

Agenda

Advancing economics in business

Pass-on in regulated industries: what's in the RAB?

The number of cartel findings across Europe in markets that provide inputs (e.g. power transformers, plastic pipes and cement) to regulated industries is on the increase, as is the number of cartel damages claims brought by regulated companies. How does economic regulation affect pass-on? Are there situations where, despite incentive regulation, pass-on is more than zero?

'Pass-on' refers to the ability of firms to recover (part of) an increase in input costs by raising their own prices. The pass-on of a cartel overcharge in industries without a specific sector regulator has been debated extensively since Oxera produced a study for the European Commission on quantifying damages, and the Commission subsequently published its guidance for courts.¹ In such cases the methods for assessing pass-on are relatively well understood, although they have not yet been widely tested in European courts. For example, in theory, if a cartelised input is used by all companies operating in a highly competitive industry, the pass-on rate of the damages is likely to be high (possibly even 100%). This is because firms in a highly competitive market make low margins. So, when faced with a cost increase, they have little choice but to pass it on to their customers; otherwise, faced with a cost shock, they would be likely to make a loss. At the other end of the spectrum, economic models imply that a monopolist will pass on around 50% of any increase in costs.²

On the other hand, the issues surrounding pass-on in regulated settings have not been discussed as widely, although they have become, and are increasingly expected to be, a crucial aspect in many damages cases. This is in light of the Commission's finding of a number of cartels in the supply of inputs to regulated companies—such as the 16-year-long cartel in the supply of gas insulated switchgear, which electricity transmission and distribution companies use to control the flow of electricity in their networks.³ Following the Commission's finding, utility companies across Europe, including National Grid, EnBW, TenneT and EDF, have been pursuing follow-on claims for damages against the cartel members.⁴

These regulated utilities might also have been affected by the power transformer⁵ and power cables cartels,⁶ and damages claims have also been brought in UK courts against some of

these suppliers.⁷ In addition, the Commission is investigating possible cartel infringements in the supply of plastic pipes⁸ and cement,⁹ which may have affected regulated industries such as water and airports.

This article discusses how economic incentive regulation—in particular, the regulatory price control—affects the extent of pass-on of any cartel overcharge. The aim of economic regulation is to make an industry with a monopolistic market structure, for example, behave like a competitive industry. As noted, this would theoretically imply pass-on rates close to 100%. But reality is not that simple, and the regulatory dimension makes pass-on analysis more complex.

Back to basics on economic regulation

The rationale for economic regulation is rooted in addressing market failures such as those arising from natural monopolies or externalities. Economic regulation can take several forms, each of which has different implications for how the costs of a regulated company affect the revenues it is allowed to earn ('allowed revenues') through the prices it charges its customers:

- at one end of the spectrum is **rate of return (or cost-plus) regulation**, where allowed revenues are set, often on an annual basis, so as to recover the costs of running the regulated business plus a reasonable rate of return. Under such a regulatory model, pass-on of the cartel overcharge may be high—potentially even 100%;
- at the other end of the spectrum is **'pure' price cap regulation**, where prices are fixed for a number of years and are usually not allowed to be adjusted for short-term changes in costs. In such a model, prices are de-linked from short-term cost movements, and

pass-on may be low or even zero, at least for the duration of the price control period.

