

# Cost of Capital for Gas Pipelines

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- van Zijl and Verster have provided a response for NGC to the Commission's past approach to cost of capital
- that paper addresses the application of the CAPM model and the implications of errors in WACC estimates
- this presentation addresses:
  - the margin over WACC (Appendix I of that paper)
  - quantification of the margin

# BEYOND WACC

- CAPM: Expected return required by well-diversified investors on \$1 placed in firm securities

Only systematic risk matters

- Is this the expected return required by investors on the specific purpose (project) the firm applies this \$1 to?

No: IDIOSYNCRATIC RISK MATTERS!  
(Goyal and Santa-Clara, JF, 2003).

- Project-specific risk creates additional opportunity costs of investment.
  1. Financing constraints
  2. Irreversibility
- Both are assumed away in the CAPM

# Quantitative Estimates

- Market Frictions (Kerins et al, JFQA, 2003)

$$k_e = R_f + (\sigma_p/\sigma_m) \text{MRP}$$

Using NGC and market data

$$k_e = 0.27$$

- Irreversibility (McDonald, 1999)

$$\text{WACC margin} = d/(b - 1)$$

$$= 0.067$$