Expert Report on the Cost of Capital and Certain Accounting Issues EB-2024-0063

Presentation Day Comments

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Nexus Economics

Overview

- Guidelines from the FRS and 2009 Board Report (experts express some consensus and some divergence)
  - **Multiple models**, **flotation (transaction) costs**, **single capital market**
- Where we are today
  - Ontario Authorized ROE fails to meet the Fair Return Standard
- LEI adjusted to the 2009 Board Report
  - LEI's recommended 8.95% ROE becomes 10.40% with (1**) multiple models**; and (2) **flotation costs**. Consistent with Concentric and Nexus
- Some consensus on the results
  - Different parties, different data, different analyses. Remarkably similar results, with one outlier
- Canada and US capital are a single capital market
- Energy Transition introduces Strategic Risk
  - Not added into Nexus Economics' ROE, but provides context for evaluating ROE results
  - Industry is experiencing once in a generation change
  - Many customers are moving to Net-Zero, regardless of provincial policy
  - Historical industry data does not pick up Strategic Risk
  - The OEB's re-evaluation of the Incremental Capital Module is a positive step - we recommend that the Incentive Rate Mechanism be revised to reflect the impacts of the Energy Transition

Areas of Consensus in ROE Approaches and the 2009 Board Decision

Issue	LEI	Dr. Cleary	Concentric	Nexus Economics	**2009 Board Decision**	**Implied Consensus**
Includes Transaction Costs in ROE Calculation	No	Yes	Yes	Yes	**Yes**	**Include Transaction Costs in ROE**
Multiple ROE Models	No	Yes	Yes	Yes	**Yes**	**Apply Multiple Models**
Include US Utilities in Comparables	Yes	No	Yes	Yes	**Yes**	**Include US Utilities in Comparables**

Consensus exists among experts on a few, but critical, ROE issues.

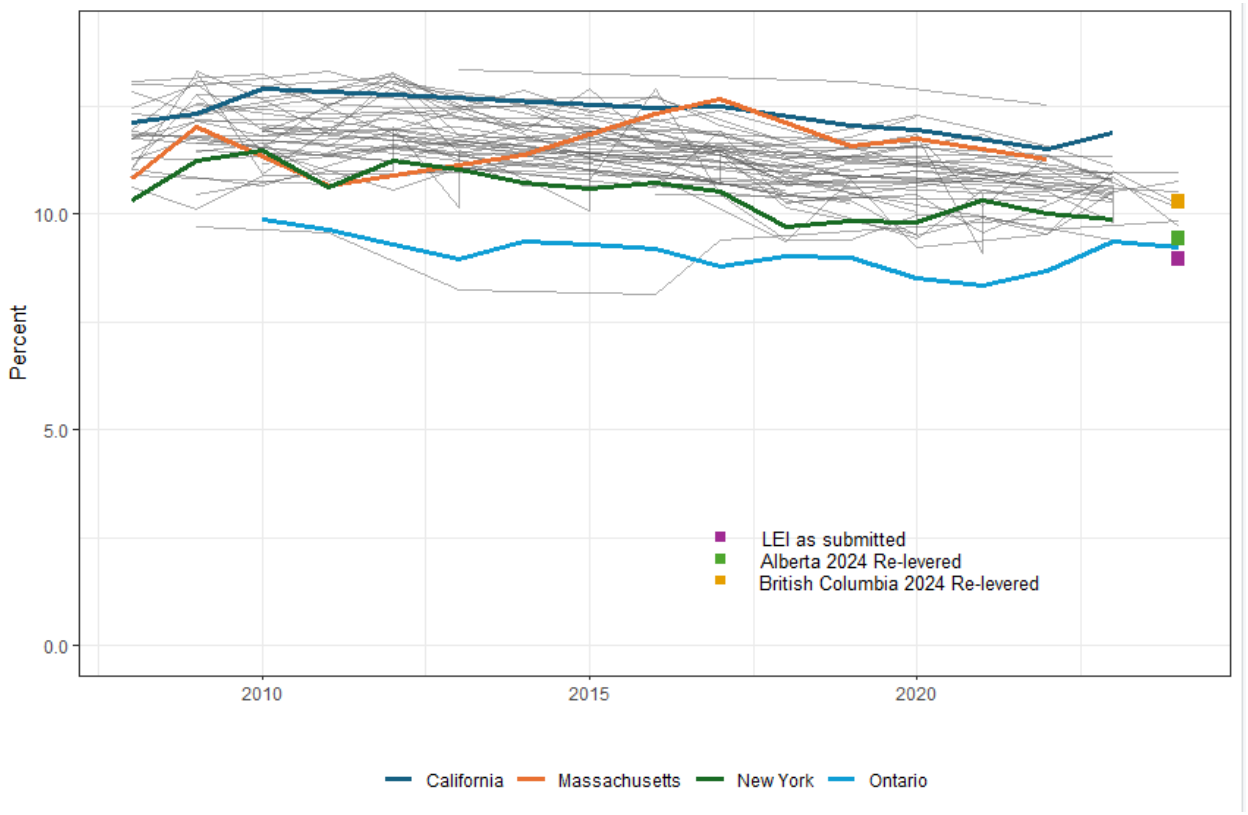
Fair Return Standard: Law & Board Guidance

