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The Law and Economics of Excessive and Unfair Pricing: A Review and a Proposal

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Abstract

The law on excessive pricing by a dominant firm derives from Article 102 of the Treaty on the Functioning of the European Union (TFEU), considered in the United Brands (UB) decision by the European Court of Justice (ECJ). The UB decision described a test that requires an assessment of whether prices are excessive to the point of being unfair in the sense that it has no reasonable relation to economic value of the product supplied (either in itself or in comparison to other products). In this article, we describe a coherent microeconomic framework for understanding the proper relationships between price, economic costs, and economic value. In particular, we propose an economic approach, which we believe courts should adopt to help structure their consideration of allegations of excessive and unfair pricing. While the economics can be very helpful in structuring analysis under both limbs of the UB test, it also makes clear that ultimately judges will need to make a judgment about what is, and what is not, fair pricing by a dominant firm.

Keywords

Article 102, abuse of dominance, exploitative abuse, unfair pricing, excessive pricing, cost benchmark, price comparator, profitability, consumer surplus

1. Introduction

Pricing by a dominant company that is excessive to the point of being unfair can amount to an abuse of dominance under Article 102 of the Treaty on the Functioning of the European Union (TFEU).[1] This provision, mirrored in the competition law of Member States, means a clear long-standing but also highly controversial policy tool is available to competition agencies in Europe, if they wish to pursue excessive pricing cases.

Even so, historically there has been a deliberate and significant reticence by national competition authorities and the European Commission to pursue excessive pricing cases. The conventional wisdom

1. Consolidated Version of the Treaty on the Functioning of the European Union – Part Three: Union Policies and Internal Actions – Title VII: Common Rules on Competition, Taxation and Approximation of Laws – Chapter 1: Rules on Competition – Section 1: Rules Applying to Undertakings – Article 102 (ex Article 82 TEC), Official Journal 115, May 9, 2008, P. 0089-0089.

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is that it is better to focus agency resources on firm conduct that seeks to exclude existing or future competition rather than to focus action directly against market outcomes, in particular, prices. Indeed, many of the past cases where excessive pricing has been considered have primarily involved allegations of exclusionary abuse.[2]

Following the financial crisis, the political climate in Europe is markedly more skeptical about the benefits of free markets. A consequence is a reduced consensus about the proper limits to the deployment of competition policy tools in general and on the role of excessive pricing cases in particular. The nexus of a less clear-cut policy approach and political concerns arising from significant price rises for older pharmaceutical products has manifested itself in the recent resurgence of excessive pricing cases in the pharmaceuticals sector.

In particular, the Italian Competition Authority (ICA) fined Aspen Pharmacare €5 million in 2016 for increases of between 300% and 1,500% in the price of several oncology drugs.[3] Subsequently, in May 2017, the European Commission opened an investigation into the price of Aspen's oncology drugs in several Member States.[4] In the UK, the Competition and Markets Authority (CMA) fined Pfizer and Flynn £90 million in December 2016 for increases of up 2,600% in the price of an epilepsy drug.[5] Pfizer and Flynn appealed, and on June 7, 2018, the Competition Appeal Tribunal (CAT) set aside parts of the CMA decision and provisionally remitted the matter back to the CMA for further consideration.[6] The CMA is also currently investigating Concordia International for increases of up to 6,000% in the price of a thyroid drug.[7] In November 2016, Commissioner Vestager argued that prices can get so high that they cannot be justified.[8] She referred to cases brought by the Italian antitrust authority and by the CMA as cases that showed that "there can be times when competition rules need to do their bit to deal with excessive prices," albeit "carefully."[9] Concern over excessive pricing in pharmaceuticals has also garnered attention outside of Europe. In the United States, the increase in prices of the antiparasitic drug Daraprim from $13.50 to $750 a pill[10] drew media attention, as did the price rise associated with the EpiPen.[11]

2. Flynn Pharma Limited v. Competition and Markets Authority and Pfizer Inc. v. Competition and Markets Authority, Nos. 1275-1276/1/12/17, [2018] CAT 11, at ¶ 282 (hereinafter, *Flynn Pharma Limited*, [2018] CAT 11), https://www.catribunal.org.uk/sites/default/files/2018-08/1275-1276_Flynn_Judgment_CAT_11_070618.pdf.
3. Press Release, AGCM, A480 Price Increases for Cancer Drugs Up to 1500%: The ICA Imposes a 5 Million Euro Fine on the Multinational Aspen (Oct. 14, 2016), http://www.agcm.it/en/newsroom/press-releases/2339-a480-price-increases-for-cancer-drugs-up-to-1500-the-ica-imposes-a-5-million-euro-fine-on-the-multinational-aspen.html.
4. Press Release, Eur. Comm'n, Antitrust: Commission Open Formal Investigation into Aspen Pharma's Pricing Practices for Cancer Medicines (May 15, 2017), http://europa.eu/rapid/press-release_IP-17-1323_en.htm.
5. Press Release, CMA, CMA Fines Pfizer and Flynn £90 Million for Drug Price Hike to NHS (Dec. 7, 2016), https://www.gov.uk/government/news/cma-fines-pfizer-and-flynn-90-million-for-drug-price-hike-to-nhs.
6. Flynn Pharma Limited v. Competition and Markets Authority and Pfizer Inc. v. Competition and Markets Authority, Nos. 1275-1276/1/12/17, [2018] CAT 12, http://www.catribunal.org.uk/files/1275-76_Flynn_Judgment_CAT_12_260718.pdf.
7. Press Release, CMA, Drug Company Accused of Abusing Its Position to Overcharge the NHS (Nov. 21, 2017), https://www.gov.uk/government/news/drug-company-accused-of-abusing-its-position-to-overcharge-the-nhs.
8. Eur. Comm'n Speech, Protecting Consumers from Exploitation (Nov. 21, 2013), https://ec.europa.eu/commission/commissioners/2014-2019/vestager/announcements/protecting-consumers-exploitation_en.
9. Presumably referring to the Italian Aspen excessive pricing case and the CMA Pfizer-Flynn excessive pricing case. Around one month later, the CMA issued a statement of objections in the Actavis excessive pricing case which involves hydrocortisone tablets.
10. See, for example, Andrew Pollack, *Drug Goes from $13.50 a Tablet to $750, Overnight*, N.Y. Times, Sep. 20, 2015, https://www.nytimes.com/2015/09/21/business/a-huge-overnight-increase-in-a-drugs-price-raises-protests.html (hereinafter "Pollack"); Carolyn Y. Johnson, *What Happened to the $750 Pill That Catapulted Martin Shkreli to Infamy*, Wash. Post, Aug. 1, 2017, https://www.washingtonpost.com/news/wonk/wp/2017/08/01/what-happened-to-the-750-pill-that-catapulted-pharma-bro-martin-shkreli-to-infamy/?noredirect=on&utm_term=.210b7a6b5d71.
11. *See*, *e.g.*, Pollack, *supra* note 10; and James Paton & Naomi Kresge, *EpiPen's Cost in Britain Shows Other Extreme of Drug Pricing*, Bloomberg, Sep. 29, 2016, https://www.bloomberg.com/news/articles/2016-09-29/epipen-s-69-cost-in-britain-shows-other-extreme-of-drug-pricing-itnvgvam.

The new openness to excessive pricing cases is not limited to the pharmaceutical sector. Specifically, in September 2017, the European Court of Justice (ECJ) delivered its judgment on the Latvian collecting societies case relating to excessive pricing of copyright levies.[12] An excessive (and discriminatory) pricing investigation of Gazprom's prices in several eastern Member States resulted in final commitments accepted in 2018.[13]

In this article, we describe the coherent microeconomic framework, developed over centuries, available for courts to understand the relationships between price, economic costs, and economic notions of value. In particular, we propose an economic approach, which is consistent with European case law, that we believe courts should adopt to help structure their consideration of allegations of excessive and unfair pricing. While the economics can be very helpful in structuring analysis under both limbs of the UB test, it also makes clear that ultimately judges will need to make a judgment about what is, and what is not, fair pricing by a dominant firm.

2. The United Brands Test

The canonical European case involving an allegation of pricing which is excessive to the point of being unfair arises from the ECJ's judgment in United Brands (UB).[14] The ECJ laid out a structured legal test, known as the United Brands test (UB test), which has provided fertile ground for a significant debate in more recent cases. The ECJ held that, when evaluating whether a dominant firm had charged excessively high prices to the point of being an abuse of that dominance:[15]

> It is advisable . . . to ascertain whether the dominant undertaking has made use of the opportunities arising out of its dominant position in such a way as to reap trading benefits which it would not have reaped if there had been normal and sufficiently effective competition. . . . In this case charging a price that is excessive because it has no reasonable relation to the economic value of the product supplied would be such an abuse.

The ECJ also describes a two-limbed test to evaluate these criteria:

1. Is the difference between the price actually charged and the cost actually incurred excessive? If yes:
2. Has a price been imposed which is:

   i. unfair in itself? Or
   ii. unfair when compared to competing products?[16]

12. Autortiesību un komunicēšanās konsultāciju aentūra/Latvijas Autoru apvienība v. Konkurences padome, Nos C-177/16, [2017] (hereinafter, *AKKA*, [2017] C-177/16), https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:62016CJ0177&from=EN.
13. The commitments were made by PJSC Gazprom and Gazprom export LLC without acknowledgement that Article 102 TFEU was breached. Press Release, Eur. Comm'n, Antitrust: Commission Opens Proceedings Against Gazprom (Sep. 4, 2012), http://europa.eu/rapid/press-release_IP-12-937_en.htm?%20locale=en; Proposals for Commitments Comp/39.816 – Gazprom Commitments Under Article 9 of Council Regulation N° 1/2003, PJSC Gazprom, Gazprom Export LLC, and the Eur. Comm'n (Mar. 15, 2018).
14. United Brands Company and United Brands Continental B.V. v. Commission of the European Communities, Nos 27/76, [1978], (hereinafter *United Brands Company*, [1978] 27/76), http://eur-lex.europa.eu/legal-content/EN/SUM/?%20uri=CELEX:61976CJ0027.
15. *Id.* at ¶¶ 249–50.
16. In UB, the ECJ found that the Commission had not analyzed UB's cost structure or profitability, so that the Commission failed this two-limbed test at its first hurdle. Consequently, competition agencies and courts did not grapple with the second limb of the test, and in particular, the question of what is meant by the terms "unfair" and "economic value" until later cases.

The ECJ also notes,[17]

> Other ways may be devised – and economic theorists have not failed to think up several – of selecting the rules for determining whether the price of a product is unfair.

In referring to these two limbs, we adopt the terminology used recently by the CAT in its Pfizer-Flynn judgment where it called them, respectively, the "excessive limb" and the "unfair limb" of the UB test.[18] Less descriptively, it then defined the subquestions under the unfair limb simply as Alternative 1 and Alternative 2.

Economists have long argued that generally market forces do and should determine prices. In properly functioning markets, prices are determined by the interaction of supply and demand. Indeed, a significant part of economists' understanding of competition being a force driving good outcomes for customers is that competition drives market prices down to competitive levels. Consequently, "excessive prices" can only occur where some market failure, and in particular a lack of competition, results in prices that are above competitive prices.

In this section, we first describe how the first stage of the test, the excessive pricing limb, has been applied in practice. We emphasize in particular (1) the role of entry barriers in Pfizer-Flynn and Napp Pharmaceuticals; and (2) the challenges involved in deciding upon the relevant cost benchmark and, having done so, in measuring costs allowing to an appropriate degree for capital costs in particular. We then describe the role of comparators in constructing benchmark prices for the purpose of considering excessiveness and highlight the CAT's preference for an overall assessment involving a focus on both cost-plus measures and also comparator prices where examining both is feasible. Second, we describe the second limb of the UB test, the unfair limb, and its possible economic interpretations. In particular, we discuss the definition of economic value and how it relates to both cost and price, and the approach taken by the courts in past cases. We then describe the role comparators have assumed in applying the second stage of the UB test. We then offer a proposal, solidly grounded in conventional microeconomic analysis, that we believe should be used to help structure courts' assessments under Article 102.

2.1. First Limb of the UB Test: Excessiveness

The first limb of the UB test involves assessing[19]

> whether the dominant undertaking has made use of the opportunities arising out of its dominant position in such a way as to reap trading benefit which it would not have reaped if there had been normal and sufficiently effective competition.

In particular, the ECJ proposes assessing whether the difference between price and cost actually incurred is excessive.[20]

Thus, the application of the first limb of the UB test has at least two aspects:

- the development of a counterfactual of "normal and sufficiently effective" competition; and
- an assessment of whether the difference between the price and cost in the factual compared to the counterfactual is excessive.

17. *See United Brands Company*, [1978] 27/76, *supra* note 14, at ¶ 253. The CAT also recently expressly recognized that the ECJ judgment leaves open the possibility that an abuse of a dominant position through unfair pricing could be established by means other than the two-limbed approach specified. *See Flynn Pharma Limited*, [2018] CAT 11 at ¶ 290.
18. *See Flynn Pharma Limited*, [2018] CAT 11, *supra* note 2, at ¶ 288.
19. *United Brands Company*, [1978] 27/76, *supra* note 14, at ¶ 249.
20. *Id.* at ¶ 251.

