Return on Capital

CAMPUT/NARUC Bilateral

May 10, 2015

Rate Base

- Used and Useful Fixed Assets
  - Less: Accumulated depreciation
  - Less: Customer contributions
  - Less: Government grants
- Working Capital

Return on Rate Base

Return on Rate Base

=

Weighted Cost of Capital (WACC)

X

Rate Base

WACC

The actual (or allowed) interest on long-term debt and return on equity (ROE), weighted in proportion to the allowed debt/equity ratio.

Determining ROE

- Capital Asset Pricing Model (CAPM)
- Dividend Discount Model (DCM or DCF)
- Comparable Earnings Model
- Price to Book Value
- Returns Expected by investment advisors
- Returns available on Utility Bonds
- Other ROE evidence
- Awards by other regulators

NARUC

Serving the consumer interest by seeking to improve the quality and effectiveness of public utility regulation in America.

What is a Fair Return?

A look at the DCF and CAPM approaches to establishing a regulated return on equity

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Ratemaking Principles

- The "award" (i.e., the rate of return) must be:
  - Commensurate with returns on enterprises with corresponding risks
  - Sufficient to maintain the financial integrity of the regulated company
  - Adequate to allow the company to attract capital on reasonable terms
- In the United States, a return that does not meet these requirements results in an unconstitutional taking of property. *Hope* (1944) and *Bluefield* (1923)

Calculating a Rate of Return

- Cost of debt is transparent: bonds disclose the coupon rate, which (unless imprudently incurred) is incorporated into the weighted cost of capital
- Cost of equity is much less clear: based on what a similar type of investment would command as a return to attract investors
- Regulators also have to decide whether to accept the company's actual capital structure, or assign a hypothetical capital structure

Return on Equity

- The method most frequently used in the United States is 'Discounted Cash Flow' to measure ROE
- DCF uses a 'proxy group' of similar companies' publicly reported dividends and stock price, as well as investors' consensus expectations of future growth, to derive a reasonable "cost of capital"
- **K = D/P + g**

  K = the cost of capital, or total return investors expect to receive

  P = the current market price of the stock

  D = the annual dividend

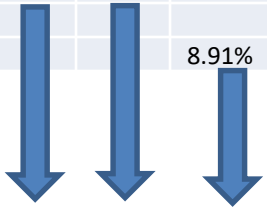
  g = the future annual growth rate that investors expect

Discounted Cash Flow

- Pros
  - Uses known inputs + investors' reported expectations, so less guesswork involved (though plenty of disputes exist over appropriate inputs).
  - 'We've always done it this way': DCF has a long tradition of being used in regulatory proceedings
- Cons
  - A circular and self-referential measurement: You are setting a regulated company's return based on the earnings of regulated companies, which are driven by…regulators' decisions to authorize certain returns!
  - Because it measures regulated firms' returns, it can become abstracted from what investors economy-wide actually expect.

So What Does DCF Look Like?

				GAS UTILITIES				
		Value Line Projected		IBES	Zacks	Average	Div. Yield	DCF
Company	EPS	DPS	BVPS	EPS	EPS	Growth	(Sch. 8)	Result
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
GAS	10.50%	4.50%	4.00%	n/a	4.00%	5.75%	3.71%	9.46%
ATO	7.50%	3.50%	6.50%	7.00%	7.00%	6.30%	2.93%	9.23%
LG	8.00%	5.00%	6.50%	5.35%	5.20%	6.01%	3.60%	9.61%
NI	10.50%	4.00%	4.50%	10.40%	6.30%	7.14%	2.50%	9.64%
NWN	6.50%	2.50%	4.00%	4.00%	4.00%	4.20%	3.96%	8.16%
PNY	5.00%	3.00%	5.00%	5.00%	5.00%	4.33%	3.39%	7.72%
SJI	8.00%	8.00%	6.00%	6.00%	6.00%	6.80%	3.55%	10.35%
SWX	6.00%	7.00%	4.50%	4.00%	5.50%	5.40%	2.68%	8.08%
WGL	5.00%	2.50%	3.50%	5.50%	5.30%	4.36%	3.57%	7.93%
								8.91%



g + D/P = K

Disputes can involve:

- Whether to include a company in the proxy group
- Whether to adjust the final DCF result to account for other variables (like whether the utility is more risky than proxy group)
- Which version of DCF to use
- Whether to award a flotation cost adjustment

The FERC Has Spoken (Finally)

- In 2011, a group of state regulators from New England filed a complaint arguing that regional transmission owners were earning unreasonably high returns based on current market conditions. That filing cued a fight about the correct DCF methodology to use to derive an ROE.
- Three years later, FERC announced a new method for electric utility ROEs.
  - Long-term growth rates (pegged to economy-wide GDP projections) incorporated into *g,* in addition to growth in dividends
  - 75th percentile, rather than mid-point, used for ROE award.
  - Resulting ROE (for New England) was 10.57% (Op. 531-A, Oct. 2014).
  - Most state commission awards are lower than this result.

Capital Asset Pricing Model

- Alternative to DCF
- CAPM is a 'risk-premium' analysis

$$R_i = R_f + \beta_i (R_m - R_f)$$

R_i = Return on Asset i

R_f = Return on Risk Free Asset

β = Covariance of Asset and the Market Divided by Variance of the Market

R_m = Return on the Market Portfolio

- Here, the reasonable return is equal to
  - the risk-free rate (usually a U.S. Treasury Bond)
  - plus the market-risk rate, multiplied by:
  - the "Beta," a measure of a stock's 1) volatility and 2) correlation, compared to the performance market as a whole. A Beta coefficient 0.5 to 1 = less volatile than the risk of market on average (i.e., when the market is up big, it's up a little, and *vice versa*).

Capital Asset Pricing Model

- Pros
  - Theoretically, a better tool than DCF because it is not self-referential but oriented toward the performance of the whole market, where investors can take their money not just to utilities but any equity.
  - Used in many other places in the world and in a handful of U.S. jurisdictions
- Cons
  - Seemed to work very well in certain economic times, but with market distortions of present day (i.e., Fed easy-money policy) its performance is questionable

Issues

- For Both
  - Industry Comparables (pure play)
  - Variation over time
- CAPM
  - Beta calculation
  - US and CAN comparability (regulatory risk)
- DCM
  - Expected long-term growth