The Decoupling of Treasury Yields and the Cost of Equity for Public Utilities

NERA Energy Policy Briefing Note

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Anyone who has attended a rate case hearing recently is well aware that the debate over the rate of return now tends to focus on the implications for public utility investors of a largely unprecedented trend in the current capital markets—specifically, intervention by the Federal Reserve in the government bond market. The current capital market conditions are unique from a historical perspective. No US government policy intervention in recent history has had such an important effect on the risk-free rate relied upon by public utility analysts in their routine modeling of market and utility investor behavior. This briefing note examines how these capital market conditions affect the cost of capital for electric and gas utilities.

A key question within this debate is whether the historic risk premium required by equity investors to invest in stocks remains accurate in today's capital market conditions. Financial analysts have often relied upon the historic equity risk premium for use in estimating required rates of return in models like the Capital Asset Pricing Model. The calculation of the historic premium measures the difference in expected return as between the S&P 500 index and long-term US treasury bonds. For example, if on average the historic S&P 500 return were 12% annually, while long-term treasury bonds yielded 5%, then the historic risk premium required by equity investors would be deemed to be 7%. Financial analysts typically use over eighty years of data when assessing the historic premium, thus capturing a wide variety of conditions in the capital markets. In recent years, the historic premium has fallen within the range of 6 to 7 percent.

Current capital market conditions raise doubts about whether the risk premium, measured using historical data, is applicable today. The doubts arise as analysts attempt to answer key questions. How have equity investors responded to the artificial reduction in treasury yields triggered by the Federal Reserve's bond buying program? Have they lowered their total return expectation as rapidly as treasury yields have fallen? Rate-of-return models that rely upon the historical premium assume that investors' total return expectations move in lock step with treasury yields. Hence, if the historic premium is still valid, it implies a significant decrease in required returns on equity for both industrial firms and public utilities.

Insight in Economics™

NERA's empirical investigations in recent rate cases show that the historical premium has not been a good measure of the forward-looking premium required by investors. The spread between the risk-free rate and the required returns for holding equities has broadened as the Federal Reserve has aggressively acted to keep interest rates at record lows and stimulate the economy. For public utilities, this is reflected in a relatively stable awarding of allowed returns in the context of a rapid decline in treasury yields, the market's metric of the "risk-free" rate. As shown in Table 1 below, since 2006, the average allowed return for electric utilities has hovered in the range of 10.0 to 10.5 percent, while treasury yields fell 200 basis points and then started to recover. If the market risk premium had been unchanged during this period, the allowed returns—which themselves are based on the capital market data put forth by public utilities and intervenors alike—would have declined as precipitously as the treasury yields did. They did not. A constant historical equity risk premium ignores the elevated cost of holding risky securities relative to the riskless security benchmark. A forward-looking premium thus provides the most accurate gauge of investor demands in the current market environment where required returns on equities have decoupled from treasury yields.

Table 1.

Year	Treasury Yield (30-year)[A]	Electric Utility Allowed ROE[B]
2006	4.91	10.32
2007	4.84	10.30
2008	4.28	10.41
2009	4.08	10.52
2010	4.25	10.37
2011	3.91	10.29
2012	2.92	10.17
2013	3.45	10.02

Notes:
[A] Treasury yields obtained from the Federal Reserve's h15 release.
[B] Allowed returns obtained from Regulatory Research Associates, a division of SNL Energy.

NERA estimates the forward-looking risk premium using the well-established dividend growth model. This model offers an estimate of the total return required by equity investors, derived from two principal inputs: 1) the dividend yield and 2) profit growth rate. Once armed with the total expected return, NERA subtracts the current government bond yield to arrive at the implied equity risk premium. This approach has the advantage that it incorporates the most recent information from capital markets and thus is most consistent with the intent of any cost of equity calculation, which is to reflect current forward-looking expectations.

