

- 1 **Q. Coyne Evidence – Publications and Research A-5: Please provide a copy of:**
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3 **Autopilot error: “Why Similar U.S. and Canadian Risk Profile Yield Varied Rate-**
4 **making Results” (with John Trogonoski), Public Utilities fortnightly, May 2010)**
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6 **A. Please see Attachment A to this response.**

**Autopilot error: “Why Similar U.S. and Canadian Risk Profile Yield
Varied Rate-making Results” (with John Trogonoski),
Public Utilities fortnightly
May 2010**

Business & Money

Autopilot Error

Why similar U.S and Canadian risk profiles yield varied rate-making results.

BY JAMES M. COYNE AND JOHN TROGONOSKI

Cost of capital is often a contentious issue in utility ratemaking. This is due, in part, to the inexact nature of the tools available to financial analysts and the considerable room for divergent opinions on key inputs to cost-of-capital estimation. Perhaps for this very reason, and to achieve regulatory efficiency, Canadian regulators widely adopted a formulaic approach to setting return on equity (ROE). However, an unusual degree of rancor has evolved north of the border as allowed ROEs in Canada, once at parity, have fallen near 200-basis points below their U.S. peers.

Witnessing the increasing gap between U.S. and Canadian allowed ROEs, a growing chorus of financial and market analysts have criticized the formulaic method widely adopted by Canadian regulators. The National Energy Board (NEB) recently took the decisive step of abandoning the formulaic approach it popularized back in 1994. Moreover, provincial regulators in Alberta, Quebec, Ontario and British Columbia recently reviewed the formula's continued use. Some consumer advocates argue, however, that Canada's ROE formula is, in fact, working properly, and the gap in authorized returns can be justified by relative risks between U.S. and Canadian utilities.

Exploring the evolution of cost-of-capital determination in Canada, and contrasting it with the U.S. experience, reveals some interesting differences and similarities between the business, financial and regulatory risk profiles of Canadian and U.S. utilities—as well as implications for allowed ROEs. These insights help clarify whether a formula reliably can track equity costs over time and serve as a supplement or replacement for the standard litigated approach to cost-of-capital determinations.

Common History

Regulators in both countries consider three primary factors when establishing a

Utility cost of capital doesn't always decline when government bond yields are falling.

just and reasonable allowed return. These include: 1) capital attraction; 2) financial integrity; and 3) comparable returns. That is, the authorized return must allow the regulated utility to attract capital on reasonable terms under a variety of different market conditions, to maintain its financial integrity and borrowing capacity, and to offer investors the opportunity to earn a return comparable to other businesses with commensurate risks. U.S. regulators are guided by several important court decisions including *Federal Power Commission v. Hope Natural Gas* (1944) and *Bluefield Water Works and Improvement Company v. PSC of W. Va.* (1923). The seminal ROE decision for Canadian regulators is *Northwestern Utilities v. City of Edmonton* (1929), although the *Hope* and *Bluefield* decisions also are cited extensively in Canada.

Until the early 1990s, U.S. and Canadian regulators followed similar

paths in establishing the cost of common equity for regulated public utilities. U.S. regulators relied primarily on discounted cash flow (DCF) models and various risk premium approaches, including the capital asset pricing model (CAPM), while Canadian regulators tended to rely on equity risk premium (ERP) models and comparable earnings tests, while placing less weight on DCF results due to concerns over the accuracy of analysts' growth estimates and the limited number of publicly-traded utilities in Canada.

In order to estimate the cost of common equity, financial analysts typically develop a proxy group of companies with similar operating characteristics and risk profiles to the company under review, and apply the various financial methods outlined above to that proxy group. The results are used to establish a range of reasonableness, and adjustments are made to reflect differences between the proxy group and the company under review.

Diverging Paths

In 1994, British Columbia was the first Canadian province to adopt a formulaic approach to determining the authorized ROE for public utilities. The NEB likewise adopted a generic ROE formula that was contingent on changes in the government of Canada's long bond yield. A common objective among Canadian regulators was to enhance regulatory efficiency by reducing the amount of time and resources spent on battling expert witnesses in contentious and adversarial hearings. Regulators adopted an »

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automatic adjustment mechanism to replace the more traditional methods of determining the allowed rate of return on common equity.

