Cost of Equity – Emerging Thoughts

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Note: This presentation was made to a stakeholder meeting on 24th November. The views expressed in the presentation are those of the consultancy concerned. They are not the views of Ofgem and where those consultants are working for Ofgem, final reports have yet to be received and no decisions have been made on the material by GEMA.

Structure of presentation

- Cash flow duration
- Risk free rate
- Equity beta estimation
- Equity risk premium
- Overall cost of equity

Note: at this stage we present ranges, with no implied preference for any particular point within the range

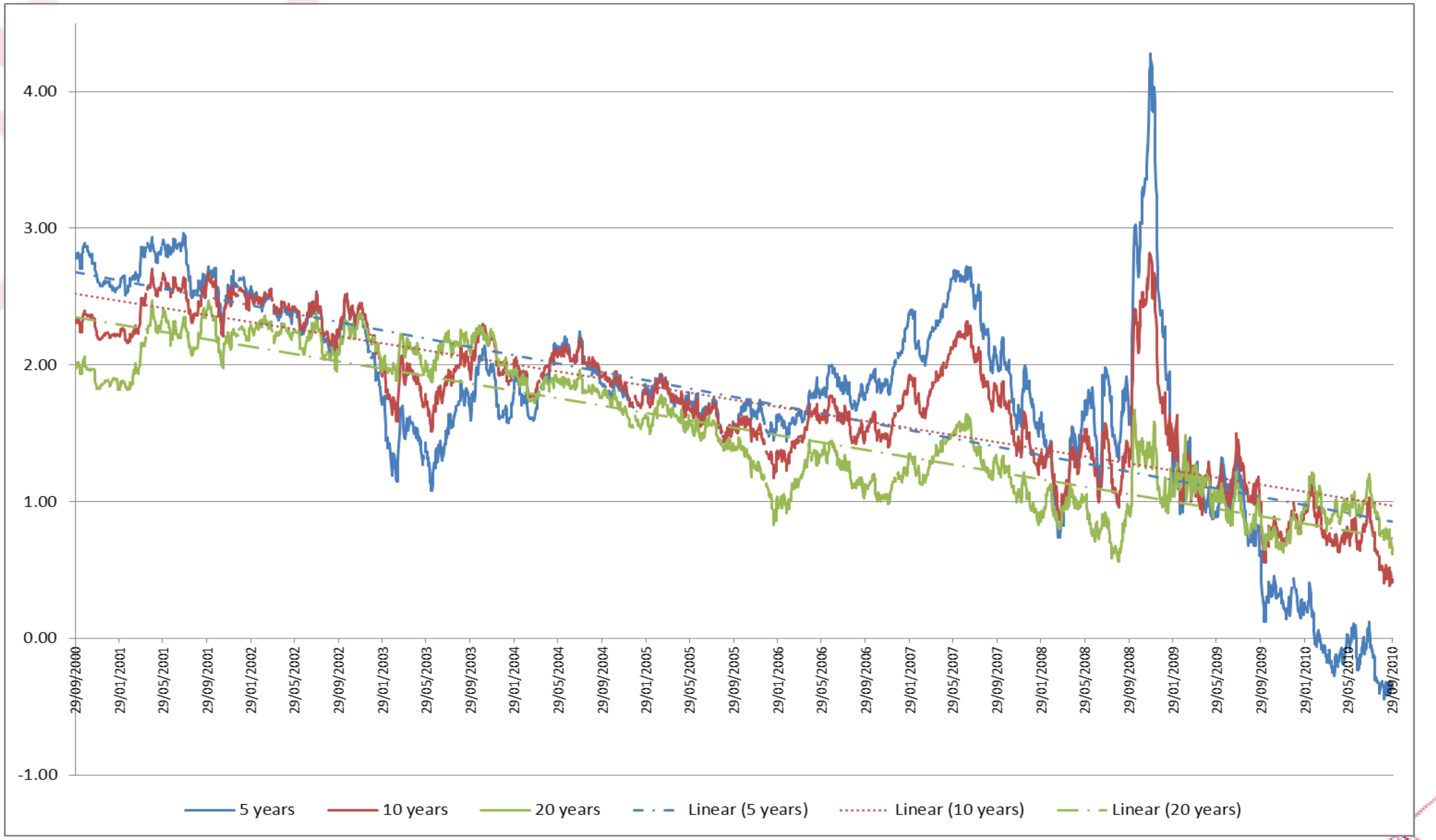
Cash flow duration – the issue

- Move to economic asset lives will increase duration of cash flows for some companies
- Oxera have argued that this increases the cost of capital, through 3 mechanisms:
  - Term premium effect
  - Beta effect
  - Time inconsistency effect
- CEPA have responded at theoretical level, arguing that these effects are not relevant
- We focus on empirical "case studies"

Cash flow duration – empirical evidence

- We consider introduction of accelerated depreciation for electricity DNOs in 1999 / 2000
- We also consider changes to capital allowances for oil industry that affected timing of cash flows:
  - Introduction of Mineral Extraction Allowance in 2002
  - Introduction of Exploration Expenditure Allowance in 2004
  - Introduction of Ring Fence Expenditure Supplement in 2006
  - Change to capital allowances for oil decommissioning expenditure in 2009
- All these examples involved a reduction in duration of cash flows and hence – if Oxera's arguments apply in practice – should have decreased company betas
- Our analysis found no effect on betas

