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Dear Mr Basalisco

DISCOUNTING FOR CBAs INVOLVING PRIVATE INVESTMENT, BUT PUBLIC BENEFIT

The subject of discount rates is one that I have had reason to pay considerable attention to over a number of years, from both an economic regulatory perspective (starting with my work advising Ofwat and Oftel in 1994) and also a financial perspective (including my advice to the Financial Reporting Council in 2007 on one of its conceptual frameworks).

For that reason I am keen to comment on the technical paper published by the Joint Regulators Group (JRG).

Unfortunately, I did not see the paper until two days before the deadline for responses and so my comments have necessarily been prepared at very short notice. I would be happy to provide follow-up information if I have left out any details that you would like to know more about.

Yours sincerely

Simon Carne

COMMENTS ON: *Discounting for CBAs involving private investment, but public benefit*

The nub of the problem

It seems to me that the rationale of the Spackman approach is underplayed in the JRG paper. The rationale can be restated in a manner which makes many of the issues much clearer and calls into question whether any of the alternative approaches can be justified.

For the purposes of the issue being examined in the JRG paper, it is vital to recognise that the Spackman approach distinguishes the perspective of the utility company from the perspective of the customers. This can be seen in the following explanation, using the example from page 15 of the paper.

The company

Using the example set out in paragraph 4.30 of the JRG paper, there is a prospective investment which will cost the company £10,000 on Day 1 of the project. The regulator's pricing regime permits the company to charge customers a sum of money which will recoup the company's investment (of £10,000) over five years and reward investors at 10% pa (the company's WACC). The result is that customers are charged £2,637.97 pa for those five years.¹

Customers

The position for customers is different. The customers aren't faced with a cost of £10,000. The customers are faced with a (collective) increase in their utility bills of £2,637.97 pa for five years. It is this cost of £2,637.97 pa, not the capital cost of £10,000 experienced by the company, that needs to be weighed against the customers' saving of £2,750² pa in each of those five years.

The question is now: what discount rate to apply when weighing up the costs and benefits faced by customers? The *social time preference rate* (STPR) is the name given to the rate which answers the question. Currently, the Treasury recommends 3.5% pa as the applicable rate.³

In the simple example set out in the JRG paper, we don't actually need any discounting to realise that the saving of £2,750 pa outweighs the costs of £2,637.97 pa by £112.03 pa. But in a more realistic example, in which the benefit of lower utility bills do not manifest themselves until a few years after the capital costs start to be passed on, customers will be faced with increased bills *before* the savings are made. It is in those cases that adjusting (or "discounting") the cash flows by reference to the social time preference rate is needed in order to make a valid comparison.

Explanation in the JRG paper

In the JRG paper, the difference between the company and the customers' perspective is alluded to on page 12, where the JRG quotes section 3.3.2 of Ofwat's paper, PR09/08. It is the following phrase which alerts the reader to the need to distinguish the position of the customer (faced with a bill of £2,637.97 pa) from that of the company (faced with a capex cost of £10,000):

"... **converting** the financial impacts of building, maintaining and operating the company's assets **into the annualised impacts on customers' bills** using [the company's] cost of capital"
[emphasis added]

The rationale for the Spackman method offered in paragraph 4.14 of the JRG paper (attributed to Oxera) cites the principal-agent model and the social cost of private risk. This is not wrong, but it over-complicates the simple point that we need to look at the affect on customers' bills.

¹ The figure of £2,637.97 pa comes from the JRG paper. It is the five-year cash stream which, when discounted at 10% pa, has a net present value of £10,000.

² Strictly speaking, the example says there is a cash saving of £3,000 pa and a welfare loss of £250 pa. For the purposes of this brief description, I ignore that distinction and treat it as a simple saving of £2,750 pa.

³ As noted by the JRG, HM Treasury's Green Book, http://www.hm-treasury.gov.uk/d/green_book_complete.pdf, provides more detail.

In my submission, Oxera are not, in fact, explaining why the approach provides a valid process for cost benefit analysis. They are providing a rationale for a *different* question, to which I now turn.

Does this method exclude too many projects?

If we return to the example from paragraph 4.30 of the JRG paper, we can see that the initial capital expenditure of £10,000 is first spread into an annualised stream of cash flows using the discount rate of 10% pa, and then discounted back to a present value at a discount rate of 3.5% pa. The net result is that the capital expenditure is assigned a present value of £11,911. Projects will be rejected if they have a present value less than £11,911 – and yet it costs only £10,000 to bring those projects about.

[Note: We don't see this figure of £11,901 in the presentation adopted in the JRG paper, because the costs and benefits are netted-off against each other. But if they were shown gross, the present value of the five cash flows of £2,637.97 (discounted at 3.5% pa) is £11,911.]

This gives rise to the question: why are we assigning a present value of £11,911 to capital expenditure that costs only £10,000? The answer is that, although the project costs *the company* £10,000, the regulatory regime permits the company to pass the cost on to customers at a price of £11,911 (the present value of £2,637.97 pa over five years). As the foregoing calculation demonstrates, the extra £1,911 is the present value of the amount by which investors are rewarded for financing the project.

This is what Oxera refers to as “the principal–agent model”, in which the government is the principal introducing the policy and the utility company is the agent executing the policy. What Oxera is rationalising is not really the Spackman method, as such. Oxera is explaining why customers are charged an extra £1,911 over and above the company's capex outlay.

Choosing between the four discounting options in JRG's paper

With the above explanation in place, it becomes easier to see the merits and de-merits the four options listed in the paper (using the same numbering as in the paper, but discussing them in a different order):

- i) ***Discount all costs (including financing costs as calculated based on a WACC) and benefits at the STPR:*** This is the Spackman approach which I have already discussed and supported.
- iv) ***Discount all costs and benefits at the STPR (excluding financing costs):*** This method discounts the benefits at the STPR, just as was done in the Spackman method. But, because this method excludes the financing costs, it compares the present value of the benefits with *the company's outlay* of £10,000, not *the higher cash amounts actually paid by customers*. From the customers' perspective, this comparison misses out some of the costs that they will actually incur.
- iii) ***Discount all costs and benefits at the relevant WACC:*** Is there any reason to suppose that the company's cost of capital is reflective of the customers' time preferences. To have any validity at all, it would be necessary to believe that the riskiness of the project, as experienced by the company, is somehow related to the riskiness of the project, as experienced by the customers.

But the riskiness for *the company* is related to (the volatility of) the recovery of the company's capital outlay, whereas the riskiness for *the customer* is related to (the volatility of) the project's delivery of savings. These do not appear to be the same thing. If this method is to be justified, more work would be needed to find a link between the two.

- ii) ***Discount some costs and/or benefits at the relevant WACC, and some at the STPR, depending on their likely systematic risk:*** Although this method applies the WACC to fewer of the costs than method (iii) does, the same concern applies in relation to those cash flows where the WACC is applied.