

Consideration for Developing a Cost of Equity Capital for Electric Cooperatives

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One consideration in the analysis of an appropriate present value discount rate for an electric cooperative is the fundamental difference in operating structure of a not-for-profit corporation compared to the typical for-profit, shareholder-owned business.

OVERVIEW

The generally accepted income approach valuation methods for property tax purposes include the yield capitalization method and the direct capitalization method.

When using the income approach to estimate the unit value of a taxpayer company, one issue is the quantification of either a present value discount rate or a direct capitalization rate.

The estimation of an appropriate discount rate or capitalization rate involves a necessary level of subjectivity and consideration of company-specific factors. The inherent nature of an electric cooperative (EC) compounds this already subjective component by presenting additional considerations in the process of estimating these specific rates.

Electric cooperatives apply a business model that is not always consistent with the underlying operating principles utilized by standard for-profit businesses.

There are additional considerations related to electric cooperative business operations, including the following:

1. The fundamentally different value propositions of consumer-owned electric cooperatives, as compared to investor-owned businesses
2. The organizational differences of cooperatives and the potential impact on the calculation of the weighted average cost of capital

These considerations may lead the valuation analyst to question whether certain generally accepted procedures in a unit valuation are similarly appropriate for the subject EC.

This discussion summarizes the additional considerations associated with developing a required rate of return on equity for an EC.

INTRODUCTION

States commonly assess the value of utility company property on an annual basis for ad valorem tax purposes. This value assessment often involves the valuation of taxpayer property based on the unit valuation principle.

The three generally accepted unit valuation approaches are the sales comparison approach, the cost approach, and the income approach.

The perceived simplicity and general availability of valuation model inputs make the income approach appropriate to estimating the value of the taxpayer total unit of operating assets (i.e. the unit value).

A significant component in applying the income approach is the estimation of an appropriate present value discount rate.

The appropriate present value discount rate should consider the following:

1. Alternative market rates of return
2. The perceived risk of the taxpayer company cash flow

In the business valuation discipline, analysts frequently complete a formula-based analysis of discount rates referred to as the weighted average cost of capital (WACC).

In the property tax unit valuation discipline, this formula may be classified as either a *band of investment* formula or a WACC.

Generally, these terms and formulas to estimate rates of return are considered to be synonymous. Throughout this discussion, we use the term WACC.

The basic elements of yield capitalization rates are the debt yield and the equity yield. When these rates are combined, they indicate the overall investment yield. This cost of capital analysis is “weighted” because it incorporates the percentage of the total investment that debt contributes and the percentage that equity contributes, which is a weighted-average concept.

One consideration in the assessment of an appropriate discount rate for an EC is the fundamental difference in operating structure as a not-for-profit corporation compared to the typical for-profit, shareholder-owned business. In general, the goal of a for-profit business is to maximize shareholder wealth and generate returns in excess of the WACC.

However, due to fundamental differences, an EC does not operate in a similar shareholder *wealth* maximization manner. Instead an EC operates to maximize each member’s *benefit*. These organizational objectives diverge from each other in subtle yet potentially significant aspects.

Additionally, the risk-return profiles used in the calculation of a WACC are typically based on for-profit, shareholder-owned companies where the primary business relationship is one in which the service provider and service consumer are independent of each other.

The primary business relationship for an EC, however, is one where the consumers are not independent of the providers. The EC consumers are, in fact, also the owners of the business. The blending of owner and consumer motives complicates the estimation of the unsystematic risk associated with an EC.

There are several well-developed theories and generally accepted models for estimating the cost of equity capital, including the build-up method (BUM), capital asset pricing model (CAPM), and implied models using market-derived pricing evidence (e.g., Gordon growth model).

This discussion examines and compares the fundamental differences of an EC and the potential impact on the cost of equity capital. This discussion

also addresses potential adjustments and considerations when developing an EC cost of equity for use in the income approach.

WHAT ARE ELECTRIC COOPERATIVES?

As described by the National Rural Electric Cooperative Association (NRECA), rural electric cooperatives (“RECs” or “electric cooperatives”) are private, independent, nonprofit electric utility corporations.¹

RECs are generally established to provide reliable and affordable electricity in areas where the return on the infrastructure investment was not high enough to attract investor-owned utilities (IOUs).

RECs are distinctly different from their IOU counterparts in three ways:

- First, RECs function under a cooperative business model in which the consumers own the utility rather than investors or municipalities.
- Second, RECs were created specifically to serve rural areas where investor- or municipal-owned electric companies did not offer electrical service.
- Third, Congress specifically designated RECs as tax-exempt nonprofits under Section 501(c)(12)(C) of the Internal Revenue Code, the RECs technically have been exempt from federal taxation since the Revenue Act of 1916.²

Additionally, Congress created a program of federally subsidized loans to speed the electrification of rural America.