Risk free rate: trend in yields on ILGs over the last 10 years



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Risk free rate

- Evidence shows long-run trend reduction in index-linked gilt yields
- However, current yields may be biased downwards by around 100 basis points due to Quantitative Easing
- In addition to examining ILGs, we have carried out cross-checks using nominal gilts and international data
- Regulatory precedents have typically been above market data, but have also fallen through time
- Most recent regulatory precedent is 1-2% (Competition Commission in Bristol Water)
- Currently considering a range of **1-2%**

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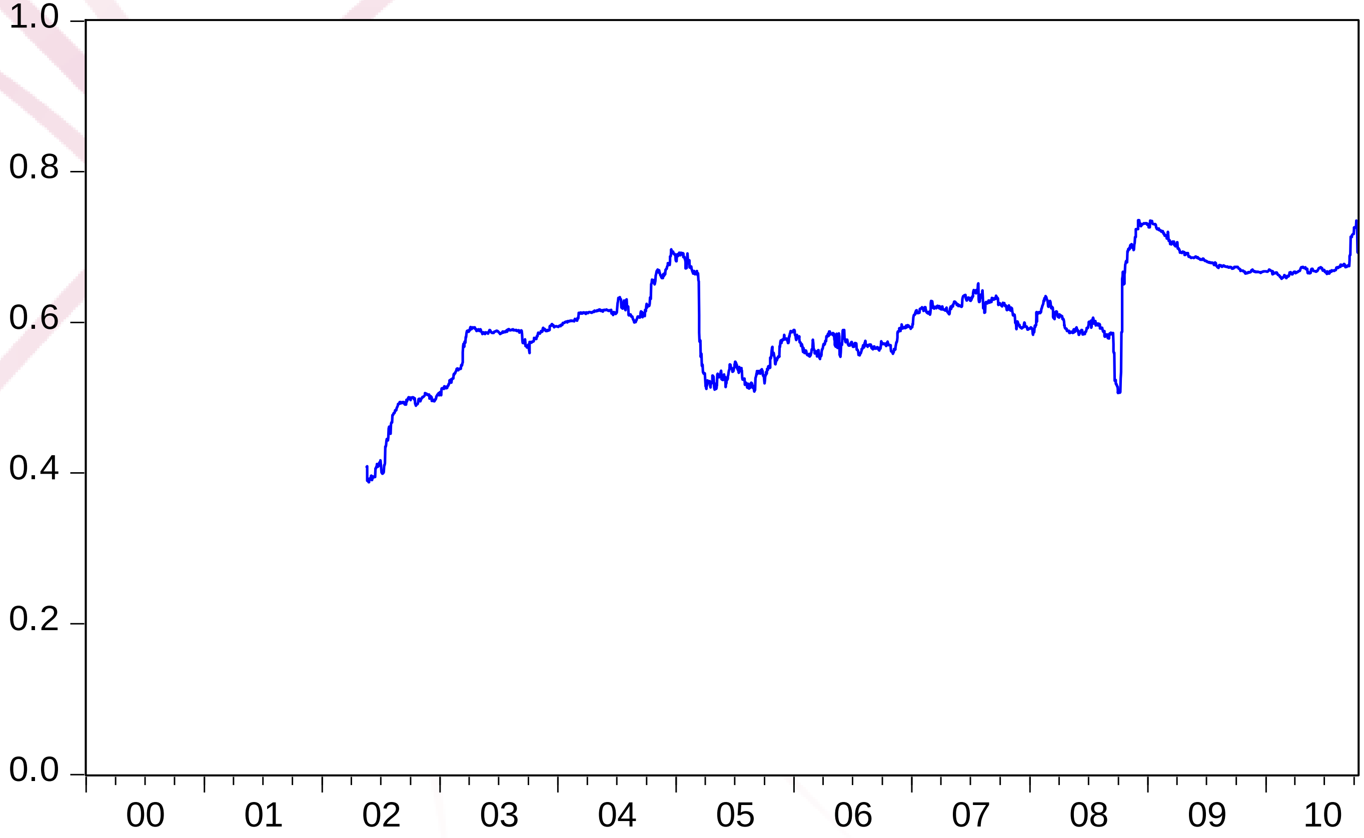
Rolling equity beta for sector



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Equity beta

- Estimated sector beta for portfolio of:
  - National Grid
  - Scottish Power (until takeover)
  - Scottish and Southern Energy
- Estimation based on 2 years of daily data
- Our point equity beta estimate is 0.69, with a confidence interval of **0.55 to 0.83**
- Cross-checked against:
  - Company specific betas
  - Comparator betas
  - Regulatory precedents

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Equity risk premium – DMS data (1900-2009)

	Arithmetic mean	Geometric mean
Belgium	4.9	2.6
France	5.7	3.3
Germany	8.8	5.4
Ireland	4.7	2.6
Italy	7.3	3.8
Netherlands	5.9	3.5
Spain	4.4	2.4
UK	**5.2**	**3.9**
USA	6.3	4.2
Europe	**5.2**	**3.9**
World	**4.9**	**3.7**

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Equity risk premium

- In addition to reviewing DMS data, we also reviewed regulatory precedents
  - Most recent regulatory precedent is 4-5% (Competition Commission in Bristol Water)
  - Other recent regulatory precedents are higher (CAA used 5.25 for NATS, Ofwat used 5.4)
- While ERP may be temporarily elevated during recessions, we consider financial crisis will be fully resolved by start of price controls
- Working with 0.5 intervals, our initial thoughts are a range of **4.0 to 5.5**

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Overall cost of equity

	Low	High
Risk-free rate	2.0	1.0
ERP	4.0	5.5
Equity beta	0.55	0.83
Cost of equity (before re-levering)	4.2	5.6

Figures show cost of equity at the current gearing of the industry portfolio used to estimate beta

- Around 70% for relevant regulated entities within portfolio