

Agenda—10 years

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Profitability analysis and competition policy

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Professor Paul Geroski, Chairman of the UK Competition Commission, explains why profitability analysis is of importance to competition policy. He discusses various applications of what is, in essence, backward-looking profitability analysis to mergers and market investigations, and then explores the scope for using forward-looking profitability analysis in merger investigations

For our launch issue of *Agenda* we were delighted to include a guest article from Professor Paul Geroski, then Chairman of the UK Competition Commission (CC). Professor Geroski's article was based on a speech he gave at an Oxera event on the future of profitability analysis in competition policy. This was a hotly debated topic at the time, on which Oxera had produced a discussion paper for the UK Office of Fair Trading (OFT).¹ Profitability analysis has since become a standard tool in market investigations by the Competition and Markets Authority (the successor to the CC and the OFT), and is also increasingly being used by the European Commission, particularly in state aid inquiries. However, Professor Geroski also predicted the increased use of what he referred to as forward-looking profitability analysis in merger control. Although it now goes by different names—profit-incentive analysis, price-rise analysis—such analysis has indeed become mainstream in the assessment of unilateral effects of mergers. Sadly Professor Geroski died in August 2005 while still Chairman of the CC.

¹ Oxera (2003), 'Assessing profitability in competition policy analysis', OFT Discussion Paper, July, available at: <http://www.oxera.com/Latest-Thinking/Publications/Reports/2003/Assessing-profitability-in-competition-policy-anal.aspx>.

The issue of profitability is one that is central to the analysis of competition policy. Oxera's paper, 'Assessing Profitability in Competition Policy Analysis',¹ can be used as a platform for such a study, being largely concerned with the question of how best to measure profitability. This is an important question, but its very complexity begs a further question, namely, 'why bother?' This article addresses this second question.

In order to answer the 'why bother?' question, one needs to think about just why an analysis of profitability might

be of interest to a competition authority, and what kind of profitability analysis would interest that authority most. The Competition Commission's guidelines for market investigation references are particularly helpful in this respect.² They talk about profits as a 'signal' of competitive conditions in a market, and also as an 'incentive'. In this, the guidelines mirror countless textbooks of economic theory that talk about anticipated profits as the driving force bringing people to market, and about realised profits as a signal which ought to lead to longer-run adjustments in market structure through entry (or exit) and the expansion of existing players. Furthermore, they warn us not to look at profitability in isolation, but only in the context of an overall assessment of the competitive conditions of the market.

To say that profits are a 'signal' is to assert that they contain useful information, and that inferences can be made about underlying drivers of competitiveness in a market from observable outcomes like profitability. This is, in many ways, a backward-looking exercise: its goal is to infer something about what must have happened from what we observe to be its presumed consequence. On the other hand, to say that profits are an 'incentive' is to say that they are a spur to action, that they may affect the conduct of firms in a market, and can do so in a way that affects future profit outcomes. This, by contrast, is a more forward-looking exercise: we infer what will happen in the future by looking at the profit incentives currently facing players in a market.

My answer to the 'why bother?' question turns on these two roles that profits play in the analysis of market dynamics. A distinction can be made between 'backward-looking' profitability analysis, which uses observed profits as a possible indicator of how competitive market conditions actually are (or have recently been), and 'forward-looking' profitability analysis, which explores what might happen in a market in certain circumstances. Backward-looking profitability analysis often plays a role in the market investigations undertaken by the Competition Commission, but it is not often significant in merger analysis;

forward-looking profitability analysis can, and often does, play a role in both, but one often finds it to be a central feature of merger analysis. My bottom line is that backward-looking profitability analysis is a useful, if somewhat limited, tool for competition authorities to use, but that forward-looking profitability analysis is likely to be much more central in many cases.

Backward-looking profitability analysis

Competition is generally played out on a stage, and the outcome of any particular competitive process often turns on the particular characteristics of its supporting stage. The Competition Commission's market investigations tend to focus on 'features' of a market—principally the market structure (including entry barriers and switching costs) and the conduct of suppliers, buyers and consumers—which condition the decisions made by firms about pricing, investment, entry and exit. These choices link the features of the market which condition choice with those market outcomes that are a consequence of choice, including the profitability of firms operating in the market. The Commission's task is to identify features of the market that have an adverse effect on competition. It follows then that, if profits in a market are persistently high, this ought to be a traceable consequence of one or more feature(s) of the market.