Table 1
Comparison of Operational Characteristics between Different Business Forms

Features	Sole Proprietorship	Partnership	Investor-Owned	Electric Cooperatives
Who owns the business?	The individual	The partners	The stockholders	The member-consumers
Who uses the services?	Generally nonowner consumers	Generally nonowner consumers	Generally nonowner consumers	Chiefly the members
Who votes?	NA	The partners	Common stockholders	The member-consumers
How is voting done?	NA	By the amount of business owned	By shares of common stock	One vote per member, or by amount of business
Who determines policies?	The individual	The partners	Common stockholders and directors	The members
Are returns on ownership capital limited?	No	No	No	Yes, usually 8 percent or less
Who gets the net margins?	The individual	The partners in proportion to the amount of business owned	The stockholders in proportion to the number of stock shares owned	The members based on the amount of business done with the cooperative

The EC business model is distinctly different compared to IOUs and other for-profit corporations. The traditional value proposition of a cooperative business is one in which the business is organized and run for the benefit of its members. In order to provide this value proposition, electric cooperatives act and operate as an agent of the consumer-members, buying power in bulk and distributing it to rural customers.

The rates for the power sold are established by the local cooperative's board of directors, which is constituted primarily of members of the cooperative. The rates are designed so that (1) revenue exceeds the actual costs of providing dependable electric service and (2) the EC meets its scheduled payments on loans.

The net margin left over after expenses and loans are paid is reallocated back to members of the cooperative in the form of capital credits, commonly referred to as "patronage refunds." Cooperative members receive their pro rata share of the net margin based on the amount of electricity they have used during the allocation period. This return of capital maintains the nonprofit status of the electric cooperative.

HOW ARE ELECTRIC COOPERATIVES DIFFERENT FROM OTHER FORMS OF BUSINESS?

An EC possesses certain operational characteristics that differ from the traditional business models. Table 1 is based on a resource manual produced by the Oklahoma Association of Electric Cooperatives.³

Table 1 presents a comparison of the following specific attributes of the related business entity types:

1. A sole proprietorship
2. A partnership
3. An investor-owned business
4. An electric cooperative

Electric cooperatives are owned by the member-consumers. Membership and joint ownership are open to all who want to use the cooperative's services, and are usually permitted entrance into the cooperative after a small membership fee is paid.

Electric cooperatives are democratically controlled by their members. In order to ensure this, each member of a cooperative has only one vote,

regardless of the number of accounts owned or the amount of electricity purchased. This operating structure differs from the typical business structure, where voting, and the number of votes, is commonly based on proportional ownership.

One important distinction of an EC is that its returns on equity are limited to a maximum of 8 percent. This requirement further differentiates an EC from its for-profit counterparts. In general, for-profit entity shareholders have separate goals from their customers (i.e., shareholders want greater returns on equity, while customers want better prices or services), and these goals are often at odds with each other.

Conversely, limiting the returns on ownership capital in an EC, further aligns the interests of the owners and consumers.

In order to consider how these fundamental differences may affect the income approach, it is necessary to understand the assumptions inherent in the different models used to estimate yield capitalization rates and direct capitalization rates.

THE CAPITAL ASSET PRICING MODEL

The CAPM is a generally accepted method used to estimate the cost of equity capital. The focus of this discussion is to understand the basic concepts of the CAPM, the underlying assumptions inherent in those basic concepts, and the application of the CAPM as it relates to the valuation of the taxpaying electric cooperative's assets. Therefore, this discussion only includes a simplified description of the CAPM.

The CAPM is defined as follows:

A model in which the cost of capital for any stock or portfolio of stocks equals a risk-free rate plus a risk premium that is proportionate to the systematic risk of the stock or portfolio.⁴

Simply stated, the CAPM reflects the relationship between a certain type of risk and expected return. Investors require a greater return for an investment in perceived risky assets but are likely to accept a lower return for an investment in perceived less risky assets. The CAPM was developed under the assumption of a diversified market portfolio.

The diversified market portfolio includes all types of risk profile securities. This is an essential foundational concept of the CAPM. In a typical corporation, the corporation assets are not part of a diversified portfolio. Instead, the corporation assets

are typically concentrated in a single industry and owned by a single company.

The CAPM formula for estimating the cost of equity capital is presented as follows:

$$K_e = R_f + \beta \times RP_m$$

where:

K_e = Expected return for an individual security

R_f = Rate of return available on a risk-free security

β = Beta

RP_m = Equity risk premium (ERP) for the market as a whole⁵

The three primary components of the CAPM are the following:

1. The risk-free rate
2. The market-derived equity risk premium
3. The selected beta

The risk-free rate reflects the minimum return an investor expects to receive from his or her investment, based on the impact of inflation over time and their expectations for the real rate of interest on money.