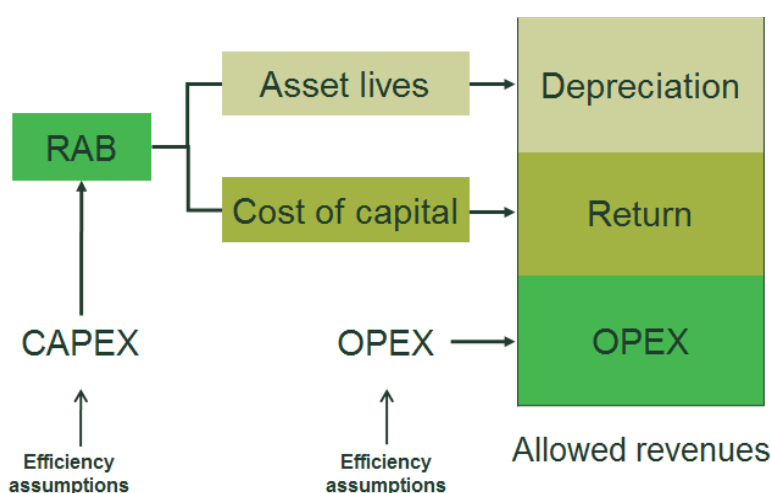
Variations of incentive regulation between these two points, in which regulators ‘fix’ allowed revenues in advance for a pre-specified period of time, are used in a number of European countries. Although their precise implementation varies between jurisdictions, the economic principles can be explained with reference to the ‘building blocks’ model of regulation. This model seeks to allow a regulated company to earn sufficient revenues to recover the expected efficient costs that it incurs in providing the regulated services. As such, the allowed revenues should be in line with those the company would be expected to earn in a competitive market.

The allowed revenues for a particular year are determined by that year’s building blocks, as shown in Figure 1.

The building blocks are usually determined for a number of years ahead (defined by the regulatory period) and comprise all the costs that an efficiently run company¹⁰ is expected to incur—namely:

- OPEX, which represents the day-to-day expenses of running the business;
- depreciation, which covers annual expenses that are calculated so as to spread investments or CAPEX over their useful asset life;
- return, as the company also incurs the costs of financing the asset base (i.e. paying a ‘fair’ return to the debt and equity holders). This represents the opportunity cost of investing the money into this network rather than somewhere else, and is measured by the cost of capital.¹¹

Figure 1 Building blocks of allowed revenues for a particular year



Note: RAB, regulatory asset base. OPEX, operating expenditure. CAPEX, capital expenditure.

Source: Oxera.

The annual allowed revenues are the sum of the building blocks for a particular year.¹²

While OPEX (and taxes, if they are not included in the cost of capital) is a ‘pay-as-you-go’ item (i.e. all efficiently incurred OPEX in a particular year enters directly into that year’s revenue allowance), the calculations of CAPEX and the return on capital require a ‘detour’ via the RAB—an accounting device that represents the cumulative historical investment made into the company, net of cash recovered from regulatory depreciation.¹³

The reason for the detour through the RAB for CAPEX is the lumpy nature of investments. As in standard accounting, CAPEX is depreciated over time (over the life of the asset, which, ideally, should equal the asset’s economic life), so that the costs are spread across the years when the asset is used, rather than paid immediately in full.

Finally, as discussed above, the return on capital compensates the investor for the opportunity cost of funding the employed assets. That is, the owner of the regulated asset needs to earn enough to pay the holders of efficiently raised debt, and should also be allowed to earn a return on equity that is commensurate with the risk of their stake in the company. This is usually done by estimating the WACC and multiplying it by the value of the RAB.

What does this mean for pass-on in a damages claim?

Any overcharge by a cartel would be reflected in higher OPEX or CAPEX for the regulated company, and the regulatory framework directly affects how this cost is reflected in the additional allowed revenue of the regulated company claiming damages against the cartel. This article focuses on CAPEX, since the types of product that regulated firms have purchased which have been cartelised, or are under investigation, have usually been capital assets (such as plastic pipes, as part of an investment in gas or water network replacement).

In a regulatory framework based on the building blocks model (or its variants), two questions need to be answered when assessing pass-on of any overcharge:

- how the initial RAB is set, if its determination occurred during the cartel period;
- how the regulator treated the cost of buying the cartelised products once the RAB had been established.

How the RAB is set

Many regulatory regimes either did not have a RAB when they were first set up, or the regulatory regime itself came into existence only part-way through the cartel period.

