Estimating fair rate of return in times of high inflation

Roundtable input by Georgia
REVAZ GERADZE
GNERC

WACC calculation model: General formula

$$WACC = \frac{D}{D + E} * R_d + \frac{E}{D + E} * R_e$$

E — Equity

D — Debt

R_d — Cost of Debt

R_e — Cost of Equity

$\dfrac{D}{D + E}$ — Share of Debt

$\dfrac{E}{D + E}$ — Shear of Equity

WACC calculation model

What WACC calculation model do you use in your legislation (Capital Asset Pricing Model, other?)

*We use CAPM model to estimate **Re** (cost of equity).*

Re - Capital Asset Pricing Model (**CAPM**)

$$R_{f(loc)}$$

$$R_e = R_f + \beta * (R_m - R_f) + CR + CuR$$

R_e	–	Cost of Equity
R_f	–	Risk-free Rate
$R_m - R_f$	–	Market Premium
β	–	Equity beta
CR	–	Country Risk Premium
CuR	–	Currency Risk

Rf – Risk-free rate

$R_{f(loc)}$ – Government bonds denominated in local currency

$R_{f(us)}$ + CR + *Currency Risk* = $R_{f(loc)}$

$R_{f(us)}$ – US Treasury Bond Yield (10 year) - 3.8%

CR – Country Default Risk (Georgia) - 2.6%

Inflation Differential –
Optimistic - 2.7%
Base case - 1.7%
Pessimistic - 0.8%

$R_{f(us)}$ - 3.8%	CR - 2.6%	*Inflation Differential* - 2.7%	=	$R_{f(loc)}$ - 9.1%
$R_{f(us)}$ - 3.8%	CR - 2.6%	*Inflation Differential* - 1.7%	=	$R_{f(loc)}$ - 8.1%
$R_{f(us)}$ - 3.8%	CR - 2.6%	*Inflation Differential* - 0.8%	=	$R_{f(loc)}$ - 7.2%

Rf – Risk-free rate

$$R_{f(loc)} \quad - \quad \text{Government bonds denominated in local currency}$$

$$R_{f(loc)} = R_{f(us)} + CR + \textcolor{red}{\textbf{\textit{Currency Risk}}}$$

$$R_{f(loc)} \quad - \quad \text{Local Government Bond Yield (10 year) - 8.6\%}$$

General formula

$$WACC_{before-tax} = g * R_d + (1 - g) * R_e \, / \, (1 - T)$$

$$WACC_{after-tax} = g * R_d * (1 - T) + (1 - g) * R_e$$

$$WACC_{Vanilla} = g * R_d + (1 - g) * R_e$$

We do not account taxes in operational costs.

Nominal vs Real

Nominal – WACC

- The rate of return includes inflation forecasts and therefor reflects the impairment of regulated assets

- Assets are recognized at historical cost and are not subject to periodic revaluation (no inflation accounted)

Real – WACC

- The rate of return does not include inflation factor

- The effect of inflation should be reflected in the value of assets (assets are indexed to inflation - periodic revaluation)

WACC adjustments

How did the WACC change (if at all) in the past 3 years for all gas segments (distribution, transmission, storage)?

Regulation period accounted for thee years and we set WACC once a 3 years, it is not adjusted inside the 3 years regulatory period;

Last regulatory period was 2020-2022 and new regulation period starts at 2023;

We stepped to 5 years regulatory period.

Inflation effect on WACC and/or tariffs

- *We have not adjusted WACC according to inflation;*

- *Inflation rate was around 10%, but in parallel risk free rate was decreasing;*

- *Risk free (down) country risk (down);*

- *Risk free was decreasing because demand on market was increased (on government bonds);*

- *We were adjusting WACC internally to check where WACC was;*

- *Exchange rate was stable and imported inflation was down. we did not experienced high inflation that's why there was no need to adjust WACC.*

Methodology adjustments

Are there any WACC determination methodology adjustments anticipated in the nearest future (2023/24)?

- *We think that in this problematic period we did ok;*

- *There was no request for the recalculation of WACC.*

- *This approach worked fine and we do not plan any WACC determination methodology adjustments in the nearest future .*

THANK YOU
FOR YOUR ATTENTION!

r.geradze@gnerc.org