When the generic ROE formula first was employed in Canada, the allowed return for Canadian-regulated utilities was slightly higher than it was for comparably-situated U.S.-regulated utilities. However, as government interest rates steadily declined, the authorized ROE for Canadian-regulated utilities followed a similar downward trajectory. Despite the fact that Canadian and U.S. utilities generally were engaged in almost identical businesses with similar operating and financial risks, the allowed return for Canadian utilities gradually diverged from their American counterparts. Naturally, Canadian utilities and regulators began to question whether this disparity was justified by any observable differences in the relative risk profiles of the

two groups. The Ontario Energy Board commissioned a study to investigate the reasons for the emerging divergence between authorized returns for natural gas distributors in Canada and the United States in an effort to discern whether there were legitimate explanations that would account for the difference.¹

In 2008, Alberta convened a generic cost-of-capital proceeding to investigate the same question as it related to gas and electric utilities in that Province. During the Alberta hearing, evidence was introduced that demonstrated the divergence of allowed returns in Canada and the United States since the adoption of the generic formula (see Figure 1).²

A comparable analysis was introduced in a report to the Ontario Energy Board pertaining to the growing discrepancy between Ontario utilities and their U.S. counterparts (see Figure 2).³

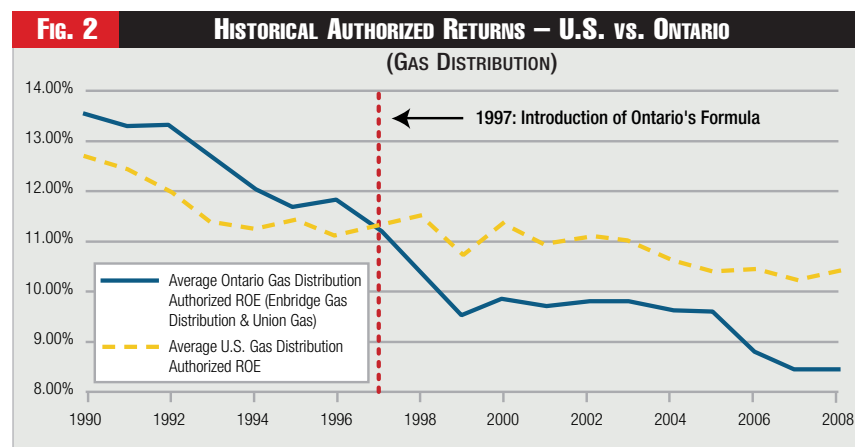
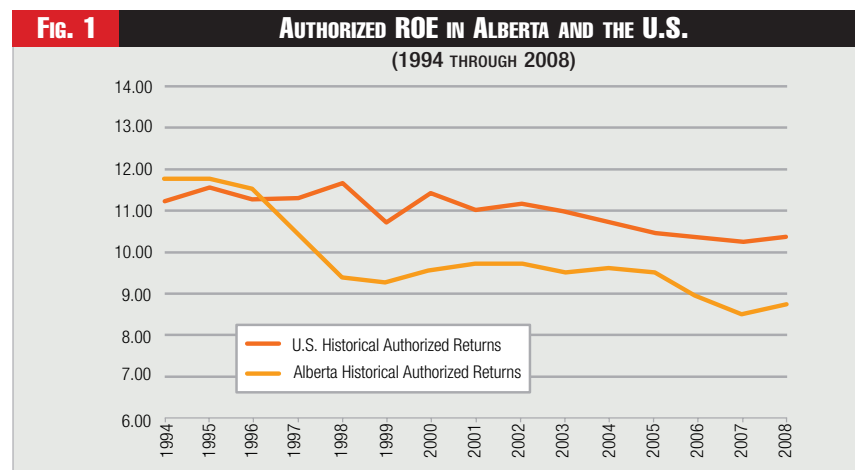
The evidence suggests that the diver-

gence in returns was predicated on the failure of the generic formula to produce a fair return, rather than on any material differences in the risk profiles of Canadian and U.S. utilities. The problem was exacerbated by the flight to quality that occurred during the financial and credit crisis in the United States and Canada in 2008 and 2009. Risk-averse investors fled more risky asset classes, such as common stock and corporate bonds, for the relative safety of government bonds. This drove the interest rates on Canadian and U.S. government bonds to historic lows. Because the generic ROE formula used this government interest rate as its platform, the formula produced abnormally low results during a period in which investors were increasingly risk averse.

Formulaic Approach Problems

A formulaic approach to establish the allowed ROE for a public utility suffers from two primary challenges: 1) developing a formula that captures the complexity of investor-required equity returns amid varied economic and financial market conditions; and 2) updating the formula to reflect current economic and financial market conditions. Canadian utility regulators developed an ROE formula that relied exclusively on changes in the yield on the government of Canada's long bond. For example, under the generic formula adopted in most Canadian provinces, when government bond yields declined by 100 basis points (1 percent) over the course of one year, the authorized ROE would decrease by 75 basis points (0.75 percent). As government interest rates steadily declined after the adoption of the ROE formula, the authorized ROE for regulated utilities followed a similar downward path. However, cost of equity capital doesn't always decline when government bond yields are falling.