The link between features and market outcomes means that the observation of persistently high profits could be used as a signal of the general state of competition in a market. This is the classic use of profitability analysis in antitrust cases, and has been a feature of many cases. A brief description of the analysis of profits undertaken in a recent Competition Commission investigation into banks and their small and medium-sized business customers (SMEs) would be helpful here.³ In this inquiry, the Commission calculated that the four largest clearing banks had earned excess profits totalling £2.2bn over a three-year period between 1998 and 2000. This calculation was based on the Commission's assessment of profits derived from equity capital employed in the supply of banking services to SMEs, and this return on equity was then compared with their cost of equity (estimated using the capital asset pricing model, CAPM). The difference between the two was thought to be far larger than could have been caused by measurement error, and the inference was made that competitive problems existed in this market.

There are several problems with simply using high observed profits on their own to signal an absence of competition. For a start, as discussed, there is a whole range of measurement issues and decisions as regards treatment of various items that need to be made, which sometimes makes it very hard to measure profits with accuracy. Furthermore, one needs to construct a sensible benchmark against which to compare measured profits (the Commission normally uses the cost of capital or the cost of equity calculated using the CAPM). What this means, of course, is that, for traditional profitability analysis to be persuasive, it needs to be shown to be robust to a range of measurement errors and differing assumptions. The Oxera report contains a fairly thorough discussion of a

number of measurement problems that might crop up in any particular case.

A second problem with making inferences about the state of competition from measured profitability is that it is a one-sided analysis. A monopolist may well take its reward in the form of high profits, but, equally, it might also use its position to enjoy the easy life instead. Furthermore, a monopolist that has had to compete to acquire its monopoly position may well have dissipated many of the rents which that position gives it. Either way, the outcome is that a firm with market power that opts for the quiet life will not be seen to be earning persistently high profits. It follows, then, that it would not necessarily be correct to infer the absence of a monopoly problem from the absence of persistently high profits.

Of course, one might well feel that the same principle applied in reverse, and there is a limited sense in which this is true. A perfectly competitive firm may earn high profits in a particular year by chance, and it would, therefore, be imprudent to infer the existence of a monopoly problem from the observation of a single year's high profits. That said, good luck is rarely persistent, and most people feel reasonably comfortable inferring the possible existence of monopoly from the observation of persistently high profits over a number of years. Of course, a firm that is more efficient than its rivals year in and year out is likely to display persistently high profits, but that may well be because it has a monopoly lock on a particularly scarce asset or a particularly useful byte of knowledge, or because it has been able to take advantage of its suppliers.

The CC has routinely used profitability analysis in this manner in the last ten years. For example, in the local bus services market investigation it concluded that large operators had earned profits persistently in excess of the cost of capital.¹ The analysis was used to compute the value of the annual detriment to consumers, estimated by the CC to be at least £72m.² In 2015, the CMA also concluded that levels of historical profitability in the payday lending market were indicative of shortcomings in the competitive process.³

¹ Competition Commission (2011), 'Local bus services market investigation—final report', para. 10.87.

² Competition Commission (2011), 'Local bus services market investigation—final report', para. 14.43.

³ Competition and Markets Authority (2015), 'Payday lending market investigation—final report', para. 490.

The analysis of measured profitability

However, the real problem with the type of backward-looking profitability analysis described above is that it does not go far enough. An analysis that concentrates on measuring profits as accurately as possible—that concentrates on obtaining the clearest signal of market power that is possible—still founders on the problem that the inference from high profits of particular features of a market which have an adverse effect on competition is not always straightforward.

Put another way, since profits are simply a residual that emerges after a firm's costs have been subtracted from its revenues, one can never be very clear why profits are high—it could be high prices swelling revenues or superior efficiency reducing costs, or perhaps both. There is, in fact, just so much that one can infer about the drivers of competition by looking at one number. To make the traditional inference from persistently high profits of a particular feature of the market that has adverse effects on competition, one needs to be sure that it is that feature, and not some other, which causes the high profits that one observes. Since many features of a market affect the revenues and costs of firms, it is rarely going to be the case that links between particular features of the market and profitability will be easy to establish. The Competition Commission's guidance on this is clear:

at points in time the profits of some firms may exceed what might be termed 'the normal level'. Reasons for this may include, for instance, cyclical factors, transitory price or other initiatives, the fact that some firms may be more efficient than others, the fact that some firms may be earning profits gained as a result of past innovation ...

All of this leads to the conclusion that any backward-looking analysis of profitability should have two components: a measurement exercise (answering the question: 'are profits persistently high?'), and an analysis of profitability (answering the question: 'why are they high?'). While a Phase I investigation might well focus on the first question, it is difficult to imagine any Phase II investigation, which relies on backward profitability analysis being complete, if it has not addressed—and answered—the second question.