The market-derived equity risk premium is the market return that an investor expects over the risk-free rate by investing in the market portfolio which, as previously mentioned, consists of a fully diversified portfolio.

The beta component of the CAPM indicates the subject security's sensitivity to the market. This variable calculates the amount of expected systematic risk, or market risk, for the subject security.

The three components of the CAPM collectively compensate the investor for the assumed risk he or she takes by investing in the subject security.

Because the risk of the subject security, as measured by the CAPM, is based on its relationship to the diversified portfolio, it assumes that the unsystematic risks (i.e., company-specific risks), are diversified away. Therefore, in the CAPM, the investor is only compensated for the systematic risk.

The unmodified version of the CAPM assumes that the only component of risk that investors care about is the risk of the market (i.e., systematic). In practice, however, it is common to adjust the CAPM to reflect different risk-return profiles based on:

1. the size of the subject company and
2. the subject company-specific risks.



Many empirical studies have been performed since the CAPM was originally developed and have concluded that realized total returns on smaller companies have been substantially greater over a long period of time than the pure CAPM would have predicted.

The betas for small companies tend to be greater than those for large companies. However, these higher betas do not account for all of the risks faced by those who invest in small companies.

The premiums associated with smaller companies reflect the uncertainty of continued operations and the expected return for such risk as expected by market participants.

As companies increase in size, the premium associated with the uncertainty of future operations is generally expected to decrease. This risk premium is sometimes referred to as the small stock equity risk premium (the “size premium”).

According to the *Guide to Property Tax Valuation*, the company-specific risk premium (CSRP) is:

the risk that makes an investment in the subject taxable property (1) unique and (2) different from any benchmark investments that are used to measure capitalization rates, valuation pricing multiples, and other valuation pricing metrics.⁷

Put another way, the CSRP adjusts the cost of equity in order to derive a required rate of return commensurate with the total level of investment risk associated with the subject company investment. Investors typically expect to be compensated for this risk and it is common to adjust the CAPM for this company-specific risk.

The modified capital asset pricing model (MCAPM) seeks to incorporate these additional risk considerations in the quantification of a required rate of return.

The MCAPM formula is presented as follows:

$$K_e = R_f + \beta \times RP_m + RP_s \pm RP_c$$

where:

K_e = Expected return for an individual security

R_f = Rate of return available on a risk-free security

β = Beta

RP_m = ERP for the market as a whole

RP_s = Risk premium for small size

RP_c = Risk premium attributable to other company-specific risk factors⁸

CONSIDERATIONS WITH USING THE MCAPM FOR ELECTRIC COOPERATIVE VALUATIONS

As discussed previously, electric cooperatives, and cooperatives in general, operate under fundamentally different value propositions than most investor-owned for-profit businesses. As a result, using the MCAPM to estimate a required rate of return for an EC may require additional considerations.

These considerations include the following:

1. Whether or not the fundamental objective of electric cooperatives precludes them from the addition of size premiums
2. Whether or not the separation, or lack thereof, between the electric cooperative members, providers, and consumers, precludes them from the application of industry-specific or other company-specific risk premiums
3. Whether or not the use of a proxy beta overestimates the market risk associated with an electric cooperative, thereby overestimating the required rate of return.

The following sections address each of the above identified considerations as they relate to an EC.

Size Premium

The size premium, as mentioned previously, is reflective of the uncertainty related to continued operations and the expected return for risk of a smaller company. This is a result of the generally recognized additional factors inherent in smaller companies.

This premium recognizes that, in general, smaller companies have:

- less resources and access to capital than their larger counterparts;
- less money to spend on research and development, advertising, and human capital;
- a greater dependency on fewer customers; and
- less resources to fend off competition and redirect themselves after changes in the market occur.⁹

All of these characteristics relate to a greater degree of difficulty for smaller companies to sustain their cash flows and return value to the owners. Assuming these smaller company risks are similarly true and attributable to an EC, however, may be inappropriate.

While it may be true that a smaller EC may have less financial resources than its larger publicly traded counterparts, it is not necessarily appropriate to assume that they are disadvantaged or less competitive based merely on a comparison of size. One benefit of more resources for a larger company is that it provides benefits and opportunities against competitors.

An increase in a subject company's competitive advantages is generally expected to benefit the subject company and potentially increase the return to shareholders. This benefit would lower the overall risk associated with the subject company. An EC is based in a rural area where the IOUs deemed it was unprofitable to operate.

This locational factor results in a market where either:

1. there is no such competition or
2. the intensity of rivalry is substantially less.

Additionally, since the consumers of the cooperative's electricity are also its owners, and operate under a not-for-profit incentive, it is unlikely that an IOU would provide more profitable benefits to a cooperative's consumers.