A case in point occurred during the recent financial crisis and economic recession, when credit spreads widened significantly and equity market volatility rose to unprecedented levels. The spread between government bond yields and »



corporate bond yields of comparable maturity expanded as central banks reduced their target interest rates in order to stimulate economic growth, while corporate bonds were perceived as more risky because investors were concerned with possible credit downgrades and higher default risks. Similarly, volatility in the equity markets, as measured by indicators such as the Chicago Board Options Exchange Volatility Index and the Montreal Stock Exchange's Implied Volatility Index, rose to unprecedented levels, as equity investors feared financial markets would collapse after the U.S. bankruptcy filing of Lehman Brothers.

Despite the significantly higher risk in both the credit and equity markets, the Canadian ROE formula continued to produce lower returns on equity because government interest rates were declining in response to changes in monetary policy from the Federal Reserve Board and the Bank of Canada. The government bond yield simply failed to accurately reflect the risks associated with owning the common equity of regulated utilities. At a time when required equity returns were unmistakably increasing to reflect the heightened level of risk in financial markets, the formula was producing counter-intuitive results. This occurred because the ERP embedded within the ROE formula remains relatively static,⁴ while, in reality, the ERP is constantly changing as investors' perceptions change regarding the risk-reward relationship for common stocks. This situation demonstrates the difficulty of relying on any single variable—in this case government bond yields—to establish an appropriate ROE that satisfies the fair return standard.

Relative Risk Profiles

One way to assess the reasonableness of allowed ROEs for Canadian-regulated utilities vis-à-vis their U.S. counterparts is to examine the relative risk profiles of the two groups. Some consumer advo-

cates have contended that the difference in authorized returns between Canadian and U.S. utilities can be justified by the differences in relative risk. For regulated utilities, investors generally are concerned with three categories of risk: 1) financial risk; 2) business risk; and 3) regulatory risk. Consumer advocates argue that the Canadian regulatory environment offers additional protection for regulated utilities that aren't available for most U.S. utilities. Specifically, they contend that Canadian-regulated utilities have lower risk profiles due to the use of deferral accounts and variance accounts, which reduce revenue uncertainty, and the prevalence of forecasted test years, which reduce regulatory lag.

However, upon examination of the regulatory landscapes in Canada and the United States, it becomes apparent that there are more similarities than differences. The NEB came to this conclusion when it found "[T]he Board's view [is] that risk differences between Canada and the U.S. can be understood and accounted for, [and] the Board is of the view that U.S. comparisons are very informative for determining a fair return..."⁵ The Ontario Energy Board

Until the early 1990s, U.S. and Canadian regulators followed similar paths in establishing cost of common equity.

concluded when it declared that "North American gas and electric utilities provide a relevant and objective source of data for comparison."⁶

There now have been issued five important provincial and federal deci-

sions pertaining to the continued use of the formula and related cost of capital issues over the past year. Each of these decisions reflects the unique perspectives of the boards and the evidence evaluated, but there are some common threads:

- The current formula was suspended or eliminated in four of the five jurisdictions. Only Quebec kept the existing formula after resetting ROE;
- All boards, except Quebec, found data on U.S. utilities to provide beneficial information in reaching decisions;
- All boards recognized, to some degree, problems associated with exclusive reliance on the CAPM or ERP methods. They all relied upon multiple methods in reaching their decisions, and there was universal agreement with the *Hope* standard that it's the results, and not the method that determines fairness;
- These provincial decisions allowed ROEs in the 9- to 10-percent range for rate periods 2009 through 2011, a considerable improvement over formula-produced ROEs approaching 8 percent for 2009; and
- Equity levels weren't similarly impacted, with only modest changes from prior levels.

While these decisions, taken as a whole, reflect an encouraging trend toward a North American perspective on cost of capital, they also reveal the need for additional analysis and evidence to assist regulators with evaluation of relative risk across jurisdictions and between companies. This approach makes sense as financial markets have become more integrated and global in nature. Canadian utilities are competing for capital with companies from around the world. A lower authorized return places Canadian utilities at a relative disadvantage in terms of raising capital because equity investors typically perceive the risks associated with this group to be similar, if not comparable, to that of U.S. utilities.