There are several ways that one can think about analysing measured profitability. One rather classic methodology is to use statistical analysis to identify the major exogenous drivers of profitability, for example by regressing measures of profitability across a sample of firms in a particular market over time against a range of measures of market structure or conduct. These exogenous variables ought, in principle, to measure (directly or indirectly) those features of the market that might be having an adverse effect on competition. An analysis along this line was conducted in the supermarkets inquiry,⁴ which looked at the possible determinants of the prices or profits of particular stores, and how much they were affected by local competition. Another method is to collect data on a natural experiment (e.g. an exogenous change in market structure caused by regulatory changes), and observe the consequences of the change induced by the experiment for observed profit outcomes. In both of these methodologies, one is trying to establish a clear link between one or more features of the market and the profitability of firms operating in that market; that is, one is trying to identify the drivers of profitability.

There is a third kind of backward-looking analysis, which can take one or two forms. One is what is sometimes referred to as a 'flow-of-funds' analysis, which sets out the various flows of funds that take place between the different players in a market. The object of this kind of analysis is less that of linking

profits to different features of a market than of understanding which types of business account for the profits of particular firms, which goods and services and which transactions seem to matter most. Flow-of-funds analysis also helps one to understand the inter-relationships created by market transactions, and may help one to understand how the total surplus created by the market is distributed among its various inhabitants. Similarly, an 'activity analysis' of profitability (or revenue) that identifies which activities undertaken by a firm contribute most to profitability helps to identify which parts of the value chain are most important, and which activities undertaken by a firm seem to matter most.

For example, the Competition Commission found a flow-of-funds analysis useful in the extended warranties investigation.⁵ Extended warranties are contracts that extend cover given under a guarantee attached to an electrical good when it is purchased. There are two types of such warranties: insurance-extended warranties and service-backed warranties. In the former, the consumer is directly insured against the cost of repair or replacement; in the latter, a repair or replacement service is given directly to the purchaser.

In the 2011 pay-TV inquiry, Oxera assisted Ofcom in analysing the profitability of BSkyB, and explored whether high profits could be explained by innovative effort and risk-taking.¹ A comparison with other media companies suggested that BSkyB had a relatively low asset intensity, and contemporaneous analyst reports indicated that the payback period on new subscribers was relatively short (18 to 25 months). In the early years there was some uncertainty about the growth of pay-TV and digital TV, but BSkyB's subscriber base was to grow steadily with little volatility. In light of these characteristics the profitability gap for BSkyB could not be explained by risk-taking and innovation. The most plausible interpretation remained that, over this period, BSkyB enjoyed a position of significant market power that new entrants could not easily challenge. The CC reached the same conclusion:

We recognize that it is possible for a firm to earn profits in excess of its cost of capital within a competitive market particularly where significant investment risks have been taken. However, we would not expect such profits to persist for a significant period of time. Although Sky has taken significant risks in the past, we found that its most risky investments were many years ago and achieved short payback periods. Therefore it appears to us that Sky's profitability can no longer be explained by the risk of its earlier investments.²

¹ Oxera (2011), 'Does pay TV pay too much? Profitability analysis in the context of market inquiries', *Agenda*, September, available at: <http://www.oxera.com/Latest-Thinking/Agenda/2011/Does-pay-TV-pay-too-much-Profitability-analysis-i.aspx>.

² Competition Commission (2011), 'Movies on Pay TV Market Investigation—Provisional Findings Report', 19 August, para. 6.84.

A flow-of-funds analysis in this case turned out to be essential to understand the relationships between consumers, retailers, third-party insurance (and reinsurance) companies (which write the extended warranties), administrators (who handle claims), and those who provide repair services. In this case, in-house provision of some insurance and repair services by retailers made understanding these relationships particularly tricky. The analysis revealed that a sizeable chunk of profits was being earned by in-house reinsurance, an activity that, at first sight, seems to be at some distance from the market at the centre of interest.

Similarly, an activity analysis was undertaken in the banks inquiry referred to above. Having ascertained the magnitude of their profits from SME activities, the next logical questions to ask are: 'which activities?' and 'how?'. The Commission considered the various sources of the banks' profits for loans, current accounts, deposit accounts, and other service offerings. The analysis suggested that the high profits were being generated on short-term deposits (rather than on loans as originally thought), largely because the banks were not paying interest on accounts. This, as readers of the report know, had a decisive effect on both the conduct of the inquiry and on its outcome.

