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*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)

Rate of Return

- Regulated companies are financed through both debt (long-term bonds and short-term instruments) and equity (shareholder investment, either through publicly traded stock or through private placement)
- The capital structure is the debt-to-equity ratio of the firm.
- The “weighted” cost of capital is the % Rate of Return that incorporates both the “Return on Debt” and the “Return on Equity”

Weighted Cost of Capital

SOURCE OF CAPITAL	% OF CAPITALIZATION	RATE OF RETURN	WEIGHTED RATE OF RETURN
Debt	45%	3.0%	1.35%
Preferred Stock	5%	5.0%	.25%
Common Stock (Equity)	50%	9.5%	4.75%
Total	100%		6.35

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
 - Here, the reasonable return is equal to

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

... free rate (usually a U.S. Treasury Bond)
... market-risk rate, multiplied by:

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

β ," a measure of a stock's 1) volatility and 2) correlation, relative to the performance market as a whole. A Beta coefficient of 1.0 = 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