In applying the first stage of the UB test, the case law has considered conceptual, measurement, and evidential challenges to establishing a benchmark price that would have occurred in the counterfactual of normal and sufficiently effective competition. In this subsection, we consider the challenges in constructing such a benchmark price. We first discuss the implicit counterfactual in the UB test, which involves a benchmark of "normal and sufficiently effective" competition. We then describe approaches that have been taken to constructing the relevant benchmark price in cases including cost "plus" methodologies and price comparators. We close the section by considering the CAT's recent judgment in Pfizer-Flynn.

As we shall see, there are some very significant challenges in determining whether prices are in fact excessive whether we consider a price benchmark derived from a cost-plus approach or when using comparators.

When using a cost-plus benchmark, challenges include (1) the difficulty of measuring cost (for example, costs can be fixed or sunk and so judgments must be made about which costs are relevant for pricing) and (2) determining the appropriate "plus" is difficult (for example, one would not always expect profits to be at a given level).

When using price benchmarks, the challenges are familiar to at least economists from other types of cases including mergers and cartel damages cases. In particular, a benchmark price is only helpful if it is suitably comparable and is relevant to the counterfactual of normal and sufficiently effective competition implicit in the UB test. For example, price information from other markets will only be helpful to the extent that the comparator market is believed normally and sufficiently effectively competitive and any differences in cost, demand and—as we shall see—sometimes regulatory conditions are sufficiently controlled for. These issues have been debated substantially in merger cases involving local markets (where the estimation of price-concentration relationships is commonly undertaken) and also in cartel damages cases (where the aim is to estimate prices but for the cartel).

2.1.1. The impact of market features on the counterfactual: Role of entry barriers. The UB test describes a benchmark involving a counterfactual where potentially significant features of the market—such as the extent of entry barriers created by regulation and switching costs—are reduced to the point at which competition becomes "normal" and "sufficiently effective." In what follows, we highlight the challenges in developing the counterfactual of normal and sufficiently effective competition by describing two cases where market features played an important role in the regulators' decision-making.

In the UK, Pfizer-Flynn involved phenytoin sodium (brand name: Epanutin), a drug purchased off patent by Pfizer in 2000, which is used to treat epilepsy.[21] In September 2012, the price of Epanutin was regulated as part of Pfizer's portfolio of branded drugs under the National Health Service's (NHS's) Pharmaceutical Price Regulation Scheme (PPRS). However, following a reorganization in 2012, Pfizer transferred its Marketing Authorizations for Epanutin to Flynn (for a nominal fee).[22] While Pfizer continued to manufacture Epanutin, it supplied Flynn exclusively for distribution in UK

21. The drug was originally synthesized in 1908 and has been marketed under the brand name Epanutin since 1938.The drug has been superseded by newer drugs with fewer side effects, "and it is no longer recommended as a first line or second line treatment." Even so, around 48,000 patients still use Epanutin in the UK (accounting for approximately 10% of epilepsy treatments). *See* Decision of the Competition and Markets Authority, Unfair Pricing in Respect of the Supply of Phenytoin Sodium Capsules in the UK, Case CE/9742-13, December 7, 2016, at ¶¶ 1.5, 1.9 (hereinafter, Phenytoin Sodium CMA Decision, [2016] CE/9742-13), https://assets.publishing.service.gov.uk/media/594240cfe5274a5e4e00024e/phenytoin-full-non-confidential-decision.pdf.
22. *Id*. at ¶¶ 1.11, 1.12. By law, before a medicine can be placed on the market, it must be given a marketing authorization (product license) by a medicines regulator. The UK regulator is the Medicines and Healthcare products Regulatory Agency (MHRA). *See My Medicine: Licensing (Marketing Authorisation)*, MHRA (n.d.), http://www.mhra.gov.uk/home/groups/comms-ic/documents/websiteresources/con025908.pdf.

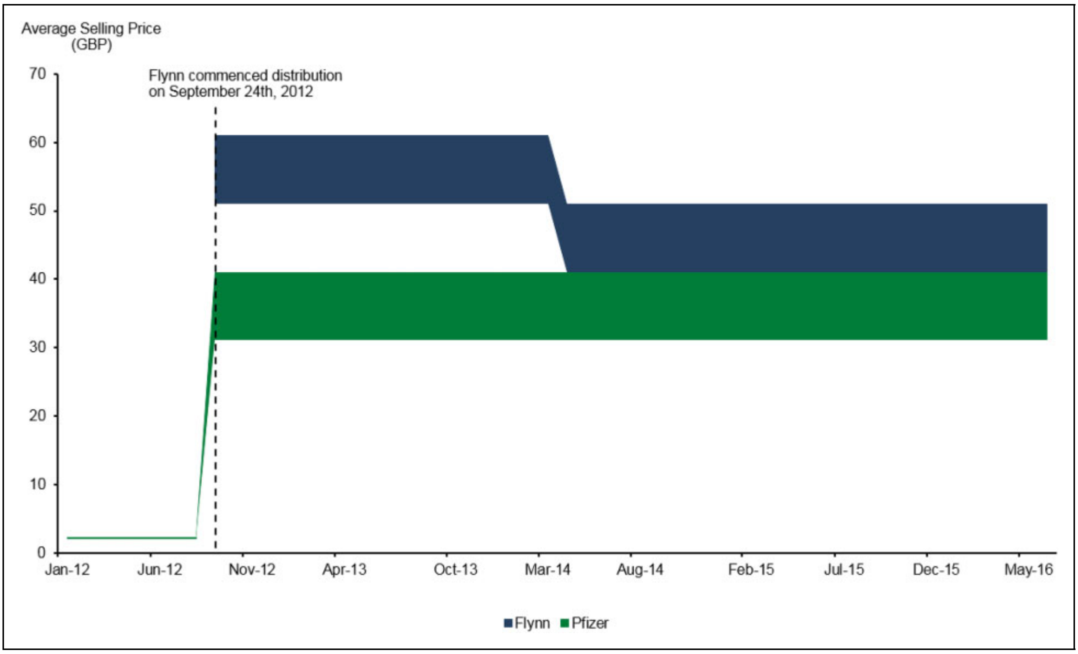

Figure 1. UK prices for Pfizer manufactured phenytoin sodium 100 mg packs, 2012–2016.
Source: Phenytoin Sodium CMA Decision, [2016] CE/9742-13 at Tables 3.3, 3.4, and 3.6.

and Flynn "genericized" Epanutin so that it was no longer subject to price regulation under PPRS.[23] As shown in Figure 1, this transfer was associated with a large jump in the price of phenytoin sodium.

Specifically, the CMA describes that the Drug Tariff price rose from £2.83 before September 2012 for a pack of 100 milligram (mg) capsules to £67.50 before falling back to £54 after May 2014.[24] While actual transactions occurred at a discount to the Drug Tariff price, both Pfizer and Flynn's average selling prices were in a range markedly above the price prior to the transfer in September 2012. While volumes purchased by the NHS fell year-on-year, NHS expenditure rose from around £2 million per annum prior to September 2012 to £50 million in 2013, approximately £42 million in 2014, and approximately £37 million in 2015.[25]

As described above, the first limb of the UB test requires the development of a counterfactual of "normal and sufficiently effective" competition, which in turn requires an assessment of the market for phenytoin sodium. The National Institute of Clinical Excellence (NICE) clinical guidance in 2004 and 2012 recommended that patients who were stabilized on a particular manufacturer's phenytoin sodium capsule should be maintained on that product and not switched to another manufacturer's capsule.[26] Switching barriers can mean potential competitors face entry barriers, and the CMA considered Pfizer

23. For technical definition of a "generic" drug, *see Glossary*, Gov.uk, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/515205/Glossary.pdf; *Flynn Pharma Limited*, [2018] CAT 11, *supra* note 2, at ¶¶ 57, 214.
24. The CMA gives average selling price figures of £2.21 for Pfizer's 100 mg capsule for the period March 1, 2004, to September 2012 and a range of £51–£60.99 for September 2012 to March 2014. *See* Phenytoin Sodium CMA Decision, [2016] CE/9742-13, *supra* note 21, at ¶ 1.16, Table 3.3.
25. *Id.* at ¶ 1.19.
26. Phenytoin Sodium CMA Decision, [2016] CE/9742-13, *supra* note 21, at ¶ 1.7. Phenytoin sodium is described as having a "narrow therapeutic index ('NTI') and 'non-linear pharmacokinetics.'" The CMA describes that this means that small

and Flynn to have effectively a captive customer base in the factual.[27] Specifying a counterfactual involving normal and sufficiently effective competition thus implicitly requires deciding the extent to which such regulatory switching barriers should, hypothetically, be reduced.

In the Napp Pharmaceuticals case, the Office of Fair Trading (OFT) considered that Napp's pricing itself resulted in a strategic barrier to entry.[28] The case involved a sustained release morphine, MST Continus (MST), a strong opioid analgesic used to treat moderate and severe pain, particularly in cancer treatments and for chronic arthritis.[29] Sustained release morphine was sold in two market segments, the relatively smaller "hospital" segment (10%–14% of sales volumes) and the relatively larger "community" segment involving sales resulting from prescriptions written by general practitioners (GPs). These two market segments involved very different purchasing behavior. In particular, hospital authorities tended to be price sensitive and sometimes purchased by tender, direct from manufacturers. In contrast, GPs tended not to be very price sensitive and tended to follow the initial prescribing behavior determined by the hospital doctor or specialist.[30]

The OFT raised the concern that the hospital segment acted as a "gateway" for sales by GPs and that Napp had engaged in excessive and targeted discounting in the hospital segment by:[31]

- supplying to hospitals at excessively low prices,
- selectively supplying to customers in the hospital segment at lower prices than to customers in the community segment, and
- targeting competitors by supplying higher discounts to hospitals where it faced (or anticipated) competition.

The OFT found that Napp's list price (less wholesale discount) was on average over 1,400% higher than its price in the hospital segment of the market for 10 mg, 30 mg, 60 mg, and 100 mg tablets.[32] Thus, the case involved both an abuse of excessive discounting in the hospital segment and an abuse of excessive pricing in the community segment. In short, the OFT argued, and the CAT agreed, that Napp's pricing in the hospital segment amounted to a strategic entry barrier to effective competition in the community segment.[33]

Both Pfizer-Flynn and Napp Pharmaceuticals required the consideration of market features in the factual that are not necessarily consistent with normal and sufficiently effective competition. That said, these are clearly contentious matters. For example, discounts to acquire customers

changes to the dose delivered to the circulation can give rise to a disproportionate change in the level of the drug in the body, which can lead to therapeutic failure and even toxicity. See *Flynn Pharma Limited*, [2018] CAT 11, *supra* note 2, at ¶ 16.

27. Phenytoin Sodium CMA Decision, [2016] CE/9742-13, *supra* note 21, at ¶¶ 1.7, 1.25.
28. Decision of the Director General of Fair Trading, NAPP Pharmaceutical Holdings Limited and Subsidiaries (NAPP), No CA98/2/2001 (Mar. 30, 2001), at ¶ 115, https://assets.publishing.service.gov.uk/media/555de4bf40f0b669c4000169/napp.pdf (hereinafter "NAPP Decision").
29. The product is called sustained relief because its active ingredient is released over a twelve-hour period to achieve a continuous and uniform level of analgesia (pain relief). Napp had launched its first product in the market in 1980, MST, and had benefited from patent protection on sales over the period 1980–1992. *Id.* at ¶ 9.
30. This is because GPs observed prescribing decisions of hospital specialists, which helped establish credibility of product in minds of GPs (reputation effect) and GPs had direct experience of the efficacy of those products prescribed by hospital doctors and specialists. *Id.* at ¶¶ 108–9, 160, 163.
31. *Id.* at ¶ 142.
32. Napp Pharmaceutical Holdings Limited and Subsidiaries v. Director General of Fair Trading, No. 1001/1/1/01, [2002], at ¶ 393, http://www.catribunal.org.uk/files/JdgNapp150102.pdf.
33. Technically, the Napp appeal was considered by the Competition Commission Appeal Tribunal (CCAT), which following the Enterprise Act 2002, evolved into the Competition Appeal Tribunal (CAT) that we know today. For simplicity, we refer to both organizations in this article as the CAT.

followed by higher prices in aftermarkets are reasonably common pricing structures and need not necessarily amount to an entry barrier. In Napp, assessing whether the pricing structure did in fact amount to an entry barrier depends on whether an entrant could have successfully replicated the pricing structure of discounting to hospitals followed by higher prices charged to the same customers in the community sector.[34]

Clearly, a finding that there are entry barriers is relevant to an overall assessment of the likelihood observed prices are competitive. Less clear is precisely the way in which an agency's conclusions about the nature of the counterfactual should translate into a benchmark price associated with normal and sufficiently effective competition. We next turn to consider the construction of benchmark prices in a number of recent cases.

