functioning of a market economy.” Ibid. at page 20.

7 Schumpeter, J (1950) *Capitalism, socialism and democracy*.

8 For further details, see Chapter 2 of Bishop and Walker (2002) *The Economics of EC Competition Law* (2nd edition).

9 The conceptual and practical problems of inferring monopoly rents from accounting rates of return are well understood in the economics literature and a recounting of all of these arguments is beyond the scope of this paper. For a full discussion of the issues, see Fisher and McGowan (1983) “On the Misuse of Accounting Rates of Return to Infer Monopoly Profits” *American Economic Review*, Vol. 73:1.

10 Report of the Monopolies and Mergers Commission, *Video Games, A report on the supply of video games in the UK*, MMC, March 1995.

11 A more detailed analysis of this case can be found in the OFT publication 377 “Innovation and competition policy” (2002).

12 This was noted by the Competition Commission in its 2002 BAA report, where it stated that

“It is also difficult, in practice, to allocate either investments or operating costs between aeronautical and commercial activities. To the extent that some of the judgements that have to be made are arbitrary, future disputes about cost allocation could also harm relations between the airport and its users.” (Italics added)

13 The authors acted for T-Mobile on this inquiry.

14 This is available from the Competition Commission's website at <http://www.competition-commission.org.uk>.

15 Ibid, page 5.

16 See note 12 above.

17 See CRA papers: (1) Schaefer, S, T Giles and D Butterworth (2003), "Cost of capital for T-Mobile (UK)", Report submitted to Oftel on behalf of T-Mobile (UK) ; and (2) Giles, T, and D Butterworth (2003), "Cost of capital estimation in the UK: Best practice in the context of competition analysis and price regulation." (both papers are available at www.crai.com)

18 In the EU this is because the burden of proof placed on authorities by the European Court of Justice is higher than the "more than 50 per cent likely" suggested by Sir Derek. The forthcoming CRA discussion paper – "UK competition authorities use of profitability analysis as an indicator of market power: How legislation changes the required approach." – discusses how the higher EU burden of proof might affect UK cases that are subject to appeal to either the European Court of Justice or the UK Competition Appeals Tribunal.

19 Ibid. At page 21.

20 This is consistent with the *United Brands* judgment that "the fact remains that it is for the Commission to prove that the applicant charged unfair prices." (Paragraph 264).

This article was written by Professor Robert Lind, Emeritus Professor, Cornell Business School and Senior Consultant, Charles River Associates and Mike Walker, Vice President, Charles River Associates.

The authors are grateful to Tim Giles, Vice President, CRA, for extensive comments and suggestions.

For more information contact Paul Muysert, Associate Principal and Editor, tel: +44 (0)20 7664 3732, email: PMuysert@crai.co.uk

Dr Mike Walker, Vice President and Head of CRA European Competition Practice, tel: +44 (0)20 7664 3726, email: MWalker@crai.co.uk.

Charles River Associates is an internationally respected economics, finance and business consulting firm that applies advanced analytic techniques and in-depth industry knowledge to complex engagements for a broad range of clients. Founded in 1965, the firm provides original and authoritative advice for clients involved in high-stakes matters, such as major mergers and acquisitions, complex litigation, new product introductions and major capital investment decisions. The firm has over 300 employees at its offices in the UK, USA, Canada, Mexico, Australia, New Zealand and Belgium.

Material from this discussion paper may be freely reproduced, subject to full acknowledgement of source.