Cost of Capital Conference

Session Two:
Beta Estimation

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INDEPEN

Indepen is a management consultancy working with clients facing the challenges of regulation, deregulation, competition and restructuring. We help investors, boards and senior managers identify and assess political and regulatory risk and to develop and implement internal and external strategies to manage their exposure.

Our clients are the organisations involved in financing, constructing, managing and regulating built and natural infrastructure – water, energy, transport, telecommunications and more. We have constructive relationships with relevant government departments and agencies. As well as economic infrastructure, our experience extends to social infrastructure such as social housing, health care and education.

Our team combines experience of public policy, economic regulation, infrastructure finance, governance, corporate strategy and engagement. We complement this with input from our associates – CEOs and chairs of FTSE and private companies, regulators, government ministers and academics.

Agenda

- Introduction
- Data characteristics
- Gearing, de-gearing and re-gearing

INDEPEN Introduction

Presentation draws on work undertaken for Ofgem as part of the December 2018 RIIO-2 consultation

Project was undertaken by a team from Indepen supported by an academic panel of econometricians and finance professors

Built on previous work by Donald Robertson from the University of Cambridge also undertaken for Ofgem (and published alongside our work in December)

Views expressed here are those of the authors, not Ofgem

In the time available pick up two key themes:

- The characteristics of the underlying data
- Gearing, de-gearing and re-gearing

Data Characteristics

Limited data

- There are few listed UK infra companies – peaked at over 30 but now effectively 6
- Very few companies are pure plays, they either have a mix of
  - regulated and unregulated activities, or
  - UK and international activities
- Need to squeeze every drop of information from the data that is available
- International comparators do not necessarily add very much owing to comparability issues

Structural breaks

- Traditional trade-off seen as length of data run versus changing company risk characteristics affected the precision of estimate – in part overcome by using shorter data runs but higher frequency data
- But underlying this is a more fundamental issue of whether there is a stationary relationship and at what points structural breaks occur
- Identifying the breaks is important as that allows a focus on a more stable relationship – although frequent breaks can lead to short data runs

Time varying values

- Concerns about whether the assumptions underlying OLS are appropriate
- Equity beta values change over time – and the OLS residuals display this through ARCH type relationships
- Concerns that the squared residual approach used by OLS puts too great an emphasis on extreme values
- Econometric solutions exist:
  - GARCH models
  - LAD
- Need a rigorous process for analyzing the data and estimating the best values possible

INDEPEN Gearing, de-gearing and re-gearing

Gearing

Capital structure clearly affects the risk of the business BUT not clear that it is as simple as theory assumes

Also, the impact of changing national level gearing needs to be understood

How should gearing be measured? Europe Economics for Ofwat provide a helpful taxonomy

Asset and equity beta relationship needs to be better understood

Debt betas

Assumptions about debt betas can have an impact on the equity beta estimate

Assuming a zero debt beta is not realistic BUT what debt beta value should you choose?

Are debt betas stable over time? If not, how should this be incorporated into the relationship?

Consistency

Does inconsistency in the choice of gearing measure matter?

Probably yes. De-gear using one measure of gearing but re-gear with another, you may mis-estimate the equity beta

Notional capital structures are often stated as RAB gearing while market value gearing estimates are used to de-gear market estimates of equity betas

Consistent only if MAR=1

INDEPEN Overall messages

Transparency

Be clear about the assumptions you are making

If, for example, a MAR=1 assumption is being employed in the de-gearing/re-gearing process, then say that

Too many assumptions are made without being clear about them so that their implications can be fully understood

Clear process

The choice of approach to estimating an equity beta is not straight-forward

Have a clear process and decision criteria so that the most appropriate estimation techniques can be used

Make it clear as to which approach is being employed and why – links to the transparency point

Also makes replication easier

Investigate

We take too many things for granted

The basic data being used for key financial and regulatory decisions needs to be better understood

More investigation of the data and its implications is needed

It feels that regulation has stuck its head in the sand for about 25 years while finance theory and econometrics continued to develop

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