Utility Regulation, the Regulatory Asset Base and the Cost of Capital

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What are the questions to which regulation is supposed to be the answer?

- Time inconsistency
- Public goods
- Complementarity
- Externalities and....
- Monopoly
Time inconsistency

- The long term fixed and sunk costs
- The AC v. MC *ex post* problem

⇒ Long-term contract with credible commitment
Solutions to time inconsistency

- In the 20th century – nationalisation of industry
- In Network Rail, LUL – government guarantees
- In the US – rate of return regulation

BUT...with privatisation genuine innovative solution...
- Independent regulators
- Legal duty to finance functions

AND...
- The RAB
The RAB revolution

- investors’ stake at privatisation
- Completed CAPEX not paid out of customers’ current bills

$\Rightarrow$ RAB is separated from OPEX and CAPEX

$\Rightarrow$ Financial protection of RAB ($\Rightarrow$ rate of return)

$\Rightarrow$ Incentives for OPEX and CAPEX
Role of regulation and the assignment of equity risk

Customers (rate of return)

- Electricity and gas distribution
- Water
- BAA
- Shareholders (pure RPI-X)
- Taxpayers (nationalisation, government guarantees)
- Network Rail London Underground Roads (most)
- PFI schemes
- US utilities Welsh Water
- none

Network Rail London Underground Roads (most)
Separating out the functions

RAB and time inconsistency
- No management effort required
- Risk is entirely regulatory and political (and very significant)

OPEX and CAPEX
- Equity activities
- Risk is managed
- (very) Open to competition

Debt financed
Equity and project finance
The WACC

- WACC is the *average* not the *marginal* cost of capital
- WACC is an aggregate over RAB *and* OPEX + CAPEX

- WACC too high for RAB
- WACC too low for OPEX + CAPEX
The efficient allocation of risk and maximising incentives

The split cost of capital

- Efficient CAPEX
  - OPEX & CAPEX
    - Equity
    - Project finance
    - Competitive testing

- RAB
  - Duty to finance functions
  - Debt-financed
  - Tradeable RABS
The implications

• The (massive) financial arbitrage and the dash-for-debt
• Unrewarded equity undermines incentives

Manage for the bondholders

Rights issues not economic
Does it matter?

- Customers take equity risk on RAB and pay for it.
- Balance sheets not used for physical CAPEX as intended.
- Balance sheets can’t be refreshed with equity.
And the result?

• Very large transfer of monies from customers to shareholders
• Pay-as-you-go CAPEX or mutualisation
• Customers’ monies withheld as “retained equity” (eg. Welsh Water).

OR... the 20th century solution:
• Nationalisation of risk (Network Rail)
• Mutualisation (equity risk to customers: Welsh Water)
• Full nationalisation (Metronet)
Where the special administrator and the licence fit in

- The licence has two parts:
  1. the delivery of the business of the utility (coordination, OPEX + CAPEX)
  2. the RAB
- Failure to deliver the functions ⇒ loss of licence.
- Administrator sequestrates revenues and auctions on the licence to new company.
- Administrator passes on the (tradable) RAB.

\[
\text{[total revenues]} = \text{[cost of debt } \times \text{ RAB]} + \text{[cost of equity } + \text{ debt from efficient OPEX and CAPEX]}
\]
The CAPM is a theoretical structure – it isn’t “true”

Cost of debt is exogenous

RPI is a valuable insurance to bondholders
  – index-linked bonds

Index RPI, index riskless rate

⇒ indexed index-linked debt
A reform package

• Define financing functions as a commitment to honour past investment (the time inconsistency problem).
  + finance efficient OPEX and CAPEX
• Apply the cost of debt to the ring fenced RAB
• Index index-linked cost of debt
• Take competition very seriously – apply to OPEX and CAPEX
How much difference would it make?

• The cost of debt does not have to be calculated by the regulator
• The business plans can be significantly reduced by competitive bidding for key components (or even the whole lot – as happens with special administrator)
• Market value > RAB since no equity risk to shareholders in RAB
• Balance sheets can be refreshed (no need to go to pay-as-you-go, mutuals or nationalisation)

AND

• efficiency incentives maximised.
Some objections

• “The RAB has equity risk”
• “Companies can beat the financial markets”
• “Expectations would be damaged”
And, of course...
• objections from the companies (esp. those who have been acquired at premiums)
• objections from the City
• objections from the regulators
• objections from the CC
Conclusions

• UK has pioneered with the RAB an innovative route between time inconsistency and high powered efficiency incentives.
• The WACC has gradually corroded this innovation.
• The split cost of capital rescues the model and allows competitive incentives to be maximised.
• Indexation of debt is a “no-brainer”.

BUT….

• Regulators and CC will have to admit errors....
And if not....
• Back to the beginning, pay-as-you-go and mutuals/mutualisation, and perhaps even nationalisation.
Further information:

- *Time to invest: infrastructure, the credit crunch and the recession*, December 2008
- *Special administration, financing functions and utility regulation*, October 2008
- *The Credit Crunch and Infrastructure Finance*, June 2008
- *Meeting the Infrastructure Challenge*, May 2008

All available here: http://www.dieterhelm.co.uk/publications