2.1.2. Cost-plus benchmarks. In this subsection, we describe the use of cost-plus benchmarks in recent cases, and some of the practical challenges faced in their construction. We first describe a number of issues that have arisen when measuring the relevant costs in some recent cases. Since issues around the measurement of variable costs tend to be less contentious, we focus on the challenges involved in measuring capital costs. We also consider cost measurement in circumstances where there are sunk costs, and finally costs that are common to the sale of multiple products or, relatedly, the sale of a given product to multiple customer groups.[35]

We then consider the extent to which costs should include an allowance for capital costs and the challenges involved in measuring both the amount of capital relevant for an assessment of excessive pricing and the competitive return on capital. To finish the subsection, we discuss the approach taken in Pfizer-Flynn, which involved a return-on-sales measure motivated by the rate of return allowed on a portfolio of regulated products.

2.1.2.1. Measuring the relevant costs. We start from the observation that the case law makes clear that it may prove appropriate to examine more than one cost measure when constructing a benchmark price, or range of benchmark prices, in an excessive pricing case. Specifically, in Albion Water II, the CAT stated,[36]

> Because there may be times when a competition authority or court needs the flexibility to examine more than one measure of cost in order to evaluate an allegedly excessive price, we do not prescribe a cost measure that would apply in all cases.

The CAT argued that the use of more than one credible methodology, even if only as a cross-check, "helps to minimise the risk of false positives and to assure confidence in the results obtained."[37] The CAT would of course wish this statement sensibly interpreted since clearly not all methodologies are created equally valid for a given context.

34. The CAT found that "since Napp's prices are below, and in many cases, well below, direct costs on those tablet strengths where it faces competition, Napp's policy constrains its competitors to suffer substantial losses on their sales to hospitals.... The fact of having to match Napp's prices at below direct cost, probably for a long period, is likely to be a deterrent to a would-be entrant." Napp Pharmaceutical Holdings Limited and Subsidiaries v. Director General of Fair Trading, No. 1001/1/1/01, [2002], at ¶¶ 276–7, http://www.catribunal.org.uk/files/JdgNapp150102.pdf.
35. The case law only permits the inclusion of efficiently incurred costs in a cost benchmark. *See* Ministère Public v. Tournier, No. 395/87, ECR 2521, [1989], at ¶ 42.
36. Albion Water Limited v. Waste Services Regulatory Authority and DŴR Cymru Cyfyngedig United Utilities Water PLC, Nos. 1046/2/4/04, [2008] CAT 31, at ¶ 93, http://www.catribunal.org.uk/files/Judgment_on_unfair_pricing_1046_Albion_071108.pdf1276_Flynn_Judgment_CAT_11_070618.pdf (hereinafter, *Albion Water Limited*, [2008] CAT 31).
37. *Id.* at ¶ 93.

It is also important to note that the definition of economic costs differs from accounting costs.[38] However, useful information on economic costs can sometimes be developed from accounting data. Indeed, economists have relied on accounting data to measure costs in numerous contexts including in offering evidence to competition regulators and courts.

2.1.2.1.1. Cost Benchmarks. The excessive pricing component of the Albion Water case involved an allegation that the incumbent water supplier—Dŵr Cymru—was dominant in a relevant market and charged an excessive price to Albion Water for access to its water pipe network. Specifically, the case involved determining the price charged for partial treatment and transportation of nonpotable water through the water pipe network to a particular firm, Shoton Paper Mill. Albion Water had a contract with the paper mill to supply water and wished to use the existing incumbent's network, known as the "Ashgrove system."[39]

The CAT considered which costs were reasonably attributed to the partial treatment and transportation of water by Dŵr Cymru, generally and through the Ashgrove system in particular, using three possible cost methodologies for determining the relevant cost benchmark:

- Average Accounting Cost "plus" (AAC+): This involved estimating regional average accounting costs attributable to the service of the transportation and partial treatment of water by Dŵr Cymru to large nonpotable customers generally and then identifying the variation in costs of supplying particular classes of customer.[40]
- Local Accounting Costs (LAC): This involved producing a local estimate of the costs reasonably attributable to using the Ashgrove system (although data limitations meant that in practice this method drew also on the results of the AAC+ methodology when local accounting costs were not available).[41]
- Long-Run Incremental Cost (LRIC): This involved estimating the amount by which long-run capital and operating costs changed when output increased by a substantial and defined amount (the "increment"). Ofwat considered LRIC using an increment corresponding to 20% of capacity.

The CAT's judgment considers the correct application of these cost benchmarks for the purposes of the first limb of the UB test. The CAT determined the AAC+ cost benchmark was the appropriate methodology to estimate the costs reasonably attributable to the service of the transportation and partial treatment of water by Dŵr Cymru in relation to nonpotable users generally. It also recognized the role of the LAC methodology as a means of verifying the AAC+ results and ascertaining the estimated costs of the Ashgrove system. On the particular facts of the Albion Water case, the CAT

38. Franklin M. Fisher & John J. McGowan, *On the Misuse of Accounting Rates of Return to Infer Monopoly Profits*, 73 Am. Econ. Rev. 1 (1983). For a more general discussion, *see* Peter Davis & Eliana Garcés, Quantitative Techniques for Competition and Antitrust Analysis ch. 3 (2009).
39. The Ashgrove system is a single pipeline, from the River Dee at Heronbridge, via a water treatment works, to two large customers: Shotton Paper and the steel producer Corus (which owns a steelworks nearby). *See Albion Water Limited*, [2008] CAT 31, *supra* note 36, at ¶¶ 8, 24.
40. AAC+ was a top down approach to average accounting costs (AAC) where the "plus" referred to an attempt to obtain a greater level of granularity of the costs associated with common carriage. The methodology arose from a draft tariff model submitted by the Defendant to Ofwat in 2006. Using regulatory costs from 2000/01 the methodology involved four steps: (1) the allocation of company regulatory accounting costs into functional activities; (2) the allocation of functional costs across customer classes by headline cost drivers; (3) the application of customer class "cost" weighting factors; and (4) the application of customer class "income risk" weighting factors to correct for underlying customer class revenue risk differentials. *See Albion Water Limited*, [2008] CAT 31, *supra* note 36, at ¶ 46.
41. "Under the LAC methodology, Dŵr Cymru's local costs were calculated for the raw water aqueduct, together with the costs of the partial treatment, distribution and storage functions associated with the Ashgrove system." *Id.* at ¶¶ 41, 48.

Table 1. Illustrative Calculations of the Cost Benchmarks Used in Albion Water II.

Cost Components	Nonpotable Users Generally	Ashgrove System		
	AAC+	LAC	AAC+	LRIC
Raw water aqueduct	1.2	0.1		0
Water treatment (including sludge management)	5.3	4.4		9.3
Bulk nonpotable distribution	2.3	2.5		9.9
Water storage	1	1.3		0
Operational control	0.3	1.1		0.8
Management, general, and support expenditure	2.1	2.8		n/a
Business activities (i.e., regulatory services, scientific services, bad and doubtful debts and local authority rates)	2.4	1.4		n/a
Backup supply	4.4	4.4		n/a
Common carriage services	0.3	0.3		n/a
Totals	19.3	18.5		20
CAT's final estimate	15.8	13.6	13.8	—

Source: Paragraphs 49 and 197 (final numbers), http://www.catribunal.org.uk/files/Judgment_on_unfair_pricing_1046_Albion_071108.pdf.

decided that LRIC was not an appropriate cost benchmark.[42] Table 1 illustrates the components of the calculation of costs in Albion Water II.

2.1.2.1.2. Capital Costs. Consistent with a standard economic approach, the courts in some recent cases have considered capital costs and the return on capital in the determination of a cost-based benchmark price.[43] In this section, we provide an overview of the approach adopted by the courts with respect to pricing and the return on capital in the presence of sunk and common costs. In doing so, we also describe the economic framework to analyze the implications of sunk and common costs on prices.

2.1.2.1.2.1. Sunk Costs. The question of whether sunk costs would be recoverable in a situation where there was "normal and sufficiently effective" competition has proven important in some excessive pricing cases.[44]

For example, sunk costs were a central issue in the *Scandlines* case, which involved an assessment of the economically appropriate benchmark prices for a port facility. Specifically, the Helsingborg-Helsingør (HH) crossing provided a ferry service from Sweden to Denmark across a narrow channel. *Scandlines*, one of three ferry operators, complained to the Commission

42. *Id.* at ¶ 105.
43. *Id.* at ¶ 89.
44. It is not always the case that competitive markets will allow sunk investments to be recovered through pricing. To see why, consider the canonical economic example of technological change affecting a production process—the mass production of steel. The first steel plants used a process named after the Englishman Henry Bessemer to remove impurities from pig iron when producing steel. Subsequently, an alternative to the Bessemer process—the open-hearth process—made steel that was higher quality and suitable for structures like bridges. Eventually, the open-hearth process outstripped the Bessemer process to become the dominant steel-making process. When a new technology makes old plants inefficient, competition will tend to reduce the return on investments made at the older, less efficient plants. In fact, competition from new technologies may even drive the returns down to the point at which the old technologies are no longer economic to run or maintain. Put differently, stranded assets will not ordinarily attract a return in a competitive market. *See Bessemer Process*, Encyclopaedia Britannica, https://www.britannica.com/technology/Bessemer-process.

that the Port of Helsingborg had engaged in excessive and discriminatory pricing abuses. In particular, it argued the following:

- Port charges were excessive because they did not reflect the actual costs borne for the provision of services to ferry operators (excessive pricing abuse).
- Ferry operators were charged substantially higher prices than other users of the port, and port charges should be rebalanced (price discrimination abuse).

In this case, the claimant believed that some investments in the port were appropriately treated as sunk costs while the defendant argued that its facilities should be valued at the current (replacement) value of its assets. Clearly, such different perspectives would have a very significant impact on the relevant cost measure since the costs to provide exactly the same level of services and facilities to ferry operators afresh would be far higher than the depreciated costs accounted for in the port's statutory accounts.

Economic analysis suggests that it can be economically desirable to allow the recovery of sunk costs through pricing. In particular, a firm would clearly have no incentive to make investments if the capital invested cannot earn a suitably attractive return. This is true even when investments are sunk. Suppose that the port's owner must spend €500 million to build the port facility. If the owner expected it could charge only port fees sustainable in a perfectly competitive market, reflecting the marginal costs of using the port facilities, the owner would not wish to invest since the port would incur a loss of €500 million if price were equal only to the port's marginal cost.[45]

Nonetheless, applying the UB test raises some conceptual challenges since the relationship between competitive prices and efficient recovery of fixed and sunk costs can be complex in real-world settings. In particular,

- "Normal competition" in a context with large sunk or fixed costs may sometimes involve relatively little competition or even a monopoly.[46]
- Economic theory suggests that competitive markets can sometimes potentially involve excessive investment and entry. For example, economic theory suggests competition can sometimes lead to the inefficient duplication of fixed costs in homogeneous product markets through excessive entry.
- Economic theory also suggests that competitive markets can sometimes involve insufficient investment and entry. In differentiated product markets, firms may not capture a sufficient proportion of the value created for customers from introducing a product and thus may choose in competitive conditions not to introduce sufficient product variety.[47]

The study of economically efficient pricing when there are lump-sum upfront investments is known as Ramsey pricing (see Figure 2).[48] Such pricing involves a markup to allow recovery of the upfront investments, so the least efficient active firms would make zero economic profits. Competitive markets can similarly allow the recovery of fixed costs to the extent that rational, forward-looking firms should only enter such a market if postentry prices are expected to be at least

45. In *Scandlines*, the question of whether to account for opportunity costs also arose. In particular, the port argued that the land used for ferry operations was very valuable, and a decision to keep the ferry-operations on the particular piece of land instead of using it for other purposes (e.g., cargo services) is likely to represent an opportunity cost for the owner of the port (the City of Helsingborg).
46. N. G. Mankiw and M. Whinston, "*Free Entry and Social Inefficiency,*" *RAND Journal of Economics*, Vol. 17, No. 1, Spring 1986, pp. 48–58.
47. See citations to the literature described in S. Berry and J. Waldfogel, "Free Entry and Social Inefficiency in Radio Broadcasting," *RAND Journal of Economics*, Vol. 30, No. 3, Autumn 1999, pp. 397–420.
48. F. P. Ramsey, *A Contribution to the Theory of Taxation*, 37 Econ. J. 145 (1927).