The former is the case in UK electricity regulation—the electricity companies were privatised in 1990, but no formal

RAB was established until the mid- to late 1990s. German electricity regulation, on the other hand, is an example of the latter. In Germany, the regimes prior to liberalisation of the electricity and gas markets in 1998 and 2004, respectively, were already cost-plus regulation featuring a RAB derived from the recorded historical cost accounting values. A formal RPI - X regulatory incentive regime has been in place since 2009. Therefore, for most of the various cartel periods, the cartelised assets were part of a formal RAB. However, each regulatory regime had its own asset recording and accounting practices that allowed for adjustments, time lags and disallowances, and featured rules for revaluation, asset book entry, assets under construction, the use of planned values, etc. For this reason there is not a perfect link between the cartelised asset values and the RAB, even in the presence of a formal RAB. Understanding the link is crucial, and requires detailed knowledge of all the regulatory regimes that prevailed in each year over the whole regulatory asset lives of up to 60 years.

Where the initial RAB of the regulated company was set during the cartel period, the way in which the RAB was determined can cause a de-linking of the asset base. For example, if the value of the opening RAB was set with reference to the company's stock market valuation, not its historical CAPEX, this implies that the pre-RAB expenditure, which may be affected by the cartel, is not necessarily linked to the post-RAB prices. In other words, even in a counterfactual scenario without the cartel, the initial RAB, and therefore the prices and allowed revenues, would have been the same as in the factual situation. This would imply a limited pass-on of any increase in CAPEX due to the cartel.

Once the RAB has been established

For CAPEX, only a fraction of the overcharge may have been passed on into the allowed revenues in the year in which it was incurred—namely, the depreciation allowance. Assuming (for simplicity) that any overcharge is fully reflected in the CAPEX allowance given by the regulator, this overcharge will be 'passed on' over the entire life of the asset. This assumption needs to be tested on a case-by-case basis for each procurement of a cartelised asset included in a damages claim.

Although the focus of this article is on CAPEX, it is useful to highlight how differently CAPEX and OPEX are treated. The box illustrates the difference in the mechanics of how any overcharge feeds into the allowed revenues, depending on whether it is treated as an OPEX or a CAPEX item.

The fact that pass-on of the overcharge of CAPEX items occurs over the entire life of the affected assets has important implications. Asset lives of products affected by cartels are typically quite long—for example, 25–45 years. Thus a large proportion of any overcharge can be retained within the RAB, and pass-on may (or may not) occur in the future. For example, an overcharge in the year 2000 on a 40-year depreciation profile will have 63% of the value still remaining in the RAB by 2015.¹⁴

The mechanics of pass-on of OPEX and CAPEX overcharges

As an example, assume that a company is subject to a cartel overcharge of 100.

The annual revenue allowance for the company (shown in the table below) is assumed to have zero initial RAB, zero CAPEX, and zero OPEX—apart from one OPEX expense of 100 in period 1, which represents the overcharge. The WACC is assumed to be 10% (although this is not important for the example). It is also assumed that all values are in real terms (so inflation can be ignored).

Allowed revenues of an OPEX overcharge

Year	1	2	3	4	5	6	7	8	9	10
OPEX	100	0	0	0	0	0	0	0	0	0
Depreciation	0	0	0	0	0	0	0	0	0	0
Return	0	0	0	0	0	0	0	0	0	0
Allowed revenue	100	0	0	0	0	0	0	0	0	0
CAPEX	0	0	0	0	0	0	0	0	0	0

Source: Oxera analysis.

The table below now depicts the same situation, except that the overcharge is a CAPEX rather than an OPEX item. It can be seen that, in year 1, only 20 instead of the full amount of 100 is passed through to the allowed revenue of that year. This is because the expense of 100 is spread evenly over the asset life of ten years, leading to a depreciation charge of 10 in each year.

In addition, since the CAPEX of 100 increases the RAB from zero to 100 in year 1, the company earns a return on the capital employed. This return is equivalent to the WACC and is assumed to be 10%. Therefore, the return in year 1 is 10% x 100. In year 2, the RAB is 100 minus the depreciation of 10, so the return is 10% x 90, and so on.

