Do we need any more periodic reviews?

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As the regulators and the utilities gear themselves up for the next round of periodic reviews around 2020, one question which is rarely considered is: *do we need any more periodic reviews*? Most regulatory regimes around the world don't have them, and it has become increasingly apparent that 5 (or even 8 year) fixed price regulatory contracts are crude and can distort decisions in long-term core infrastructure systems. After 30 years British experience, now is the right time to reconsider their role and how the regulatory regime might be rebased to provide a stable framework for the next decades.

But before we throw periodic reviews out, it is worth first setting out their merits and demerits, and the underlying rationale for this approach. Why were they established in the first place? What are the fundamental flaws in the existing regime?

Origins of periods

The (accidental) origin of the periodic reviews goes back to BT's privatisation in 1984. The central idea behind what became known as RPI-X regulation was set out by Michael Beesley and Steven Littlechild, and it was deceptively simple. Regulation was, they argued, a very poor alternative to competitive markets. The task of regulators was to drive competition right into the core of the state monopolies, and whilst this process was progressing, there would need to be a temporary holding price cap. In the case of BT, it was assumed this would wither away after the initial 7 years.

The price cap should, it was argued, replicate what would happen in a competitive market, where firms are assumed to be price takers. Hence the price should be externally fixed, and as a result the firms would do what they would have done in a competitive market: maximise profits by minimising costs. To the extent that there needed to be subsequent resettings of this price, it would be based upon the costs the regulated companies had revealed through their minimisation efforts in the previous period. In other words, the prices would be rebased to transfer the benefits to customers after the lag of the period just completed. Companies could make super-normal profits *within* the periods by responding to the incentives, but not *between* them.

This was described as a high-power incentives regime. And indeed it was: it created very powerful incentives to drive down costs. The trouble is that it also provided powerful incentives to game the regulators, and in particular to play games with the asymmetrical information. It encouraged a massive exercise in financial engineering. Put simply the regulated companies had every incentive to gear up their balance sheets, strip out the cash and pay this out to shareholders in dividends, special dividends and share buy backs. And many did.

This gaming and financial engineering continues to this day, though the low hanging shareholder fruit has been comprehensively picked. Regulators have played catch up, and in the process a very different regulatory regime has gradually evolved. Regulators built into the deceptively simple initial framework all sorts of architecture. They set the cost of capital, established regulatory asset bases, engaged in detailed examinations of the costs, and then started in some cases to build in *ex post* clawbacks and add new unfunded within-period obligations. Today's periodic reviews are massive regulatory undertakings compared with the simple and simplistic initial price caps. They have become an industry for regulators, consultants and company regulatory departments.

Two fundamental flaws

At the heart of the evolution of this British regulatory regime lie two fundamental flaws in the original model. The first is that no competitive market works on the basis of *ex ante* 5 year fixed price contracts. Contrary to the architects of the periodic review approach, this is not what happens in competitive markets. On the contrary, in a competitive market prices are continuously adjusting to reflect changes in both preferences (and demand) and technologies (and costs of supply). In a perfectly competitive textbook model, these are the only two exogenous parameters – preferences and technology – and these determine the equilibrium price and costs. There are no transaction costs.

The second fundamental flaw is with the idea that the business decisions of the utilities can be broken down into neat 5-year chunks. Whilst there needs to be continuous monitoring, appraisal and decision making by the businesses, the important feature of utilities is that they are *systems* with very long term time horizons for their investments and asset lives. Whilst the capital stock of many manufacturing companies may turn over every 5 to 10 years, the utilities are at the extreme end of the time line. They are the one area of the economy where 5 years periods are the least appropriate. By setting fixed price contracts, utilities end up behaving like contractors rather than as stewards of the assets. Key aspects of management decision-making are effectively transferred to the regulators.

There is much else to criticise in the way the regulatory regime has worked out over the last 30 years. Interestingly many of these follow from these two fundamental flaws. These include: the fixing of a weighted average cost of capital over the five years, allowing windfall profits as interest rates have regularly fallen within the periods by more than the regulators' *ex ante* assumptions; the concerns about asset quality and maintenance, as short term cost reductions within periods can undermine the longer term asset quality if not properly maintained; the incentives to game between OPEX and CAPEX within period; and so on.

In every case, regulators have lagged the companies in catching up on the distortions created. The result is that at each periodic review new mechanisms are added, and as these in turn have unintended consequences (as they always do) more sticking plasters have had to be applied.

The gradual crumbling away of the periodic reviews

Without consciously setting out to do so, regulators have been moving away from the fixed period approach in a series of incremental steps, so that as the next round of periodic reviews come up, they have already been hollowed out. These incremental steps have effectively undermined the original rationale – and therefore their justification.

As regulators started to put flesh on the bones of the simple periodic skeleton, there were two financial numbers that had to be fixed as part of the periodic review process – the regulatory asset base (RAB) and the cost of capital – just as they had to be fixed in rate of return regulation.