Flow-of-funds or activities analysis can be particularly valuable in identifying the key business segments, transactions and agents in a market. It may not always be possible to conduct a full profitability analysis of these segments, transactions or agents, due to difficulties in allocating costs and/or capital, but undertaking the analysis does help one to understand where profits (or at least revenues) come from. Furthermore, it enables an identification of those parts of the market and those market players that are worth further investigation.

Forward-looking profitability analysis

This article began by drawing a distinction between profits as a 'signal' and profits as an 'incentive', but thus far has only discussed using profits as a signal of market power. As stated above, this is essentially a backward-looking exercise that attempts to ascertain what gave rise to the profit outcomes observed in a market. However, to the extent that profits are an incentive—to the extent that the expectation of profits in the near future creates incentives for agents to take certain decisions or actions—a more forward-looking approach to profitability analysis should be taken.

The most natural setting for this kind of profitability analysis is a merger. The great intellectual challenge of merger analysis is that one cannot know for sure what the consequences of the merger will be until after it occurs, which of course means that the decision about whether to allow the merger to proceed will always have to rely on forming expectations about likely outcomes. The natural way forward here is to take firms at their word—that they are interested in looking after their shareholders' best interests—and assume that if a profitable opportunity comes their way, they will take it. That is, if the merger seems likely to create an opportunity to increase profits by taking advantage of some market power

created by the merger, we must presume that the merged firm will take advantage of that opportunity.

This is, of course, what is meant by profits being an incentive, and it opens up an important line of profitability analysis. The kind of analysis considered here involves exploring the incentives that the merged firm has to pursue certain types of policy. This effectively means exploring the profitability of taking certain types of action. Of course, to do this properly, one must understand the basic drivers of profitability in the market, and this means that the forward-looking calculations of analytical profitability analysis rest in part on the type of backward-looking profitability analysis discussed above. Nonetheless, forward-looking profitability analysis is an analysis of what might be, not what was, and that makes it different from the analysis of profitability discussed earlier.

A common example of this kind of profitability analysis is the analysis of failing firms;⁶ that is, asking the question of whether the target of a takeover would survive as a viable competitor in the absence of the merger. However, there is a second example of forward-looking profitability analysis that I believe is—or will be—more commonly used. This particular piece of analysis was undertaken during the investigation of the acquisition of the ScotRail train franchise in Scotland by FirstGroup, the (by far) leading supplier of bus services in Glasgow.⁷

The main concern in this case arose where bus and train routes overlapped and, in particular, focused on the question of whether FirstGroup would have an incentive to shift passengers from bus to rail (or, less likely, from rail to bus) by increasing bus fares or reducing service frequency. Essentially, this turns on how variable bus costs are, and how sensitive passengers are to intermodal differences in fares or service quality (and, more generally, on how price-sensitive they are in choosing their preferred mode of travel). The Commission's calculations showed that FirstGroup would have an incentive to try to switch passengers and rationalise their bus network and, when we combined this with the results of our survey showing the numbers of passengers who would shift mode, we concluded that a substantial lessening of competition (SLC) existed on overlap routes.⁸

A similar type of analysis featured recently in the proposed merger of Knauf and Superglass (both suppliers of glass-fibre insulation).⁹ This merger would have created a firm with a market share several times larger than that of its nearest rival (particularly in the loft-insulation segment of the market). As such, the merged firm would, in principle, have an incentive to act as a traditional 'dominant firm' (sometimes referred to as a 'Stackelberg leader'), restricting output to raise prices. Whether this is a profitable strategy depends on the elasticity of demand, the variability of the firm's costs, and how likely it is that smaller rivals will replace the output withdrawn from the market. In this case, the Commission's analysis revealed a wide range of circumstances where the policy of restricting output would be a profitable one for the merged firm to follow, leading us to believe that the merger would give rise to an SLC.

Forward-looking profitability analysis is, I believe, useful, primarily because it is often a good way to make a precise exploration of a set of concerns. One will never know exactly what will happen after a merger, but there should be an expectation about whether some particular course of affairs is more likely than not. Analysing the incentives of the merged firm to take particular actions, such as trying to shift passengers from bus to rail, enables a clearer understanding of the circumstances in which they are likely to occur. This, in turn, makes the formation of such expectations both more straightforward and more open to debate. Of course, taken on its own, a particular piece of forward-looking profitability analysis may not be decisive, but in conjunction with other evidence, it can clarify the analysis of the incentives of parties to take certain kinds of action.