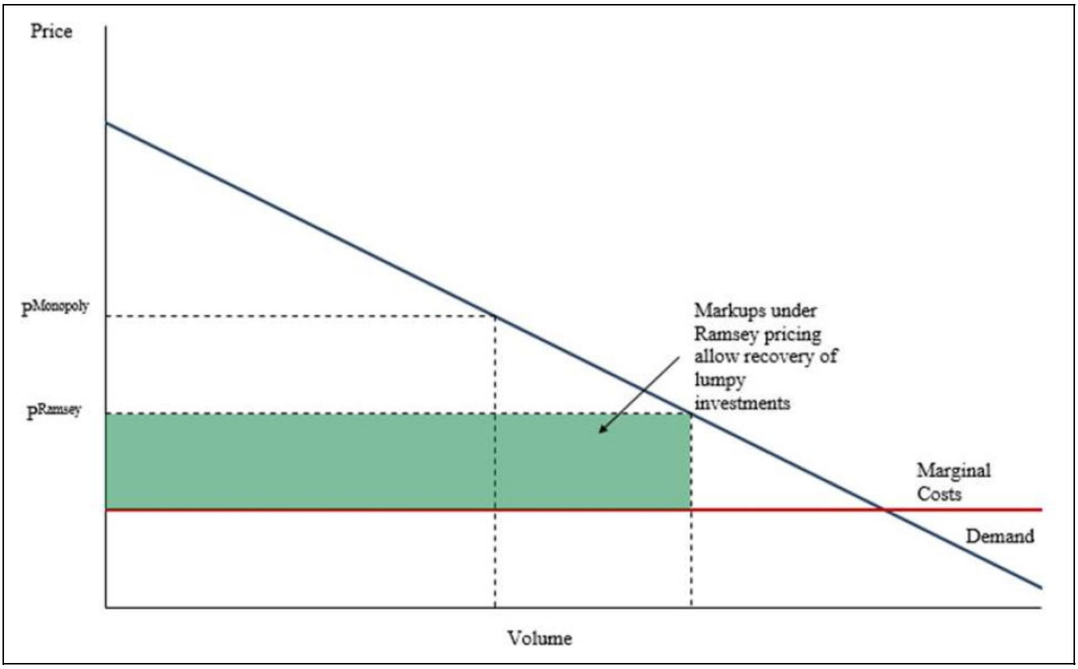

Figure 2. Ramsey pricing—recovery of lump-sum investments through pricing.

at the Ramsey (i.e., break-even) level.[49] Absent such an expectation, the investment case to justify a second firm's entry should prove challenging.

It would seem hard to argue convincingly that the cost benchmark applicable in an excessive pricing case should not include an allowance for costs that would be efficiently recoverable.

2.1.2.1.2.2. Common Costs. When fixed or sunk costs are common across multiple product variants (and/or customer groups), the question arises of the extent to which such costs should be recoverable from an individual product or customer group.

The courts have found that where the alleged conduct relates to only one part of the dominant firm's business, common costs may need to be allocated to the business in question. Specifically, in its Albion Water judgment, the CAT stated,[50]

> In ascertaining the "actual costs of supply" for the purposes of the Chapter II prohibition one should, so far as possible, seek to establish what the elements of costs are, and to disentangle the costs of the line of business under enquiry from the costs attributable to other businesses carried on by the allegedly dominant company.

49. That said, competition can sometimes prove unsustainable. If competitive prices would not cover the fixed costs of investment, there can potentially even be a case for regulatory intervention to support such investment and avoid monopoly markets. An example of regulatory intervention to support investment in capacity is in UK energy markets where subsidies are provided to incentivize building new power generation capacity. The rationale for such subsidies arises when that the gap between the price level (the marginal plant's short-run marginal cost) and nonmarginal plant's marginal costs is expected to be insufficient for enough of the year to allow for the recovery of the fixed and/or sunk costs of building new generation capacity. This issue has come to the fore in recent years as the installed base of low marginal cost renewable generation such as wind and solar power has increased. For details on the capacity market rules for wholesale generation *see* UK's Department for Business, Energy & Industrial Strategy, *Electricity Market Reform: Capacity Market* (Feb. 15, 2016), https://www.gov.uk/government/collections/electricity-market-reform-capacity-market.

50. *Albion Water Limited*, [2008] CAT 31, *supra* note 36, at ¶ 76.

Similarly, in Pfizer-Flynn, the CMA cites the CAT's Claymore Dairies decision where the CAT described the principle for choosing a common cost allocation method that "so far as possible, cost allocations should reflect the underlying business reality."[51] Of course, the business reality may sometimes be that costs are truly common, and so an allocation method adopted by the business primarily reflects an accounting convention rather than the economic incentives relevant for pricing. If so, this guidance on cost allocation may have practical limitations.

For concreteness, consider the situation in *Scandlines* where ferry companies and cargo companies both used port facilities—at least some of which were presumably common. For an economist, different port fees for ferry operators and cargo vessel operators may be justified for at least two reasons: (1) if the direct costs of servicing different customer types differ and (2) if it may be economically efficient for the proportion of the shared costs of port facilities recovered from each type of vessel operator to differ. In *Scandlines*, the ferry operators were less price sensitive than the cargo vessel operators, which led to price discrimination. Prices to both customer types would be higher in the presence of market power, but the fact of different prices being charged to different customer groups does not establish that there is a competition problem—such differentiated pricing can be both economically efficient and arise in competitive markets.[52]

Pfizer-Flynn is an example of another case where the CMA had to consider how to allocate common costs. In doing so, the CMA noted that there are various practical methods for allocating common costs (e.g., by volume, value, time, etc.) and that the most appropriate yardstick may be case-specific. In Pfizer-Flynn, the CMA adopted a primary approach of allocating common costs using sales volumes—measured as number of packs of phenytoin sodium capsules. It believed that the number of packs ordered drives activities from procurement to invoicing, all of which require support activities which result in common costs such as employee costs, marketing expenses, professional/consulting fees, and office expenses.[53] The CMA described its approach as "favourable to the Parties" and argued that if there was uncertainty as to whether a cost category was attributable to phenytoin sodium capsules, it had included it in the allocated costs, with the exception of "general marketing expenses." The CMA argued that it was measuring Pfizer's common costs after it had divested its marketing authorization to Flynn, and so Flynn, not Pfizer, was responsible for marketing the capsules (and also argued that it was already being generous to Pfizer in the calculation under other cost headings).[54]

Finally, it is important to note that economic analysis suggests that pricing which minimizes economic distortions, that is, Ramsey pricing, will typically involve prices that tend to be higher for products or customer segments where customers tend not to reduce their volume of purchases when prices rise. Similarly, prices will be lower for customer segments that would reduce their volume of purchases more when prices rise. Strikingly, in this way, Ramsey pricing tends to exhibit features that can share some elements of the basic characteristics of monopoly pricing, but would leave prices for both customer groups (or analogously, products) below those prices a monopolist would charge.

2.1.2.1.2.3. Measuring the amount and cost of capital. The cost of capital is the minimum return that investors (shareholders and lenders) require to be compensated for putting their

51. See Phenytoin Sodium CMA Decision, [2016] CE/9742-13, *supra* note 21, at ¶ D.8, Annex D; Claymore Dairies Limited v. Office of Fair Trading, Nos. 1008/2/1/02, [2005] CAT 30, http://www.catribunal.org.uk/files/Jdg1008Claymore020905.pdf.
52. Lars A. Stole, *Price Discrimination and Competition*, *in* 3 HANDBOOK OF INDUSTRIAL ORGANIZATION (Mark Armstrong & Robert Porter eds., 2007), https://EconPapers.repec.org/RePEc:%20eee:%20indchp:3-34.
53. The CMA considered and rejected allocation of common costs by (1) sales value, (2) size of direct costs, (3) number of orders processed, (4) number of customers, (5) time spent by each employee, (6) square footage, and (7) equipment hours. In relation to sales value, the CMA raised a particular "circularity" concern in excessive pricing cases that a drug subject to high prices would receive a potentially artificially high allocation of the common costs. *See* Phenytoin Sodium CMA Decision, [2016] CE/9742-13, *supra* note 21, at Annex D.
54. *Id.* at ¶¶ E.12–E.13.

money into a company and bearing the associated risks.[55] In Albion Water II, the CAT described that[56]

> the calculation of an access price is intended reasonably to remunerate the owner for the use of the existing assets employed in serving a customer. It follows that the relevant components of costs that make up an access price should ordinarily comprise not only direct operating costs but also the costs of maintaining the capital assets and a return on capital.

Thus, a competition agency's cost calculation must address both the amount of capital invested and the allowed return on capital for the purposes of the UB test. The measurement of the amount of capital invested requires careful, fact-specific consideration. In particular, the CAT noted in Albion Water II,[57]

> The extent to which the value of capital assets should be included in any cost calculation, and, if so, on what basis of valuation, may be particularly sensitive where the assets in question are "sunk", in the sense of having no alternative use value; and where they may be fully depreciated.

Specifically, in the UK water industry there is a large difference between the Regulatory Capital Value (RCV) appearing in water companies' regulated accounts and the Modern Equivalent Asset Value (MEAV). MEAV is an estimate of the present-day cost of replacing the existing asset with a new asset of the same service capability. If, for example, an existing iron pipe could be replaced more economically by a plastic pipe of the same functionality, the MEAV would be based on the unit cost of laying a plastic pipe in that location.[58] MEAV for the water industry as a whole was reportedly £224 billion at the time of privatization of the water industry, while the RCV of the industry was only around 5% of that (more recently the RCV has been around 15% of MEAV for firms in the industry).[59]

Ordinarily, when assets have been very substantially written down in the accounts, it may be appropriate to reflect the true economic value of the assets when estimating the amount of capital invested. However, in the regulated UK water industry, the rate of return allowed in regulated price controls at the time of the infringement was based on the lower RCV figure, at least in part precisely because assets were sold at a heavy discount to their MEAV at privatization. Thus, when considering whether access pricing was excessive, the CAT decided it was required to consider which concept best reflected the amount of capital invested by the privately held firms. In doing so, the CAT noted that the incumbent water supplier Dŵr Cymru had enjoyed a substantial revenue stream of over £2 million per annum for the last twenty years from a pipeline ("the Ashgrove system") that is fifty years old and had apparently required minimal maintenance and capital investment.[60] The CAT stated that[61]

> the initial question of excessive pricing should be judged by reference to a realistic estimate of costs, including a cost of capital based on existing regulation, which reflects the position of Dŵr Cymru as a

55. For a more detailed discussion, *see* Tim Koller, Marc Goedhart, & David Wessels, Valuation: Measuring and managing companies ch. 10 (2005).
56. *See Albion Water Limited*, [2008] CAT 31, *supra* note 36, at ¶ 89.
57. *Id.* at ¶ 118.
58. In Albion Water II, the Ashgrove mains (i.e., the raw water aqueduct from Heronbridge to the Ashgrove water treatment works, the sludge main and the non-potable bulk distribution main from the treatment works to the Shotton Paper site) were found to have a gross MEAV of £10.4million. *Id.* at ¶ 109.
59. *See*, *e.g.*, Oxera, *Options for Future Treatment of the Regulatory Capital Value* (June 2015), at fig. 2.3, https://www.oxera.com/getmedia/ef4fe7fc-685f-40cd-86ec-41c51c6daac8/Oxera_Options-for-future-treatment-of-the-RCV.pdf.aspx. RCV was initially estimated using the average of the market value of equity of each water and sewerage company for the first 200 days, plus the total value of debt at privatization.
60. *See* Albion Water Limited Albion Water Group Limited v. Water Services Regulation Authority and DŴR Cymru Cyfyngedig and United Utilities Water Plc, Nos. 1046/2/4/04, [2006] CAT 23, at ¶ 591.
61. *Albion Water Limited*, [2008] CAT 31, *supra* note 36, at ¶ 122.

dominant water company benefiting from the use of major fixed assets inherited from the UK government at a very substantially discounted value.

While the CAT considered multiple approaches to estimate the return on capital, they settled on an approach based on a 1999 Ofwat decision, where real, pretax cost of capital equivalent to a cost of capital of 6.8% was used for all water and sewerage companies for the purposes of price control determinations.[62] The CAT noted that the cost of capital of around 6.8% on the RCV of Dŵr Cymru was equivalent to a cost of capital of around 1% on a gross MEAV basis. This figure was in line with the average return on MEA values for the water industry, and was consistent with Dŵr Cymru's regulated water business earning the equivalent of around 1% of the MEA value of its assets.[63]

2.1.2.1.2.4. Measuring the Return on Sales. In Pfizer-Flynn, the CMA considered how to apply the first limb of the UB test by measuring the direct and indirect costs incurred by each of Pfizer and Flynn "plus" a reasonable return on the costs they incurred in respect of each of their products.[64] In addition to including both direct and indirect costs, the CMA allowed what it described as a "reasonable rate of return on sales" of 6% so that costs were inflated to account for a return on capital.[65] The rate of return was based on the PPRS, a voluntary regulatory regime for branded pharmaceutical products in the UK, which set the 2014 maximum allowable return for a portfolio of branded pharmaceuticals at 6%, as described above.