In its most recent analysis, NERA found the forward-looking risk premium to be 8.36 percent, which compares to a historic risk premium of 6.70 percent, a difference of 166 basis points. This shows that the use of a historic risk premium would significantly understate the cost of equity for utilities. While the observed equity risk premium does not translate on a one-for-one basis to a required return for utilities—utility betas are often below one—it does signal the scale of the disconnect between historic conditions and those prevailing today.

It is not surprising that the market's reaction to the policy-driven interest rate drop has been a higher required return for riskier assets. Market-driven events have led to similar outcomes. For example, in past "flight to quality" situations, the yields on riskier bonds and required returns on equities have crept higher as yields on government bonds and high-rated corporates declined.[1] In addition, academic studies assessing the risk premium over time have shown a negative relationship between risk premia and interest rates.[2]

State regulators implicitly recognize the higher equity risk premium that prevails in today's market. They do so by approving rates-of-return that contain a higher premium over government bond yields than has historically prevailed. (See Table 1 above.) For its part, the Federal Energy Regulatory Commission (FERC) explicitly acknowledged, in its ruling in Docket No. ER14-500-000, that the "current low treasury bond rate environment creates a need to adjust the CAPM results, consistent with the financial theory that the equity risk premium exceeds the long-term average when long-term US Treasury bond rates are lower than average, and vice-versa."

Whether the change in premium is reflected by adjusting the model results on an ex post basis, as was done in the FERC docket, or to the model inputs on an ex ante basis, as NERA has done in recent state dockets, is not so important. Most important is making sure that the rate of return somehow incorporates the current forward-looking investor expectations and does not rely solely upon unadjusted historic expectations.

NERA's Role in Cost of Capital Determinations

Prices in regulated industries rely upon costs, which include the cost of capital as a core component. NERA has been at the forefront of issues concerning the cost of capital for regulated industries for nearly 50 years—ever since Alfred Kahn devoted an Appendix in his great work, *The Economics of Regulation*, to NERA's Herman Roseman's cost of capital work in the 1960s.

Utility businesses have changed drastically over those 50 years, in structure, ownership, pricing, and competitiveness. Throughout all of these changes, regulation has continued to play a key role in the protection of consumers who buy from the remaining "natural" monopolies—local distribution in gas and water, transmission and distribution in electricity, and local service in telecommunications. For these regulated businesses around the world, the cost of capital remains an enduring issue—the base of regulated prices and a continuing subject of debate, concern, and empirical investigation—in which NERA continues to play a key part.

About the Author

Mr. Strunk has twenty years of experience consulting to governments, regulators, and investor-owned utilities. His work at NERA focuses on strategic and corporate financial issues arising in the natural gas, oil, water, and electric power sectors. He has served as a testifying expert on public utility rate matters before federal, state, and provincial regulatory commissions in the US and Canada, and in a number of US court proceedings. He has calculated and supported required rates of return in traditional rate cases for regulated entities and in litigation and advisory work. He routinely addresses the topic at industry conferences.

Notes

[1] The autumn of 1998 is one such example.

[2] See W. Carleton, W. Chambers and J. Lakonishok, "Inflation Risk and Regulatory Lag," *Journal of Finance*, (May 1983). A similar approach is presented in R. Harris, "Using Analysts' Growth Forecasts to Estimate Shareholder Required Rates of Return," *Financial Management* (Spring 1986).

About NERA

NERA Economic Consulting (**www.nera.com**) is a global firm of experts dedicated to applying economic, finance, and quantitative principles to complex business and legal challenges. For over half a century, NERA's economists have been creating strategies, studies, reports, expert testimony, and policy recommendations for government authorities and the world's leading law firms and corporations. We bring academic rigor, objectivity, and real world industry experience to bear on issues arising from competition, regulation, public policy, strategy, finance, and litigation.

NERA's clients value our ability to apply and communicate state-of-the-art approaches clearly and convincingly, our commitment to deliver unbiased findings, and our reputation for quality and independence. Our clients rely on the integrity and skills of our unparalleled team of economists and other experts backed by the resources and reliability of one of the world's largest economic consultancies. With its main office in New York City, NERA serves clients from more than 25 offices across North America, Europe, and Asia Pacific.

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