Research has revealed that Cana- ➤

dian and U.S. regulated utilities have similar risk profiles, especially in terms of the most important factors that affect the stability of earnings and cash flows. Cost-recovery mechanisms are commonplace in both countries to mitigate various operating risks. For example, regulators tend to approve cost-recovery mechanisms such as fuel-recovery clauses (to pass through the cost of purchased fuel), weather normalization clauses (to account for variations in revenue due to abnormal weather), and revenue decoupling mechanisms (to compensate for declining average use per customer). In fact, regulators in the United States are somewhat more likely to approve weather normalization clauses and revenue decoupling mechanisms. Further, U.S. regulators more commonly approve cost-tracking mechanisms for capital improvements and allow construction work in progress in rate base than do their Canadian peers.

Can a formula work?

The question remains whether regulators can effectively utilize a formula to establish the authorized ROE for regulated public utilities. Despite the inherent appeal of a formulaic approach, there are many obstacles that must be overcome. For example, if the formula is based on a single variable, such as the level of government interest rates, it might not fully reflect the different factors that equity investors consider when determining their required rate of return for a regulated public utility. Further, a formulaic approach can be severely tested when economic or financial market conditions deviate from long-term trends. Volatility in financial markets can cause every asset class to diverge from normal relationships with bonds. A fair return must ensure that the public utility has the opportunity to attract capital and maintain its financial integrity under a variety of different market conditions. The regulator has an

obligation to set ROE so that the utility can raise the capital it needs to continue to provide safe and reliable service to customers. For these reasons, Canadian regulators are beginning either to modify the formula or abandon it entirely. Ontario decided to modify its existing formula in an effort to better reflect the risks associated with owning equity in a regulated utility via the replacement of government bond yields with utility bond yields, and reducing the sensitivity from 0.75 to

There are more similarities than differences in the regulatory landscapes in Canada and the United States.

0.50. The NEB abandoned the formulaic approach in lieu of one that considers the utility’s overall cost of capital, including the capital structure, the cost of long-term debt, and the cost of common equity (ATWACC). British Columbia eliminated its current formula and directed that alternative approaches be examined. Alberta has suspended the use of its formula until financial markets settle and will re-evaluate the matter in 2011.

A formula recently was implemented in California. The California Public Utilities Commission (CPUC) uses the traditional DCF and CAPM approaches to establish the initial baseline ROE every three years, and that rate is then adjusted based on annual changes in corporate bond yields. By relying on a corporate bond yield rather than a government bond yield, the CPUC has chosen a method that reflects some of the risk factors associated with common equity. Both types of financial securities are subject to concerns about credit risk

and default risk, while the government bond yield fails to reflect those important considerations. Regulators will be watching the success of the California formula and the revised Canadian adjustment mechanisms to see if formulae can be implemented while still satisfying principles of a fair return.

Many Canadian regulators are concluding that the task of establishing an appropriate ROE can’t be trusted to an automatic adjustment mechanism or a generic formula dependent on government bond yields. The apparent lesson for U.S. regulators is that they should continue to rely on more traditional methods such as DCF models and ERP models to estimate the range of reasonable returns on equity, and continue applying judgment as market circumstances dictate. Thus far, a generic formula hasn’t proven capable of producing fair and reasonable results under different financial market conditions, unless the results are tempered by frequent review and the judgment and expertise of the regulator, which might defeat the original purpose of adopting a formulaic approach in order to achieve regulatory efficiency. The jury still is out on these newer formulas, but lessons of the past decade illustrate that ROE can’t be placed on auto-pilot. ■

Endnotes:

1. *A Comparative Analysis of Return on Equity of Natural Gas Utilities*, prepared for the Ontario Energy Board by Concentric Energy Advisors, June 14, 2007.
2. Alberta Utilities Commission, *2009 Generic Cost of Capital Proceeding*, direct testimony of James M. Coyne on behalf of ATCO Utilities, Nov. 20, 2008, p.4, and *errata* filed on May 15, 2009.
3. Written comments submitted to Ontario Energy Board in its *2009 Consultative Process on Cost of Capital Review* by Concentric Energy Advisors, on behalf of Enbridge Gas Distribution,, Hydro One and the Coalition of Large Distributors, Sept. 8, 2009, p. 19.
4. The typical Canadian formulaic risk premium increases by 25 basis points for each 100-basis point decline in the long bond yield, and conversely when yields increase.
5. National Energy Board, *Reasons for Decision, Trans Quebec & Maritimes Pipelines, Inc.*, RH-1-2008, March, 2009, p. 71.
6. Ontario Energy Board, EB-2009-0084, *Report of the Board, on the Cost of Capital for Ontario’s Regulated Utilities*, Dec. 11, 2009, p. 23.