In its review of the CMA decision, the CAT considered that the CMA placed too much weight on the PPRS benchmark because (1) the PPRS appeared to have decreasing relevance as the pharmaceutical industry changes its UK orientation, (2) the CMA's file note of its conversation with the Department of Health (DH) revealed some level of official doubt as to the continuing relevance of the 6% figure, (3) an expert witness called by Flynn testified that he had the same reservations about the usefulness of the PPRS as a benchmark, and (4) the PPRS applies to a portfolio of products rather than to any one product (although the CAT also made clear that it was sympathetic to the point that a drug in the circumstances of phenytoin might be expected to be at the lower end of return in such a portfolio).[66]

62. *Id.* at ¶ 112. In considering the relevant cost of capital, Ofwat noted that the cost of capital used to determine whether an access price were excessive can be different from the cost of capital used in a regulatory context. An alternative was to adopt a disaggregated cost of capital focusing on the cost of capital appropriate for a business supplying Shoton Paper Mill in particular. Ofwat argued that doing so would be internally consistent with the general approach of using local costs and was particularly concerned that there was increased revenue risk involved in supplying large industrial customers on discrete nonpotable systems. However, the CAT was ultimately "not convinced that it was appropriate to adopt a different cost of capital in this case since there is no evidence that this was a local cost, directly incurred." *Id.* at ¶¶ 113–4, 128; Ofwat, *Final Determinations: Future Water and Sewerage Charges 2000-05* (Nov. 25,1999), at ¶ 113, http://regulationbodyofknowledge.org/wp-content/uploads/2013/03/OFWAT_Final_Determinations_Future_2000-05.pdf.
63. *Albion Water Limited*, [2008] CAT 31, *supra* note 36, at ¶ 129.
64. *Flynn Pharma Limited*, [2018] CAT 11, *supra* note 2, at ¶ 311. The CMA used Pfizer's Cost of Goods Sold (COGS) as the measure of its manufacturing cost of phenytoin sodium capsules. For Flynn, the CMA considered Flynn's purchase, distribution and sale cost for the supply of Flynn's Products. See Phenytoin Sodium CMA Decision, [2016] CE/9742-13, *supra* note 21, at Annex C, ¶ C.11.
65. The CMA effectively defined a reasonable price threshold. For those who tolerate algebra, the price threshold can be calculated by solving the below equation for p^{OK}:

$$\mathrm{ReturnonSales(ROS)} = \frac{OperatingProfit}{NetSales} = \frac{(p^{OK} - c)Q}{p^{OK}Q} = 1 - \frac{c}{p^{OK}} = 0.06.$$

66. *Flynn Pharma Limited*, [2018] CAT 11, *supra* note 2, at ¶¶ 334–35.

However, somewhat surprisingly, the CAT also concluded that, with the exception of the tablet comparator (discussed below), it did "not find that any of the comparators suggested to us, in themselves, presented such a clear evidential picture. . . . [T]hat they undermined the conclusions reached by the CMA in deciding on a reasonable rate of return."[67] As we describe below, ultimately, the CAT's concern in the CMA's assessment of the excessiveness limb in Pfizer-Flynn appears to primarily be the CMA's failure to assess potential benchmarks based on comparators rather than the CMA's approach to the "plus" element of its cost-plus benchmark.

2.1.3. Using comparators to construct benchmark prices. In Pfizer-Flynn, the CAT was required to consider the extent to which it is necessary for a competition agency or court to have regard to benchmarks and/or comparators under the UB test and, in particular, whether there is a need for a "normal competition" benchmark under the excessive limb or otherwise.[68] The CAT found that the CMA was wrong in law to restrict its excessive limb assessment to a cost-plus approach, and to exclude other methodologies, rather than seeking to establish a benchmark price (or range) that would have pertained in circumstances of normal and sufficiently effective competition.

In particular, the CAT argued that UB does not establish that cost plus is, in isolation, a sufficient method for establishing the excess if other methods are available and, particularly, if they suggest different results. Furthermore, it considered that a competition authority cannot simply choose that method of calculating the excess that was most favorable to establishing an infringement, to the exclusion of other methods. The CAT notes that a "'cost plus' calculation will often form part of the methodology for calculating the excess, and that in some cases, a cost plus calculation might be the only available, or overwhelmingly the best method."[69] It goes on to argue that it is not sufficient to select cost plus as the sole method when there are other valid methods available to assist the authority in establishing (on the most credible and defensible basis that can be derived from the evidence) the hypothetical counterfactual of the price that would have been established in conditions of normal and sufficiently effective competition.[70] The CAT concluded that [71]

> setting a benchmark price (or range), would have enabled the CMA to adopt a less rigid approach to its analysis. This may have meant it would have examined the various candidate comparator products and companies more carefully (using a weighted approach for relevance rather than a binary approach as to whether a comparator was helpful or not).

As economists, it seems hard to argue with the CAT's preferred approach, to the extent that it involves properly considering all of the potentially relevant evidence. However, it is less clear to us that agencies should always adopt nonbinary approaches unless it is genuinely unclear which benchmarks are more convincing than others.

We next consider benchmark pricing using comparators from some recent cases.

2.1.3.1. Latvian music royalty rates (the AKKA/LAA case). Music royalty rates provide an interesting context for excessive pricing decisions, because music benefits from intellectual property rights, while

67. *Id.* at ¶ 345.
68. *Id.* at ¶¶ 308(4)–9.
69. The CAT does not consider that the CMA can rely on Albion Water II, as a case where the CAT itself calculated only a cost-plus benchmark, to justify its approach in Pfizer-Flynn. Rather, the CAT makes clear it believes that the CATs approach was a result of the particular circumstances of that case which involved a fair price for access to infrastructure, an exercise which had not previously been done, and there were simply no other prices available which could be used to seek to establish a benchmark. See *Flynn Pharma Limited*, [2018] CAT 11, *supra* note 2, at ¶¶ 304, 315.
70. *Id.* at ¶ 316.
71. *Id.* at ¶ 324.

granting the right to use music has presumably a marginal cost of close to zero. The CAT argued in its Pfizer-Flynn judgment that the strict application of the UB excessive pricing test is therefore not appropriate.[72]

The Latvian Competition Council imposed a fine on AKKA/LAA for abuse of a dominant position as a result of the application of excessively high rates. AKKA/LAA, a collective management organization handling copyright for musical works, is the only organization authorized in Latvia to issue licenses for the public performance of musical works for which it manages the copyright. The ECJ considered the following cross–Member State price comparisons in its Latvian music (AKKA/LAA) decision of September 2017:[73]

- A comparison of the rates applied in Latvia for the use of musical works in shops and service centers with those applied in Lithuania and Estonia as neighboring Member States and markets. Rates in all three Member States depend on the surface area of the shop or service center, and the authority found that, for surface areas of between 81 square meters (m^2) and 201 to 300 m^2, the rates applied in Latvia were two to three times higher than those applied in Lithuania and Estonia.
- A comparison of the fees in approximately twenty other Member States adjusted by purchasing power parity index (PPP index). The authority found that the rates payable in Latvia exceeded the average level of those charged in other Member States by 50% to 100%. For shops or service centers with surface areas of between 85.5 m^2 and approximately 140 m^2, only the rates applied in Romania were found higher.

The ECJ also noted that cross-Member State comparisons must be made on a "consistent basis" using "objective, appropriate and verifiable criteria."[74] Such criteria may include, inter alia, consumption habits and other economic and sociocultural factors, such as gross domestic product per capita and cultural and historical heritage. Specifically, the ECJ required that[75]

> the comparison, for an identical service, of the rates in force in several Member States in which living standards differ necessarily implies that the PPP [Purchasing Power Parity] index must be taken into account.

The ECJ also described that it is permissible to compare prices charged in one or several specific user segments if there are indications that the excessive nature of the fees affects those segments.[76]

The ECJ concluded that only appreciable price deviations should qualify as an abuse.[77] The ECJ clarified that there is in fact no minimum threshold above which a rate must be regarded as "appreciably higher," given that the circumstances specific to each case are decisive in that regard; but that a difference between rates may qualify as "appreciable" if it is both "significant and persistent" in the market in question.[78]

72. *Id.* at ¶ 295.
73. *AKKA*, [2017] C-177/16, *supra* note 12, at ¶¶ 41, 44, 46, 55.
74. The ECJ describes in the LAA judgment that a comparison between the prices applied in the Member State concerned and those applied in other Member States must be made on a consistent basis (and cites judgments of 13 July 1989, *Tournier*, 395/87, EU: C:1989:319, ¶ 38, and of 13 July 1989, *Lucazeau and Others*, 110/88, 241/88 and 242/88, EU: C:1989:326, ¶ 25); *see AKKA*, [2017] C-177/16, *supra* note 12, at ¶¶ 41, 51.
75. *See AKKA*, [2017] C-177/16, *supra* note 12, at ¶ 46.
76. In doing so the ECJ cites the judgments of 13 July 1989, *Tournier* (395/87, EU: C:1989:319), and of 13 July 1989, *Lucazeau and Others* (110/88, 241/88 and 242/88, EU: C:1989:326), where the comparison related to fees collected in several Member States from discothèques with certain specific features, one of which was the surface area. *Id.* at ¶ 54.
77. *AKKA*, [2017] C-177/16, *supra* note 12, at ¶ 55; *Flynn Pharma Limited*, [2018] CAT 11, *supra* note 2, at ¶ 301.
78. *AKKA*, [2017] C-177/16, *supra* note 12, at ¶ 55.

2.1.3.2. Napp Pharmaceuticals. In NAPP Pharmaceuticals, the OFT considered a number of comparisons, of both margins and prices.[79]

In terms of margins, the OFT considered comparisons across products sold by Napp to the NHS. Specifically, the OFT found that Napp's gross profit margin on MST was over 80% and was, in particular, larger than Napp's gross profit margin on sales to the NHS of other products by 30% to 50%.

The OFT also compared Napp's gross profit margin to its rivals and found that it was larger than its most profitable competitor's gross margin (which was less than 70%).

Comparisons across competitors clearly require an understanding of whether a dominant firm's "excess" profits are due to greater efficiency or abusive pricing. One approach to such comparisons involves controlling for efficiency differences when making the comparisons. For example, an agency might attempt to estimate the allegedly dominant firm's margin using its prices but the costs of its most efficient competitor.

The OFT also made a number of price comparisons in the Napp investigation. In particular, it compared prices as follows:[80]

- **Over time:** The OFT compared prices in the community segment during and after patent expiry and asked whether Napp's price of MST in the community segment dropped after its patent expired. Both the OFT and the CAT found that it did not.[81]
- **Across competitors:** The OFT compared Napp's prices in the community segment with those of its competitors and found that Napp's prices were 30% to 50% higher.
- **Across customer segments:** The OFT also compared Napp's prices with those charged in other market segments. The OFT found that Napp's list price (less wholesale discount) in the community segment was on average over 1,400% higher than its price in the hospital segment of the market for 10 mg, 30 mg, 60 mg and 100 mg tablets (where Napp faces competition). In addition, the OFT found that Napp's prices in the community segment were over 500% higher than its prices for export on a contract manufacture basis (Napp faces competition in export markets).

The parties made submissions on the validity of these comparators, arguing in particular that the OFT should not have omitted the price of Morcap SR in its comparisons. The CAT agreed with OFT that it has a negligible market share and is not a relevant comparator.[82] The parties also argued that the OFT was not comparing like-for-like since exports were sold via contract manufacture, which is risk free, and does not carry marketing and promotion costs, but the Tribunal agreed with the OFT that such differences were unlikely to explain such large price difference.

79. The CAT noted in its Pfizer-Flynn judgment that in *Napp* it had endorsed an approach that considered whether the price was above that which would exist in a competitive market using a variety of approaches to establish that price (although neither the OFT nor the tribunal proceeded on the basis of a formal excessive and unfair limb analysis in that case). See *Flynn Pharma Limited*, [2018] CAT 1, *supra* note 2, 1 at ¶ 315.
80. NAPP Decision, *supra* note 28, at 55–60.
81. More precisely the finding was that, with two minor exceptions, Napp's price in the Community segment remained the same since the launch of MST.
82. Morcap SR is a competitor product launched by Sanofi Windthrop and containing morphine sulphate. The product was launched in 1996 in the UK. See *Sanofi Winthrop Launch Morcap In UK*, ThePharmaLetter, Sep. 30, 1996, https://www.thepharmaletter.com/article/sanofi-winthrop-launch-morcap-in-uk. However, the CAT described that Morcap SR was not actively promoted and had a negligible market share and noted that the parties' argument was not pursued in the appeal. See Napp Pharmaceutical Holdings Limited and Subsidiaries v. Director General of Fair Trading, Nos 1001/1/1/01, [2002], at ¶¶ 16, 394.

The OFT decision in Napp Pharmaceuticals, accepted by CAT, described that it considered as a matter of principle that a price is excessive for the purposes of the Chapter II prohibition (i.e., to the point of abuse) if[83]

- it is above that which would exist in a competitive market; *and*
- Where it is clear that high profits will not stimulate successful new entry within a reasonable period.

The CAT concluded that the OFT had met the test in the ECJ's United Brands judgment and also a higher hurdle than the OFT actually set itself, namely, that during the period of infringement:[84]

- Napp's prices in the community segment were significantly higher than would be expected in a competitive market; *and*
- That during the period of infringement, there was no significant competitive pressure to bring them [prices] down to competitive levels, nor was there likely to be over any reasonable timescale.

The CAT's focus in Napp on "significantly higher" prices sits comfortably alongside the ECJ's focus on appreciable price differences. And while different words are used, the CAT's focus on a lack of "significant competitive pressure" to bring prices down over "any reasonable timescale" would appear to meet the ECJ's subsequent requirement that prices must be "significantly and persistently" above benchmark price levels.[85]

2.1.4. An overall assessment is required to establish "excessiveness." In Pfizer-Flynn, the CAT decided that the CMA had been[86]

> wrong in law to adopt a cost plus methodology that produced a result that would have pertained in circumstance of perfect or, more accurately (for the purposes of the present case), idealised competition, rather than the "real world."

The CAT found in particular that the CMA had[87]

> on the whole avoided making comparisons with other products or companies and made little significant attempt, other than by invoking the price comparison over time, to place Pfizer's and Flynn's prices in their commercial context.