Allowed revenues of a CAPEX overcharge

Year	1	2	3	4	5	6	7	8	9	10
OPEX	0	0	0	0	0	0	0	0	0	0
Depreciation	10	10	10	10	10	10	10	10	10	10
Return	10	9	8	7	6	5	4	3	2	1
Allowed revenue	20	19	18	17	16	15	14	13	12	11
CAPEX	100	0	0	0	0	0	0	0	0	0

Source: Oxera analysis.

By the design of the regulatory framework, the net present values of the allowed revenues in the two tables are the same. What differs is the timing of the cash flows, which matters for the following reason. Suppose the cartel is discovered in year 5. If the overcharge is an OPEX item then the whole overcharge would have been passed on in full by the time the cartel is discovered (since there is only one overcharge of 100 in year 1). If it were a CAPEX item, only 50% would have been passed on by the time the cartel was discovered. The rest would still be in the RAB of the regulated company.

Source: Oxera analysis.

However, because allowed revenues are set before companies incur the actual costs of providing the regulated services, regulators need to arrive at a view of the likely efficient costs over the regulatory period. This can be done by forecasting the likely cost (which is the approach taken by Ofgem, the energy regulator for Great Britain) or by reverting to the cost observed in a 'base year' (the approach taken by the German energy regulator, BNetzA).

In these cases, the degree of pass-on crucially depends on the accuracy of the CAPEX forecasts submitted by the company to the regulator, and the changes the regulator subsequently made to them. In other words, the degree of pass-on depends on whether the cartel overcharge is 'baked into' the CAPEX forecasts that feed into the depreciation allowance by the regulator.

Depending on the timing of the overcharge (i.e. whether or not it occurred during the 'base year') or whether the overcharge is captured in the regulator's forecast, the company could be under-compensated for its investment in the allowed revenues—i.e. it could have absorbed a larger portion of the overcharge. This can occur where the overcharge was incurred soon after the RAB was frozen, because in this case the company would not earn the annual depreciation allowances or the return on the investment until the start of the next regulatory period. While this effect works in favour of the company once the overcharge CAPEX is recognised in the RAB, the net effect can still be negative.

If none of the overcharge is reflected in the regulatory allowance, the company is likely to have absorbed at

least some of it. The extent of this absorption depends on the regulatory incentive rate—i.e. the exposure that the regulated company will face if actual CAPEX differs from the regulator's allowance. For example, if the regulated company incurred an overcharge of £1m and the incentive rate were 25%,¹⁵ the company would absorb £0.25m and pass on £0.75m over the lifetime of the assets.

Concluding remarks

In damages actions brought by companies without a specific sector regulator, the extent to which any cartel overcharge has been passed on often depends on the competitiveness of the market. In contrast, in damages actions brought by companies that are subject to economic regulation, the extent to which any cartel overcharge has been passed on will depend on the features of the regulatory framework.

Although the aim of regulators is to allow companies to recover their efficiently incurred costs of providing the regulated services, and thus to some extent mimic the conditions of a competitive market, this does not necessarily imply that pass-on rates are high. This article has shown that there are several instances where incentive regulation leads to a de-linking of prices from costs, two of which are the RAB setting and imperfect forecasting. The assessment of pass-on in these cases requires detailed analysis of the regulatory treatment of each purchase included in the claim, and the extent of this pass-on may differ from purchase to purchase.

¹ Oxera and a multi-jurisdictional team of lawyers led by Dr Assimakis Komninos (2009), 'Quantifying antitrust damages: towards non-binding guidance for courts', study prepared for the European Commission Directorate General for Competition, December, available at: <http://www.oxera.com/Latest-Thinking/Publications/Reports/2010/Quantifying-antitrust-damages-Towards-non-binding.aspx>. European Commission (2013), 'Practical guide: quantifying harm in actions for damages based on breaches of Article 101 or 102 of the Treaty on the Functioning of the European Union', Commission staff working document, SWD(2013) 2015, 11 June, available at: http://ec.europa.eu/competition/antitrust/actionsdamages/quantification_guide_en.pdf.