The RAB is an accounting number representing the monies sunk in the utilities by the investors. It is essential that this number is defined and honoured, as the utilities are the prime example of the time inconsistency problem. The average costs are much higher than the marginal costs and investors will not support these industries unless there is an *ex ante* guarantee that they will not be expropriated *ex post* by a regulator who drives the price down towards the marginal costs.

There had to be an opening RAB and, as investors put more money into the businesses largely by retained earnings, debt or equity, the RAB has to be updated by the efficient capital expenditure (CAPEX).

There is one further complication, and that is whether the assets are to be provided in perpetuity (or the services which rely upon these assets), or whether they are depreciated and hence the investors are gradually repaid. In the former case, accounting is based upon current cost, and capital maintenance is required.

In the latter, there is no requirement in perpetuity and hence accounting is historic cost.

The second financial building block at periodic reviews is the cost of capital. There needs to be established a cost of debt, a cost of equity and the gearing. Unfortunately early regulators set a weighted *average* cost of capital (WACC) without paying attention to the capital structure of the companies. The result was to create the conditions for the massive financial engineering referred to above. The balance sheets of many of the regulated companies were in consequence geared up as shareholders exploited the arbitrage opportunity between the lower cost of debt and the higher cost of equity. As a result, balance sheets, which were intended to be used for real physical capital investment, were instead used to strip out cash for shareholders – all under the noses of the regulators.

In addition to this (massive) mistake, the regulators sought to set the cost of debt and equity for the full period *ex ante*, and it turned out that they were very bad at predicting interest rates and hence the regulators got the cost of debt wrong for every period since 1990, when the structural shift downwards in interest rates began. This difference between the actual and assumed coat of debt turned out to be a (indeed arguably the) major source of outperformance by the companies for the last quarter of a century.

Playing catch up, regulators started to index the cost of debt to the market rates, and so along with the RAB provided a permanent financial structure largely independent of the periodic reviews. As long as the cost of equity does not need adjustment, the RAB and the cost of debt are permanently revised by respectively the new efficient CAPEX and the index. Nothing is then in principle left to do in periodic reviews on this financial front.

This leaves the determination of operating costs (OPEX) and capital expenditure (CAPEX). On OPEX, there is long run data on what firms in the economy generally achieve in efficiency terms. In the early regulatory days, this was assumed to be about RPI-2, on the assumption that 2% was the economy wide productivity growth rate. This rate has declined over time in some sectors, though there may be good reasons for expecting greater productivity gains in network utilities because of the opportunities to apply information technologies to systems. But compared with the hopeless task of detailed regulatory forward estimates, 2% is not a bad number.

On CAPEX, the periodic approach has always been inappropriate for the time horizons of the businesses. The assets have, as noted, long life times and there are some big upgrades and additions. Creating a 5-year CAPEX budget encourages companies to flex projects to maximise 5-year profits. It is slightly better than the public sector 3-year budgeting, but not much. If the utilities get 5-year contracts, then they will behave accordingly as contractors. It takes time to notice the longer-term impacts when focussing on short-term profits.

Capital maintenance lies between OPEX and CAPEX and again, as in the public sector, it is possible to flex this without the asset quality deterioration becoming apparent for some time to come. Regulators do not have either perfect information about asset quality or the resources to monitor it comprehensively. That is the job of management, and periodic regulation unambiguously skews the incentives.

As a result regulators have again played catch up, developing mechanisms and agreements to try to ameliorate the short-term incentives. These include: “logging up” procedures; interim determinations to allow for extra CAPEX; special big project contracts; and “promises” and “understandings” about the treatment of CAPEX in future periodic reviews.

The result of these multiple complexities introduced into the periodic reviews is that the regulatory framework has evolved to look more and more like rate of return regulation, but without the stability that rate of return regulation has. So the question is whether British regulation can keep its incentive qualities *and* provide a long-term stable framework.

Doing away with the periodic reviews

It has been argued that the nationalised industries had become inefficient and after privatisation a period of high-powered incentives was necessary to improve their performance. But 30 years later, this argument is much weaker, and we have identified multiple failures with the 5-year periodic approach. Could we now simply abandon periodic reviews entirely?

This is surprisingly quite easy to do – because most of the necessary building blocks are already in place. As noted, the financial framework is already *independent* of the periodic reviews, where regulators have chosen to index the cost of debt and where there is stability in the cost of equity. When OFGEM approaches its next reviews of the electricity and gas transmission and distribution companies it merely needs to let its index run on. OFWAT has much bigger problems. It has to decide whether to offer an index going forward, and how to deal with the embedded debt built up in the past. If it follows OFGEM, then this is the last time it will have to hire consultants and devote resources to trying to calculate the cost of debt. The market will do this for it.

In the case of the RAB, OFGEM has depreciation to provide for, but the rules for updating are in place, and should be largely automatic. Messing about with asset lives and hence the depreciation schedules are at best unhelpful. OFWAT has muddied the RAB waters by suggesting that it is a concept that has had its day, thereby bringing back the time inconsistency problems and creating uncertainty at the periodic review. In the process, OFWAT highlight an additional problem with having periodic reviews: regulators cannot help tweaking the regime. In the past, the general rule for both OFGEM and OFWAT has been to add a couple of new mechanisms at each periodic review opportunity, creating ever-greater complexity. This needs to stop.