It is important to note that the CAT's critique does not reflect the CMA adopting a benchmark for pricing under an economic model of perfect competition, where economic theory suggests that prices in competitive markets will be equal to marginal cost. The CMA adopted a cost-plus approach that would be hard to critique as estimating marginal cost. Rather, the CAT's critique is broader, reflecting its conclusion that the CMA's cost-plus approach proceeded on the basis of theoretical or idealized competition.[88] Specifically, the CAT described that the CMA's expert witness, an accountant, accepted in cross-examination that the CMA's cost-plus approach "went no further than identifying the theoretical, from a finance theory perspective, economic profit, namely the return above which a

83. *Id.* at ¶ 391.
84. *Id.* at ¶ 403.
85. *AKKA*, [2017] C-177/16, *supra* note 12, at ¶ 55.
86. *Flynn Pharma Limited*, [2018] CAT 11, *supra* note 2, at ¶¶ 310, 318.
87. *Id.* at ¶¶ 310, 318.
88. *Id.* at ¶ 321.

company would enter a market and below which it would consider exit, without recognizing any gap between the two."[89] And that the benchmark was predicated on the idea that "competition would drive prices down to the level of return that just reflected the risk inherent in the supply of the product, at which point, it would just be profitable for a firm to enter or remain in the market."[90]

In contrast, Pfizer's expert economist had "put forward empirical evidence which sought to show that the CMA's cost plus benchmark did not capture the distinction between normal and excessive returns in competitive pharmaceutical markets."[91] Flynn's expert economist pointed out that under the CMA's approach, many of Flynn's other products would also be earning excessive returns.

One way to reconcile such empirical findings is to note that economics suggests that the marginal competitor in a given market should make zero economic profits, not that everyone in the industry necessarily should. Relatedly, economists have traditionally believed it is important that firms are allowed to earn "above normal returns" if an individual firm is a more efficient producer or has better products than rivals.

2.2. Second Limb of the UB Test: Assessing Unfairness

We now turn to the second stage of the UB test, which requires a determination of when prices are "unfair in themselves" (Alternative 1) or "unfair when compared to other competing products" (Alternative 2). The UB test emphasizes that a price that is excessive would be an abuse if the price "has no reasonable relation to the economic value of the product."[92]

In this section we discuss in turn

1. the assessment of economic value in past cases and
2. the role of comparators under the unfairness limb.

2.2.1. Assessment of economic value in past cases With regard to whether an excessive price is unfair, the CAT has somewhat vaguely held that[93]

> determining how far above "the economic value" a price has to be before it can be said to bear "no reasonable relation" to the economic value is a matter of judgment, having regard to the circumstances of the individual case.

In Pfizer-Flynn, the CAT summarizes its view that economic value is a legal concept but that the jurisprudence provides little specific guidance:[94]

> It is clear that the term "economic value" is a legal rather than an economic concept. However, there is rather little specific guidance in the jurisprudence as to what this term means, beyond a general idea that it is what the product is worth. It can include the cost of production but also other elements of value to the purchaser.

We discuss the interpretation of the term "economic value" below. We believe that, while as the CAT describes ultimately a legal concept in this context, the term can—and we submit should—be grounded by courts in notions of economic value consistent with conventional microeconomics.

89. *Id.* at ¶ 320.
90. *Id.* at ¶ 321.
91. *Id.* at ¶ 320.
92. *United Brands Company*, [1978] 27/76, *supra* note 14, at ¶ 250.
93. *Albion Water Limited*, [2008] CAT 31, *supra* note 36, at ¶ 260, cited at Phenytoin Sodium CMA Decision, [2016] CE/9742-13, *supra* note 21, at ¶ 5.340; *Albion Water Limited*, [2008] CAT 31, *supra* note 36, at ¶ 263, *cited at* Phenytoin Sodium CMA Decision, [2016] CE/9742-13, *supra* note 21, at ¶ 5.341.
94. *Flynn Pharma Limited*, [2018] CAT 11, *supra* note 2, at ¶ 407.

2.2.1.1. Scandlines. In *Scandlines*, the Commission pointed in part to the issue of economic value, stating,[95]

> The services provided by [the port] may not be superior in terms of quality or performance to ones provided elsewhere by other ports, but the fact that they are provided at this place allows both passengers and ferry-operators to cross . . . in an expeditious way, which is in itself valuable.

Moreover, as the CAT highlighted in In Pfizer-Flynn, the *Scandlines* decision states,[96]

> Moreover, the "cost-plus" approach suggested by Scandlines only takes into account the conditions of supply of the product/service. The determination of the economic value of the product/service should also take account of other non-cost related factors, especially as regards the demand-side aspects of the product/service concerned.

2.2.1.2. At The Races. The issue of economic value received further attention in a case involving a dispute between the British Horseracing Board (BHB) and At The Races Limited (ATR). *At The Races* involved allegations of excessive prices, discriminatory prices, and refusal to supply (in the context of bargaining between players at different levels of a vertical supply chain). The excessive pricing element of the case related to the price that could be charged for "pre-race data" from the horse racing industry.[97] In particular, the case considered the relationship between investments, pricing and economic valuation when applying the UB test for excessive pricing.

Applying the first element of the UB test, the courts noted that BHB earned a 300% profit margin on prerace data.[98] One of the authors of this article appeared as an expert for BHB in the High Court and argued that the effect of investments made more generally by BHB in the horse racing industry was relevant for assessing whether the prices paid for prerace data were excessive.[99] The idea that BHB's investment in racing generally would increase the economic value of the data became known as the "demand push" point.

Initially, Lord Justice Etherton in the High Court found that the "economic value" in the prerace data should be assessed without regard to the general costs of providing those aspects of British racing that made it an attractive subject matter for broadcast and betting. However, the point was overturned on appeal, with the UK Court of Appeal stating,[100]

> It is, on the evidence . . . a situation in which . . . profits are used for reinvestment in the product in order to maintain its long-term worth. . . . In our judgment, there is no reason why such reinvestment should not be relevant to the question whether pricing, while high, is in reality excessive.

95. Scandlines Sverige AB v. Port of Helsingborg, Nos COMP/A.36.568/D3 (2004), at ¶ 242, http://ec.europa.eu/competition/antitrust/cases/dec_docs/36568/36568_44_4.pdf.
96. *Id.* at ¶ 226.
97. BHB was administrator and the governing body of British racing. It has responsibility for formulating central policy and for the improvement, funding, and promotion of British racing. In particular, it issued the "Orders and Rules of Racing" that required pre-race data to be submitted to its subcontractor Weatherby's in advance of any race. ATR was a JV between Arena Leisure PLC and British Sky Broadcasting Group PLC. Prerace data includes the name and time of race, the course where the race will be run, the race distance, the criteria for entry to the race, the names of the horses to be entered and declared runners, their saddlecloth and stall numbers, their ages, weights, official ratings, jockeys' trainers' and owners' names. Attheraces Limited v. The British Horseracing Board Limited, Nos EWCA Civ 38 (2007), at ¶¶ 29, 33, 47, 48 (hereinafter "*Attheraces Limited*, EWCA Civ 38 (2007)").
98. *Id.* at ¶ 124.
99. Dr. Peter Davis.
100. *Attheraces Limited*, EWCA Civ 38, *supra* note 95, at ¶ 278.

The Court of Appeal rightly argued that this was true even though the particular prices at issue were those charged to international bookmakers for whom UK racing was potentially just a "filler" rather than a "must-have" product. This case showed that even if the customer is one with a relatively lower marginal valuation relative to some other customers, investments that affect the economic value they place on the service will be relevant to a competitive price benchmark even if others would place a greater valuation on such investments. For economists, the shift in customers' valuations from investments made will be reflected in the size and nature of the shift (or, more generally, move) in customers' demand curve.

The Court of Appeal decision in ATR also raises an interesting issue in relation to supply chains. Citing *Bronner*, the court makes clear that the overall context of Article 102 is important in an assessment of conduct and that[101]

> the law on abuse of dominance is about distortion of competition and safeguarding the interest of consumers in the relevant market. It is not a law against suppliers making "excessive profits" by selling their products to other producers at prices yielding more than a reasonable return on the cost of production.

Thus the court makes clear that the interests of consumers are an important litmus test, a test that fails if the alleged abuse of dominance involves behavior that affects the way in which a given profit is shared between vertically related firms but ultimately has little effect on consumers.

2.2.1.3. Pfizer Flynn. The notion of economic value was also considered by the CAT in *Pfizer-Flynn*. In particular, the CMA found that no non-cost-related factors would increase the economic value of products above costs. Indeed, the CMA argued that there were no patient or customer benefits since the excessive prices had an adverse effect on NHS, while the agreement between Pfizer and Flynn has not produced benefits for patients. In particular, the CMA pointed to the characteristics of the product, including its age and the fact that it was off patent, genericized, and had not been subject to any recent innovation.

In its appeal, Pfizer argued that the[102]

> CMA wrongly applied a purely supply-side approach . . . and ignores anything to do with the demand side, thereby erring in respect of the determination of the proper economic value of Pfizer's product. In particular the CMA ignored the economic value of phenytoin sodium reflected in its unique, or at least important, therapeutic benefits to patients.

The CAT found the CMA had not contested evidence provided by the defendants expert, and had in effect conceded that phenytoin remains a useful and effective treatment for a significant number of patients. That being so, the CAT found that the CMA's "outright rejection of any value at all to patients surprising."[103] It further noted that "the CMA seems to have placed some reliance on the age of the drug, which is irrelevant in therapeutic terms." The CAT concludes that "there is clearly some economic value to be derived from the therapeutic benefit to patients of phenytoin capsules"[104] and found that the CMAs decision[105]

> was defective in its treatment of the economic value that may be derived from patient benefit. Placing a precise monetary value on patient benefit is not straightforward but it appears to us that a qualitative assessment would be possible and should have been attempted by the CMA rather than simply assessing this value as nil.

101. Oscar Bronner GmbH & Co. KG v. Mediaprint Zeitungs- und Zeitschriftenverlag GmbH & Co. KG, Nos C-7/97 (1998); *Attheraces Limited*, EWCA Civ 38 (2007), *supra* note 95, at ¶ 119.
102. *Flynn Pharma Limited*, [2018] CAT 11, *supra* note 2, at ¶ 406.
103. *Id.* at ¶ 412.
104. *Id.* at ¶ 412.
105. *Id.* at ¶ 419.

2.2.2. Economists' definitions of economic value. While the construction and interpretation of economic evidence certainly involves judgment, economists have well-defined concepts related to economic value. Further, economic value can be related to both competitive and supracompetitive pricing. Such economic analyses form a significant part of the intellectual foundation for antitrust policy. In this section, we discuss these relationships and how they relate to the case law described above.

A central part of the economist toolbox is a long-standing framework for considering the difference between a consumer's valuation for a good or service and its price. In particular, the demand curve is central to the economic theory of price setting and describes the quantity that consumers will purchase at any given price. More specifically, the (aggregate) demand curve describes the maximum amount that potential customers would be willing to pay for each unit of a good; it describes customers' marginal economic valuations for each unit sold.[106] The difference between the price a customer must pay and the (economic) value a customer places on the good or service is described as "consumer surplus" for that unit. The total consumer surplus at any given price level can be calculated as the area above the price that is below the demand curve. The consumer surplus available to customers when the good is available at a price P_1 is shown in Figure 3. Thus, consumer surplus is exactly a measure of the economic value of the product to consumers *net* of the price paid for each unit.

Figure 3 also shows the producer surplus, the profits that a firm makes when selling the good. Producer surplus is a measure of the economic value of sales net of the costs of producing those sales. Ordinarily economists calculate the sum of consumer and producer surplus as a measure of the total value of economic activity in a single market. We note that this measure of economic value is net of costs.

Figure 4 illustrates the effect of an increase in consumers' valuations for each unit of a good, represented as a shift upwards and to the right in demand. In addition, the graph shows the industry supply curve for the good—the amount that firms in the industry will collectively be willing to supply at any given price. Importantly for the purposes of our discussion, the graph shows that when prices are determined by the intersection of supply and demand, an increase in consumers' valuations will be associated with an increase in price.

The graph also illustrates the limits to this argument. In particular, in a highly competitive industry, the supply curve will reflect the industry's costs of production (including an allowance for the cost of capital). Significantly, the higher demand associated with higher consumer valuation for the product will, in these circumstances, only support a higher price to the extent that it is required to sustain the economic costs of the additional supply.

While in highly competitive markets, the supply side will mean a role primarily for costs, in oligopolistic markets, prices at which firms offer to supply depend both on their cost structure and on the price sensitivity of their customer base. This introduces a second indirect route for consumer valuations to play a role in determining the competitive price benchmark.

Relatedly, in both economics and the case law, the relevant consumer valuations for pricing are not simply whatever price a product or service will fetch or which "the market will reasonably bear" since even monopolist's customers will include those who are prepared to pay more than the monopoly price.[107] In terms of the figure, the top-left portion of a demand curve represents consumers who value the good very highly but competitive prices are not determined by such high customer valuations.