Professor Geroski was flagging a new trend in merger analysis that really took off a few years later, using tools with colourful names such as the gross upward pricing pressure index (GUPPI) and the illustrative price rise (IPR) analysis. These have become standard in the assessment of unilateral effects of mergers, and featured prominently in the 2010 US Horizontal Merger Guidelines.¹ Rooted in oligopoly models, these tools in essence assess the profit incentives of merging firms to raise prices post merger.

¹ Department of Justice and Federal Trade Commission (2010), 'Horizontal Merger Guidelines', 19 August. See also Walters, C. (2013), 'Price pressure analysis in UK merger control: a retrospective', *Agenda*, July, available at: <http://www.oxera.com/Latest-Thinking/Agenda/2013/Price-pressure-analysis-in-UK-merger-control-a-re.aspx>; and Oxera (2011), 'Unilateral effects analysis and market definition: substitutes in merger cases?', *Agenda*, June, available at: <http://www.oxera.com/Latest-Thinking/Agenda/2011/Unilateral-effects-analysis-and-market-definition.aspx>.

Some final thoughts

So, where does all of this lead us? This article has addressed the question 'why bother measuring profitability?' I would

conclude that it is well worth bothering with profitability analysis if one does it right. Furthermore, there are two different senses in which one must think seriously about 'doing it right'.

The first is that one must push beyond a number—or a set of alternative estimates of the same basic number—and ask where that number came from. It is a legitimate practice for a Phase I authority to assert that persistently high profits may well signal the existence of a problem with competition in a particular market (although the inverse is probably not true). It is, however, not good enough for a Phase II authority to make the same inference. To identify whether a particular feature of a market has an adverse effect on competition, one must push well beyond the observation of high profits, and ask why they are high. This means that what I have called backward-looking profitability analysis must push well beyond computing a particular number and try to understand what features of the market underlie that number.

The second sense in which one must think seriously about 'doing it right' is that one must often go beyond establishing what has happened in a market (and why), and look at what might happen in the future. This is clearly a priority in any kind of merger analysis, but I believe that the scope for forward-looking profitability analysis is broader than this. No market inquiry that finds an adverse effect on competition arising from a particular feature of the market can stop there—the remedies phase of any investigation must always involve addressing what can be done about that feature of the market. Once one begins to think about changing the features of a particular market, one must ask what the likely effect of those changes are going to be, what incentives they will give to the players of the market to alter their behaviour and, as a consequence, what actions these players are likely to take in response to the changes. Forward-looking profitability analysis is a very good way to think through this problem, and I think that it is, and will always be, a central feature of good antitrust practice.

Paul Geroski

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¹ Oxera (2003), 'Assessing Profitability in Competition Policy Analysis', prepared for the UK Office of Fair Trading, July, available at: <http://www.oxera.com/Latest-Thinking/Publications/Reports/2003/Assessing-profitability-in-competition-policy-anal.aspx>.

² Competition Commission (2003), 'Market Investigation References: Competition Commission Guidelines', June.

³ Competition Commission (2002), 'The Supply of Banking Services by Clearing Banks to Small and Medium-sized Enterprises: A Report on the Supply of Banking Services by Clearing Banks to Small and Medium-sized Enterprises within the UK', Cm 5319, March.

⁴ Competition Commission (2000), 'Supermarkets: A Report on the Supply of Groceries from Multiple Stores in the United Kingdom', Cm 4842, October.

⁵ Competition Commission (2003), 'Extended Warranties on Domestic Electrical Goods: A Report on the Supply of Extended Warranties on Domestic Electrical Goods within the UK', Cm 6089 (1-111), December.

⁶ This kind of analysis featured in, for example, Competition Commission (2001), 'Eastman Kodak Company and ColourCare Limited: A Report on the Proposed Merger', Cm 5339, December.

⁷ Competition Commission (2004), 'FirstGroup plc and the Scottish Passenger Rail Franchise: A Report on the Proposed Acquisition by FirstGroup plc of the Scottish Passenger Rail Franchise Currently Operated by ScotRail Railways Limited', June.

⁸ A similar calculation was made in Competition Commission (2004), 'National Express Group plc and the Greater Anglia Franchise: A Report on the Acquisition by National Express Group plc of the Greater Anglia Franchise', November. In this case, however, network effects dominated the calculations, since many of the users of National Express coaches travelled into London and then out using another coach. Shifting them to the trains generated a further loss of revenue that, in this case, was extremely large.

⁹ Competition Commission (2004), 'Knauf Insulation Limited and Superglass Insulation Limited: A Report on the Proposed Acquisition of Superglass Insulation Limited by Knauf Insulation Limited', November.