Company-Specific Risk Premium

As identified previously, the CSRP is reflective of the investment- or company-specific factors that investors expect to be compensated for investing in the subject company.

The CSRP is, however, a subjective assessment, and it is generally based on an analyst's informed assessment of the investment-specific internal and external factors facing the subject company.

When estimating a CSRP for an EC, there may be additional factors to consider. In general, company-

specific risk factors include, but are not limited to, the following:

- Key person dependence
- Key supplier dependence
- Key product or technology dependence
- Management ability and depth
- Pending regulatory changes
- Pending litigation
- Abnormal present or pending competition
- Lack of diversification (customer, geographic, etc.)

Company-specific risk factors are generally compared to the risk attributes of a benchmark investment. In comparing electric cooperatives with selected guideline companies, or benchmark investments, the fundamental operating differences of an EC should be considered.

An important company-specific risk factor is the ability and depth of management. The basis upon which an EC is operated (for the benefit of the members and not necessarily a profit) may result in potential inefficiencies. Cooperatives that operate without a significant level of competition, and operate with the intent to maximize member benefits rather than shareholder wealth, may not critically scrutinize operational inefficiencies that would increase their return on investment.

Studies have been performed to research and compare the financial performance of cooperatives to their investor-owned counterparts. One such study was performed by McKinsey & Company. That study concluded that the cooperative business models "destroy value" amounting to nearly \$2 billion for agricultural cooperatives alone between 1999 and 2000.¹⁰



Proxy Beta

Another necessary factor in the estimation of an appropriate cost of equity is the adjustment for industry market risk. Using a proxy beta, derived from guideline companies or other available market data, in the MCAPM may not appropriately consider the industry market risk associated with the EC. Stock prices fluctuate as a result of a number of different factors that are not necessarily related to the income-producing potential of the subject company or to industry-related influences.

These factors may include the following:

- Changes in the comparable public company management
- Potential merger and acquisition activity by the guideline company or a competitor
- Changes in a guideline company's secondary line of business
- Exogenous macroeconomic data (e.g., changes in the federal funds rate)

As a result of the combined owner/consumer operations of an EC, the influence of industry factors may not affect the EC in a similar manner as the other industry companies.

Therefore, in order to account for differences between the risk attributable to a proxy beta and the relative industry risk impact on the EC, it may be necessary to adjust the CSRPs for the subject company EC.

SUMMARY AND CONCLUSION

When estimating the cost of equity capital and related discount rates and direct capitalization rates for an EC using the MCAPM, it is important to recognize the operating differences between an EC and the comparative for-profit companies.

It is also important to consider the relevance of the underlying empirical data that is generally relied upon to estimate the various components within the MCAPM in an analysis of the EC cost of equity capital. This discussion is not intended to provide an all-inclusive list of factors to consider.

In addition to the factors identified in this discussion, there are additional issues that may affect and influence the estimation of an appropriate cost of equity capital for an EC. The differences inherent in the EC business model raise many questions related to the benchmark data often relied upon to estimate a required rate of return.

Consideration of the facts and circumstances influencing the taxpayer company's total unit of

operating assets may be an important step in ad valorem tax valuations. It is important to reconcile the empirical data relied upon with the operating characteristics and risks of the taxpayer company's taxable unit.

An understanding of the EC business model is essential in order to estimate an appropriate required rate of return. A clear understanding of potential EC-related factors and a specific identification of how the identified factors affect a selected rate of return, will assist the analyst in the preparation of a credible and reliable unit valuation analysis.

Notes:

1. "America's Cooperative Electric Utilities—The Nation's Consumer Owned Electric Utility Network," National Rural Electric Cooperative Association, www.cooperative.com (March 2016): 1.
2. See Internal Revenue Code, 26 U.S.C. §501(c)(12)(C)(2012), and Revenue Act of 1916, Pub. L. 64-271, 39 Stat. 756,767 (codified as amended at 26 U.S.C §501(c)(12) (2012)).
3. "Resource Manual," Oklahoma Association of Electric Cooperatives (2014).
4. Shannon Pratt and Roger Grabowski, *Cost of Capital*, 5th ed. (New York: John Wiley & Sons, 2014).
5. *Ibid.*, 192.
6. Duff & Phelps, *2015 Guide to Cost of Capital Handbook*.
7. Robert F. Reilly and Robert P. Schweihs, *Guide to Property Tax Valuation* (Chicago: Willamette Management Associates, 2008), 163.
8. Pratt and Grabowski, *Cost of Capital*, 5th ed., 197.
9. Duff & Phelps, *2015 Valuation Handbook: Guide to Cost of Capital*.
10. Jack J. Dempsey, Ashish A. Kumar, Bernard Loyd, and Loula S. Merkel, "A Value Culture for Agriculture." *McKinsey Quarterly* 3 (2002).

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