106. To see why, consider the very first unit of a good sold. The demand curve reports the maximum amount that someone would be willing to pay for that first unit. The second unit is ordinarily found to be valued no more and perhaps less than the first (this is why we draw demand curves as downward sloping). The demand curve again reports the maximum amount someone would be willing to pay for that second unit. Continuing along the demand curve to the third and fourth units, in each case the demand curve describes the maximum amount that someone would be willing to pay for each unit. We call this maximum willingness to pay, the good's economic value. We note also that economists sometimes draw important distinctions between private and social values when studying market failure.

107. See *Attheraces Limited*, EWCA Civ 38 (2007), supra note 95, at ¶ 5.251.

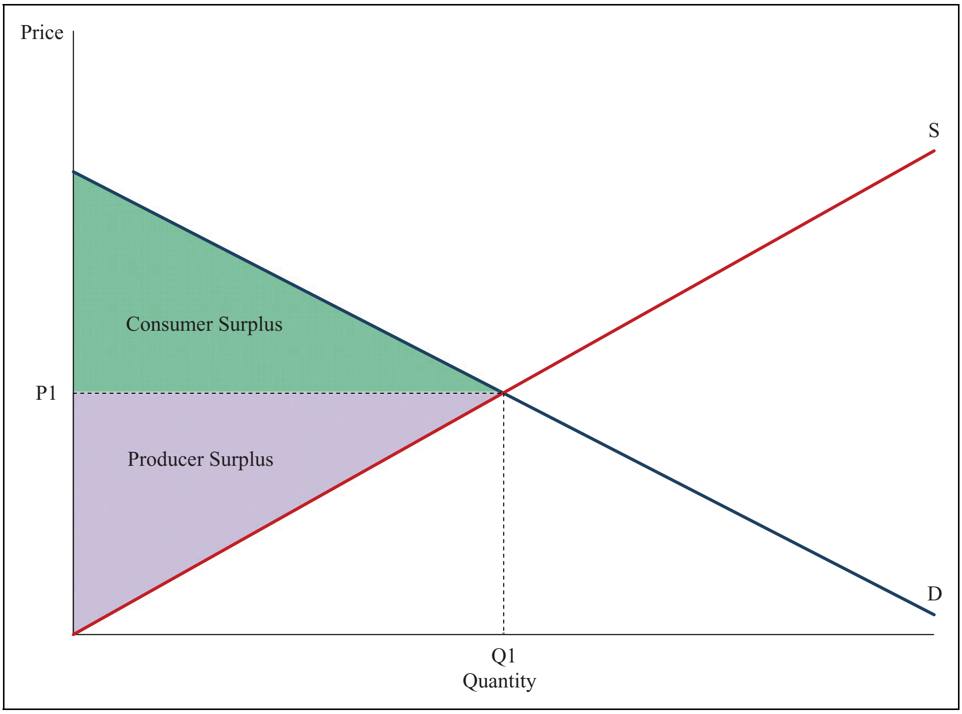

Figure 3. Consumer and producer surplus.

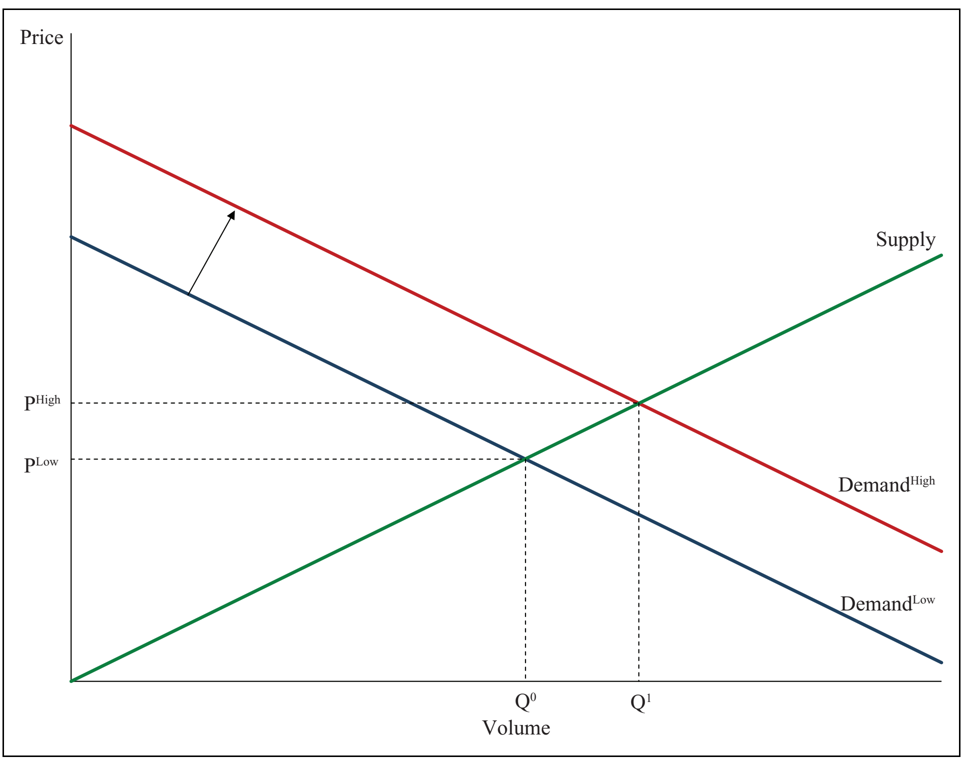

Figure 4. Demand, costs, and consumer valuations.

In summary, economists have a clear framework for considering notions of economic value. This is true in terms of both the demand and supply sides of the market. Specifically:

> Demand: The economic value of a product to customers is customers' maximum willingness to pay, and the net economic value to customers is consumer surplus.
> Supply: The economic value of a product to producers is profits (i.e., revenue less the costs), or more generally producer surplus.

Given this widely accepted microeconomic framework, it would seem unfortunate if the courts were not to use it to define the legal concept of economic value underpinning the UB test for the analysis of excessive and unfair prices. We describe how these concepts can be operationalized below.[108] However, before doing so, we first consider the role of comparators under the unfairness limb.

2.2.3. The role of comparators under the unfairness limb. As described above, the UB tests seemingly offers a choice between Alternative 1 and Alternative 2. Significant emphasis has recently been placed on the ECJ's use of "or" in its description of the second stage of the UB test:

> Has a price been imposed which is unfair in itself? **Or** unfair when compared to other competing products?

Most recently, the CMA in Pfizer-Flynn decided to focus its analysis on the first element of the second limb of the UB test, that is, whether a price has been imposed that is unfair in itself.[109] Specifically, the CMA argued the test required an evaluation of whether a price is unfair in itself or unfair when compared to other competing products, but argued that there was no need to establish both.[110]

The CAT in its Pfizer-Flynn judgment makes clear that a competition authority does not have complete discretion at the unfairness limb to choose between the two alternatives. It describes that[111]

> it cannot be right that an authority can simply ignore a prima facie valid argument that a price is fair under one Alternative and proceed to find an infringement of Article 102 solely on the basis of the other Alternative establishing that prices are unfair. That is not to say that the authority cannot find that there is an infringement where one Alternative demonstrates unfairness and the other does not since it does not need to succeed on both heads. However, the authority must consider whether a prima facie case of fairness under one Alternative undermines the basis of the finding of the Alternative and produce a reasoned basis for determining that the Unfair Limb is satisfied.
>
> This is necessary not only as a matter of logic but also in order to accord with the burden of proof and respect the presumption of innocence. It also . . . functions as a "sanity check." This is particularly the case in the context of highly imprecise tests such as "unfairness" which need to be applied within the wider, over-arching, principles of both Article 102 and United Brands.

108. *See also* Peter Davis & Eliana Garcés, Quantitative Techniques for Competition and Antitrust Analysis (2009).
109. The CMA argues that the UB test "is an alternative and not a cumulative test." See Phenytoin Sodium CMA Decision, [2016] CE/9742-13, *supra* note 21, at fn. 1003; Isabella Scippacercola v. Commission of the European Communities, Nos C-159/08 P (2009), at ¶ 47; *see also Albion Water Limited*, [2008] CAT 31, *supra* note 36, at ¶ 255, where the CAT also held that the test was alternative in nature.
110. The CMA amended its position during the hearing in Pfizer Flynn to say that the CMA would always examine good comparators at some stage of the analysis and would not ignore a relevant consideration. See *Flynn Pharma Limited*, [2018] CAT 11, *supra* note 2, at ¶ 365.
111. *Id.* at ¶¶ 367, 368.

In Pfizer-Flynn, it was common ground between the CMA and the parties that the words "competing products" in Alternative 2 of the unfairness limb did not mean products in the same relevant market for the purpose of competition law. The key question in this context was whether the comparison would be meaningful.

Comparators have been found able to play a useful role in various competition analyses (including for example in merger analysis and cartel damages cases). However, in this and other contexts, the construction and use of comparators are also known to require significant care. For example, if the costs for a comparator product were different from the product at issue, the price of the comparator would not provide a good indicator of the competitive benchmark during the potential infringement period. Lessons from the use of price comparators in merger and cartel analyses will need to be applied when considering comparators in unfair pricing cases. So far, price comparator analyses in unfair pricing cases have been simplistic compared to the more sophisticated approach sometimes taken in other types of competition cases. For example, in both merger and cartel contexts, when making price comparisons, economists regularly control for differences in observed prices across markets or time that are due to supply and demand drivers. Ordinarily such adjustments are undertaken using regression analyses.

2.2.3.1. Prices for tablets as a comparator. The parties in Pfizer-Flynn argued that they had used the tablet price as a comparator when setting prices and that a comparison between capsules and tablets was appropriate because both were clinically identical and sold on the domestic UK market to the DH. The DH had specifically intervened to fix the price of tablets in 2007, and it had remained at that level for five years (including in 2012 when Pfizer set its price).[112]

The CMA, for the sake of completeness, did consider whether to use the price of 100 mg phenytoin sodium tablets as a comparator for 100 mg phenytoin sodium capsules. The CMA argued tablets were not a meaningful comparator for various reasons including that tablet price was not cost-justified and the market power afforded by continuity of supply also being applicable to tablets meant that price competition between tablet suppliers was likely to be limited. The CMA argued that there may be no reasonable relation between the price of tablets and their economic value. The CMA also argued that tablet prices were not good comparators because, as shown in Figure 5, they "had increased very significantly between 2005 to 2007, had remained significantly above the historic price even after the voluntary price reduction made by Teva in 2008, and was at a level with which the DH was 'not happy.'"[113]

The CAT found that the "price increase brought about by Teva between 2005 to 2007 is a relevant factor, . . . [but] the price behaviour of tablets over time seems to us to be more relevant than the 2007 price for comparison purposes."[114] Further, tablet suppliers had entered the market since 2007, suggesting that competitive conditions had changed.

The CAT considered that while the CMA clearly gave some consideration to the suitability of tablets as a comparator, it was not clear that "it had done so in sufficient depth."[115] And that the phenytoin tablet as a meaningful comparator should not have been wholly rejected on the grounds relied on by the CMA. It argued there was enough material to make it pause to consider, at the very least, whether there was a prima facie case of fairness under Alternative 2.

2.2.3.2. Prices in other EU Member States as a comparator. The CMA also analyzed Pfizer's pricing conduct in other EU Member States in its assessment of "unfairness in itself" under the unfairness

112. In addition, Pfizer's expert economist submitted that in principle the tablet is a "beautiful comparator" on the grounds that it "does not interact competitively with the capsules," but "it is in other ways the same product." See *Id.* at ¶ 374.
113. *Id.* at ¶ 377.
114. *Id.* at ¶ 380.
115. *Id.* at ¶ 379.

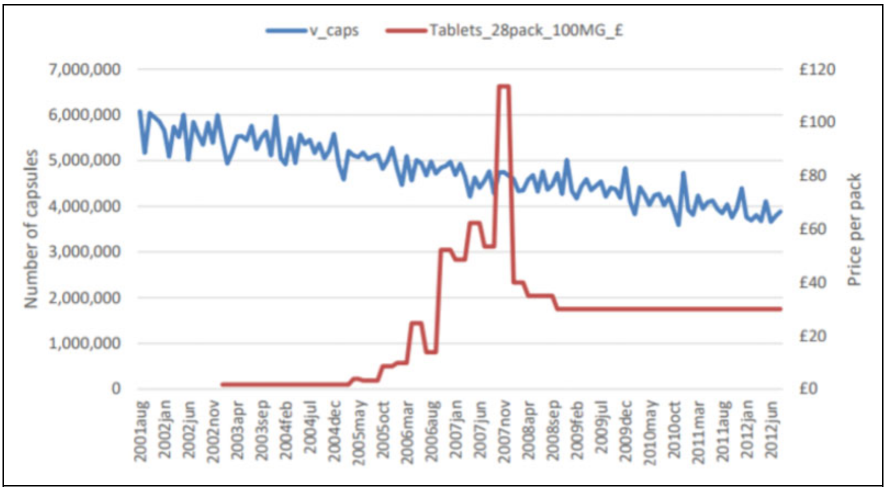

Figure 5. Historic changes in the drug tariff price of a 28 pack of 100 mg tablets and the total volume of sales of 100 mg capsules.
Source: Phenytoin Sodium CMA Decision, [2016] CE/9742-13 at Figure 4.7.

limb. The CMA found that the average price for Pfizer-manufactured phenytoin sodium capsules in other European countries was lower than £9 per 100 mg pack (for more detail see below), and that Pfizer confirmed that, with one exception, prices in other European countries were profitable. Such prices are clearly far below the UK price shown in the figure above.