On the OPEX and CAPEX, there have been various games played between the two. One solution has been OFWAT's TOTEX – treating the buddle of OPEX and CAPEX as one total variable. It does indeed reduce the games, but at a price of impacting on the CAPEX and especially the timing. This illustrates another regulatory mistake noted above: the failure to recognise that *every new complexity has unintended consequences*, and that these can be negative.

There is in principle a simple solution to OPEX: simply index it to the economy's productivity rate, for the foreseeable future. This will not be perfect, but it will probably be better than the detailed guesses by the regulators. On CAPEX, this can be continuously updated, as and when the outputs necessitate new capital investment.

Taking these changes together, the prices set by the regulated companies need to reflect changes in their costs that are not governed by arbitrary 5-year periods. To summarise: the cost of debt is largely exogenous, and can be indexed; the cost of equity has not changed much, but even this could if required be indexed; the OPEX efficiencies could be indexed to the economy more generally; and the CAPEX can be regulated within an agreed framework for approval and the rolling in of its efficient delivery into the RAB.

There is then no need to have periodic reviews at all. The obvious reply is that from time to time a deeper look might be required if the fundamentals underlying these building blocks change. There is merit in this argument, though its appeal depends upon whether the variables are in any event allowed to vary, and whether periodic reviews open up the utilities to political and regulatory interference. To those who still want periodic reviews, the question they need to answer is: to review what?

In other regulatory regimes there are typically mechanisms to review and revise. In conventional US rate of return regulation, it was typically left for the companies to ask for permission to raise prices, and in the context of inflation, there was little question of nominal price reductions. There may always be circumstances in which the core licence conditions and the functions (that the companies are legally required to fulfil to keep their licences) require adjustment beyond the terms discussed above. But the periodic reviews are not necessary to solve this problem. There are better solutions.

If regulators and government are unwilling to abandon the periodic review altogether, there is a second best option. This is to combine a further indexing of the building blocks, and then to have limited periodic reviews at longer intervals. OFGEM led the way in moving to 8-year periods and then providing for interim reviews on a limited range of variables and circumstances every 4 years. This could be extended to 10 years or more. Indeed the original water regulatory framework had 10-year reviews, with the possibility of interim determinations in between.

The 10-year approach is a fall back and a safety net in case problems build up, though the licences could in any event deal with these as and when they arise. The key conclusion is that there is no serious case for 5-year periods any more, and in particular OFWAT should not hold a review again in 2025.

Towards a stable post 2020 framework

The longer or open-ended periods solve a number of problems, and they get rid of the repeated circus of consultants and lobbying which have blighted the reviews to date. We do not need each regulator trying to work out the future cost of debt, which they have typically got spectacularly wrong. We also do not need the competition between regulators to “do things differently” and the repeated inventions of yet more new mechanisms.

There is however one dimension of regulation which has been neglected through the periodic review processes, and which would have a bigger role in a new framework without them. This is the role for the System Operator. Regulation to date has focused on the networks themselves, rather than the core natural monopoly, which is the system *as a whole*. There can be lots of competition to provide bits of the systems, but there can in the key utilities only be one system, and it needs coordination. This is the ultimate natural monopoly.

In energy, there is a system operator (SO). In rail, this function is done (badly) *between* Network Rail and the Department for Transport. In water, there is an obvious gap in catchments and a need for a catchment system operator. The SO function is at heart a regulatory one: it is where the system as a whole is considered and its expansion, maintenance and coordination is decided.

The SO is also the focus for developing more competition. Multiple players can provide the networks, provided they are coordinated. This is the lesson from electricity generation in the context of the central buyer model the government has now adopted. In river catchments, lots of different players can be invited into the provision of services. In railways, the SO function is essential to coordinate in the context in which policy is now to create a more pluralistic model. In broadband, lots of infrastructure providers can compete to provide the overall system, but one that needs defining (especially the Universal Service Obligation) and coordinating.

Other forms of competition can also be considered. The RABs themselves could be tradable, since their value is independent of the management decisions of the companies, and is protected by the special administrator in the event of failures of companies.

Conclusions

There is an opportunity now to consider whether we need any more periodic reviews. The case for abolishing them is surprisingly robust. In any event, longer periods are likely to be more efficient.

As a result, much of the regulatory burden could also be lifted. In the absence of periodic reviews, the case for each industry having its own regulatory body is weakened. The regulators could be bundled into a single network body. Better still, system operators could take on the roles of monitoring and developing the systems and adjudicating on outputs and performance. There could be system operators for energy, water (river catchments), and the rail infrastructure. A separate Openreach could take on the system operator functions in respect of developing and rolling out broadband and fibre. In the process, the emphasis could shift from an overwhelming focus on squeezing OPEX and CAPEX towards the development of the twenty-first energy, water, transport and communications infrastructure Britain needs.