² This holds under certain assumptions (linear demand function and constant marginal costs). See Niels, G., Jenkins, H. and Kavanagh, J. (2011), *Economics for Competition Lawyers*, Oxford University Press, p. 555.

³ European Commission (2007), 'Commission Decision of 24th January 2007 relating to a proceeding under Article 81 of the EC Treaty and Article 53 of the EEA Agreement; Case COMP/F/38.899 – Gas Insulated Switchgear'.

⁴ MLex (2008), 'National Grid seeks GBP100m damages from switchgear cartel in English court', 10 December. MLex (2008), 'EnBW takes EC to court over refusal to supply switchgear cartel info', 9 September. MLex (2011), 'TenneT seeks redress from switchgear cartel in Netherlands', 31 January. MLex (2010), 'EDF lodges damage claim against switchgear cartel in UK', 11 June. Oxera advised National Grid in its claim against the members of the cartel.

⁵ European Commission (2009), 'Antitrust: Commission fines producers of power transformers € 67.6 million for market sharing cartel', press release, IP/09/1432, 7 October.

⁶ European Commission (2014), 'Antitrust: Commission fines producers of high voltage power cables € 302 million for operating a cartel', press release, IP/14/358, 2 April.

⁷ MLex (2015), 'ABB, NKT, Prysmian face cable-cartel damage claims before UK court', 30 January.

⁸ European Commission (2012), 'Antitrust: Commission confirms unannounced inspections in the sector of plastic pipes and plastic pipe fittings used in the sewage industry', Memo/12/549, 11 July.

⁹ European Commission (2010), 'Antitrust: Commission opens antitrust proceedings against a number of cement manufacturers', press release, IP/10/1696, 10 December.

¹⁰ In practice, 'efficiently run' means that the company submits projections of its future CAPEX and OPEX requirements to the regulator, which then, having scrutinised the plans, imposes efficiency assumptions on the projected costs based on the outcome of an efficiency benchmarking exercise. The CAPEX and OPEX requirements, after taking into account the efficiency assumptions plus a 'fair' return, represent the costs of an efficiently run company.

¹¹ Tax is another cost that a regulated company incurs which needs to be accounted for in the allowed revenues. This can be done in one of two ways: estimate tax expenses separately and add them as a fourth building block; or, as is implicitly done in Figure 1, take taxes into account in the calculation of the allowed return (the 'Return' building block in Figure 1) by calculating the cost of capital as the pre-tax weighted average cost of capital (WACC) instead of the vanilla WACC. See Oxera (2005), 'Which WACC when? A cost of capital puzzle', *Agenda*, September, available at: <http://www.oxera.com/Latest-Thinking/Agenda/2005/Which-WACC-when-A-cost-of-capital-puzzle.aspx>.

¹² Technically, the revenue allowance is the sum of the net present values of the building blocks over the entire regulatory period. Abstracting from the timing of cash flows, it is more intuitive to think about it as an annual allowance.

¹³ See Oxera (2014), 'The regulatory asset base and regulatory commitment', *Agenda*, February, available at: <http://www.oxera.com/Latest-Thinking/Agenda/2014/The-regulatory-asset-base-and-regulatory-commitmen.aspx>.

¹⁴ With an asset life of 40 years and straight-line depreciation, for each year of the asset life the depreciation charge will be 1/40 of the CAPEX amount. If the asset was bought in 2000, the remaining asset life in 2015 will be 25 years. Therefore, 25/40 or 63% of the asset value will still be in the RAB as of 2015.

¹⁵ A 'capital incentive rate' of 25% is broadly consistent with the average incentive rate faced by UK electricity transmission companies. See Ofgem (2006), 'Transmission price control review: Final proposal', 4 December, para. 7.4.