However, the parties submitted that it was for the CMA to show why prices in other EU Member States were informative comparators and that it had not done so. The CAT cited the CMA's acceptance in its written closing submissions that "some caution must be exercised in comparting prices across jurisdictions"[116] and considered that prices across different EU Member States should not be compared without taking account of other relevant factors. In particular, the CAT noted that prices in other EU Member States may be kept low by governmental measures, or different economic or regulatory conditions. The CAT concluded that the CMA had not demonstrated that the prices of Pfizer-Flynn capsules were either excessive or unfair by references to price in other EU Member States (see Table 2).[117]

2.3. An Economist's Proposal to Help Structure Courts' Assessments Under Article 102

In this subsection, we propose an approach that would allow competition agencies and courts to use economic theory to structure their consideration of excessive pricing under Article 102. The approach we propose is consistent with both economics and the jurisprudence but necessarily still requires value judgment by the courts about where to draw the line between what is fair and unfair pricing by a dominant firm. However, if competition agencies and courts did take the approach we propose, we believe it would facilitate a structured consideration of the topic and may lead to some

116. *Id.* at ¶¶ 355, 402.

117. *Id.* at ¶ 402. I note also that the CAT concluded that the comparison with prices in other EU Member States is one of the "other ways" referred to in ¶ 253 of the UB decision for determining whether the price of a product is unfair. *Id.* at ¶ 299. However its primary consideration of these comparators at ¶ 402 is in terms of the questions defined in *United Brands Company*, [1978] 27/76, *supra* note 14, at ¶¶ 252–53.

Table 2. Cross–EU Member State Comparisons in Pfizer-Flynn.

Member State	Range of Average End Price (100 mg capsule) Post–September 2012
UK	£61.00–£70.99
Belgium	£6.00–£8.99
Greece	£3.00–£5.99
Ireland	£6.00–£8.99
Spain	£1.00–£2.99
Sweden	£6.00–£8.99

Source: Phenytoin Sodium CMA Decision, [2016] CE/9742-13 at Table 5.22.

potential for a coherent body of law to emerge in a manner which is consistent with conventional microeconomic analysis.

2.3.1. Economics of excessive pricing. Economic analysis provides us with a framework that distinguishes economically efficient pricing from economically inefficient pricing. In particular, economists have described that exploiting market power can lead to economic inefficiencies and net losses to the economy as a whole, because customers lose more than suppliers gain when suppliers exploit an undesirable degree of market power. This framework is primarily helpful in guiding the assessment of the excessiveness limb of the UB test. It asks whether the profits earned and prices charged by a dominant undertaking were above those that would have been charged in a normal and sufficiently competitive environment. In economic terms, the UB test requires the court to consider whether there is evidence, from cost-plus or price or margin comparisons, that prices are high relative to a benchmark of those that would be observed under conditions of normal and sufficiently effective competition:

$$\text{Price}^{\text{actual}} > \text{Price}^{\text{competition}},$$

while noting that the analogous comparison in terms of profitability may potentially be informative in our assessment of whether prices are excessive.

$$\text{Profitability}^{\text{actual}} > \text{Profitability}^{\text{competition}}.$$

The challenge with the latter profitability test is that it is potentially subject to a false negative result because of x-inefficiency[118] and a false-positive result when a dominant firm is economically efficient, perhaps because of scale.[119]

2.3.2. Economics and consumers' share of economic surplus. Economists tend to avoid discussions of economic policy in terms of fairness, partly because such a term is subjective and partly because of a long-standing (but some would say optimistic) belief that policy choices around a population's distribution of income were best made via the taxation and social security systems rather than through antitrust or industrial policy.

The assessment of unfairness under Article 102 is hard to motivate directly from economic theory since it inherently involves a value judgment. The ECJ's observation in UB, that economists have devised not just one but several ways to select the rules for determining whether the price of a product is unfair, is striking since many practicing economists would find it hard to describe a particular "rule" for defining unfairness. However, the ECJ is nonetheless right to say that, as a

118. *See* Massimo Motta, Competition Policy: Theory and Practice ch. 2.3.2.1 (2009).

119. Such a risk of false positive has motivated the use of "as efficient competitor" tests in some parts of competition law.

profession, economists could no doubt collectively describe any number of potential rules for determining whether a price is unfair. Even so the question the UB test instructs courts to ask—whether the price bears no reasonable relation to the economic value—can at least partially be structured using the foundations of economic theory.

Economic analysis allows us to describe the share of economic value, or in particular economic surplus, which accrues to customers at any given level of prices. In particular, economists can bring a structured and quantitative approach to the calculating the share of surplus going to customers by estimating the ratio of consumer surplus to the sum of producer surplus (i.e., profits) and consumer surplus:

$$\text{Share of surplus going to customers} = \text{s} = \frac{\text{Consumer Surplus}}{\text{Profits} + \text{Consumer Surplus}}.$$

where consumer surplus is the difference between the gross economic value of the product to consumers and the price they are charged, and the value of the share of surplus going to customers will depend on the relative scale of consumer surplus compared with profitability. The question of unfairness can then be posed by asking the court to consider either qualitatively or quantitatively whether the achieved consumer surplus is too small in relation to profits for the division of economic surpluses to be "fair."

Defining unfairness as the situation where a court considers that consumers share of the total net economic value (or surplus) is below a competition agency or court's threshold proportion required for fairness, denoted $\bar{\text{s}}$, amounts to considering whether

$$\frac{\text{Consumer Surplus}}{\text{Profits} + \text{Consumer Surplus}} < \bar{\text{s}},$$

or equivalently whether

$$\text{Consumer Surplus} < \left(\frac{\bar{\text{s}}}{1 - \bar{\text{s}}}\right)\text{Profits}.$$

For example, if the court considered that in its judgment it would be unfair if customers were getting less than 10% of the net economic value pie, then we could set $\bar{\text{s}} = 0.1$ and frame the court's consideration of fairness as asking whether the evidence as a whole were consistent with the proposition that Consumer Surplus $< \left(\frac{1}{9}\right)$Profits. Table 3 describes the relationship between various thresholds that a court might adopt and the implied test for unfairness.

The assessment of unfairness then amounts to considering whether, in the circumstances of the particular case under study, the ratio of customer surplus to producer surplus is such that the share of economic surplus or net economic value accruing to consumers is small enough to be, in the court's judgment, unfair. For a given threshold share, $\bar{\text{s}}$, consumer surplus and producer surplus should both be assessed on the basis of the dominant firm's actual conduct and experience and can be informed from data observed during the potentially infringing conduct period.

To illustrate further, we present the results of such a calculation based on a particularly simple economic model wherein consumers' demand is assumed linear and decreasing in price (see Table 4). With a constant unit cost of £1, idealized pricing under perfect competition would involve a price equal to £1 and consumers would benefit from a 100% share of surplus, that is, s = 100%. In contrast, under monopoly pricing where price would equal £5.50 in this example, s falls to 33%. It seems likely to be a comfortable conclusion for competition economists that, absent objective justifications assessed reasonably, a court should consider pure monopoly pricing (over a long period) unfair. Suppose now that the dominant firm charges a price short of monopoly pricing, say £4. In this example, the questions for the courts then become: (1) Is £4 above a "normal and sufficiently effective" pricing benchmark? and (2) Is a consumers' share of surplus of 50% so low as to be, in its judgment unfair—that is, are prices

Table 3. Implied Test for Unfairness Based on Threshold Shares.

Threshold Share Going to Consumers for Unfairness	Implied Test for Unfairness
1%	Consumer Surplus $< \left(\frac{1}{99}\right) *$Profits
10%	Consumer Surplus $< \left(\frac{1}{9}\right) *$Profits
20%	Consumer Surplus $< \left(\frac{1}{4}\right) *$Profits
50%	Consumer Surplus < 1 * *Profits*
75%	Consumer Surplus < 3 * *Profits*
90%	Consumer Surplus < 9 * *Profits*
99%	Consumer Surplus < 99 * *Profits*

Table 4. Illustrative Example: Linear Demand and Constant Unit Costs.

Price P	Volume Q = 10 – P	Consumer Surplus (10 – P) * Q/2	Profits (P – c) * Q	Consumer's Share of Surplus ($\bar{s}$)
1	9	40.5	0.0	100%
2	8	32.0	8.0	80%
3	7	24.5	14.0	64%
4	6	18.0	18.0	50%
5	5	12.5	20.0	38%
5.5	4.5	10.1	20.3	33%

This table provides illustrative results under the model where unit costs are constant and equal to 1 and sales volumes are determined according to the linear relation Q = 10 – P. Fixed costs are assumed equal to zero.

such that they have no reasonable relation to the economic value that would be achieved under "normal and sufficiently effective" pricing?

A significant question remains as to how and whether courts should define the threshold share, $\bar{s}$.[120] Under the "unfairness in itself" limb, a natural approach would be to consider, predict or qualitatively assess the proportion of (net) economic value that would accrue to customers under normal and sufficiently effective competition. The courts rightly emphasize that the benchmark should not be relative to perfect or idealized competition where economic profitability may even be zero so that consumer surplus would represent as much as 100% of the economic surplus.[121]

The test could also be applied to assess unfairness under Alternative 2 of the unfairness limb of UB by examining the share of value accruing to consumers in markets for suitably comparable products and services.

Importantly, we note that economists will sometimes be able to provide evidence that quantifies the required magnitudes to implement such a fairness test since economists have well-defined toolboxes

120. Strictly, it will not always be necessary to define the actual threshold share, as courts may be convinced that there is no reasonable relation between the price charged and the economic value of the product no matter the threshold adopted. Moreover, it is important to note that—consistent with the case law—such an assessment will necessarily be a matter of judgment for the courts.

121. Even under perfect competition, it need not be the case that every firm earns zero profits when, for example, each potential firm has a capacity constraint. Consider the canonical example of farmers in a valley selling into a global market for (say) wheat. Farmers whose land is down by the river may benefit from highly productive farms with high yields, while those up on the craggy mountainside may suffer from lower ones. Potential farmers whose yields would be so low as to make their unit costs below the market price would drop out of the market. While those farmers whose yields are higher so their unit costs are above the market price will make positive profits—and do so in differing degrees depending on their respective productivities.

for estimating consumer surplus and, often in conjunction with accounting colleagues, collating evidence on economic profitability. Even absent quantification from formal economic modelling, such a test can still be applied qualitatively by the courts.

Finally, we note that in *At The Races*, the Court of Appeal argued effectively that transfers between firms at different stages of the supply chain with no effect on end consumers should not trigger a finding of excessive pricing since there is no law against making excessive profits by selling "products to other producers at prices yielding more than a reasonable return on the cost of production."[122] Consistent with this case law, we note the test we propose is helpful in making clear that the proportion of surplus going to customers will not always depend on the magnitude of an upstream supplier's price. For example, upstream suppliers who increase prices may have downstream purchasers who absorb the increased cost, and if so, there may sometimes be no immediate effect on end customers. In such a situation, the share of value going to customers would not be reduced by the upstream dominant firm's pricing conduct.

2.3.3. Policy considerations. When courts reflect on the normative question of what should constitute unfair prices for the purpose of competition law interventions, we assume that it is uncontroversial that competition law should ideally embody a rational and coherent economic policy.

In the absence of a democratic mandate defining how to balance customer and shareholder returns to market activity, the approach economists have traditionally used when deciding upon coherent economic policy is to seek to avoid economically inefficient outcomes where one group can be made better off without making the other worse off. This approach sits comfortably with the excessive pricing limb of the UB test according to economic theory because of the potential economic inefficiencies associated with prices above competitive levels. Economists, however, have typically emphasized that courts need to be careful in taking such a standard too literally, since high profits and prices can provide the economic signal and incentive for new dynamic competitors to enter markets—to the benefit of customers in the longer term. Such policy considerations could be taken into account when courts consider their judgment about whether the prices charged are fair.

3. Conclusion

Economics provides a useful framework when applying the UB test for excessive pricing in a manner consistent with the case law. However, in practice there are many challenges to applying the UB test convincingly. In order to provide a consistent framework across cases so that companies can self-assess, it would clearly be helpful to have more guidance from the authorities describing the approach that should be taken in relation to a range of topics, including

- the assessment of a suitable counterfactual based on a benchmark of normal and sufficiently effective competition;
- the assessment of costs, and in particular how agencies will account for fixed and sunk costs, as well as the treatment of cost items shared across multiple products;
- the agencies' approach to the assessment of economic value; and
- agencies' assessment of policy considerations, which may also be taken into account in prioritizing cases or assessing unfairness.

While the jurisprudence currently emphasizes the need for courts to exercise "judgment" and to undertake "fact-specific" inquiry, we believe that the approach we propose is a sensible, practicable, and economically coherent approach to assessment of these cases that can at least help courts sensibly

122. *Attheraces Limited*, EWCA Civ 38 (2007), supra note 95, at ¶ 119.

structure their judgments in these matters. Ultimately, both the economics and legal profession can agree that courts will need to exercise judgment if they must decide where to draw the line between prices that are fair for a dominant firm to charge and those that are not.

Authors' Note

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