- All 3 standards must be met
  - Opportunity cost (comparable investment)
  - Financial Integrity
  - Capital attraction
- None ranks in priority
- Other 2009 Board ROE guidance:
  - Forward Looking
  - Market-Determined
  - Bond ratings are not an appropriate indicator of equity risk

By establishing a cost of capital, and an ROE in particular, that is ***comparable to the return available*** *from the application of invested capital to other enterprises of like risk, the regulator removes a significant barrier that impedes the* ***flow of capital into*** *or out of [] a rate regulated entity. The net result is that the regulator is able, as accurately as possible, to determine the opportunity cost of capital for monies invested in utility works, with the ultimate objective being to facilitate efficient investment in the sector.* (2009 Board Report, p. 21)

Ontario is Currently Below Comparable Peer Benchmarks

(relevered to 40% equity thickness)

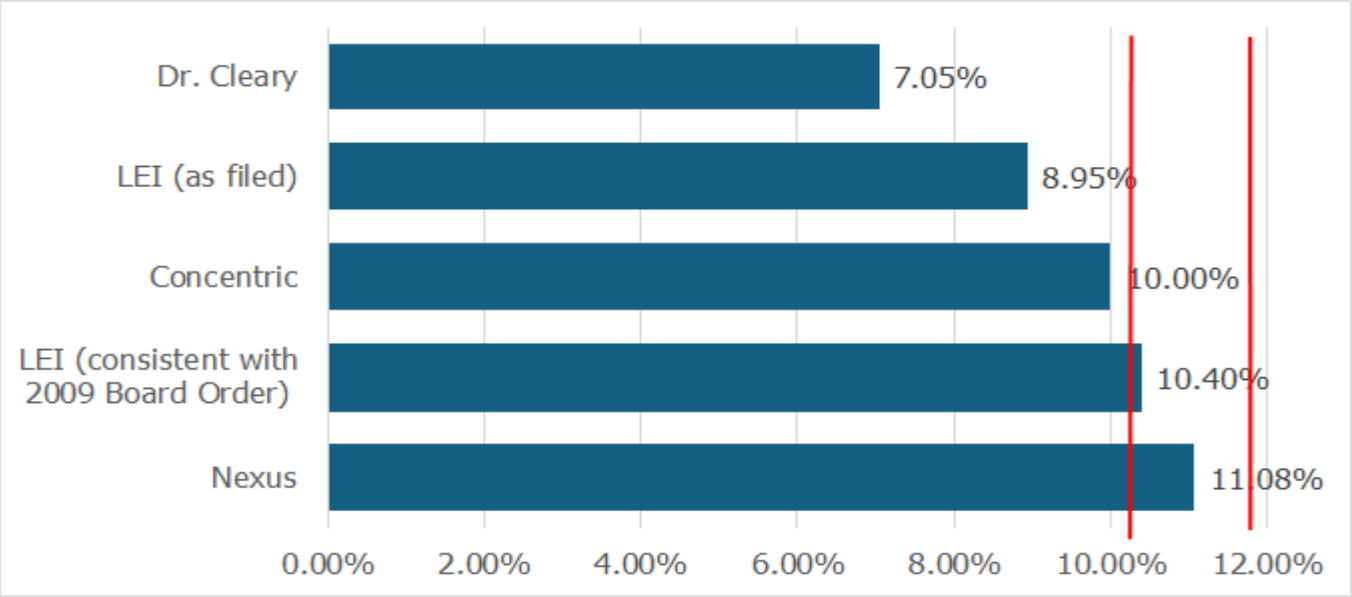


Ontario has consistently been below North American peers when these utilities are re-levered to Ontario's 40% Equity thickness. The Benchmarking provides a mechanism to determine if the deemed ROE is comparable to peers.

Nexus Economics

Implementing the 2009 Board Guidelines Helps Reconcile the Different ROEs

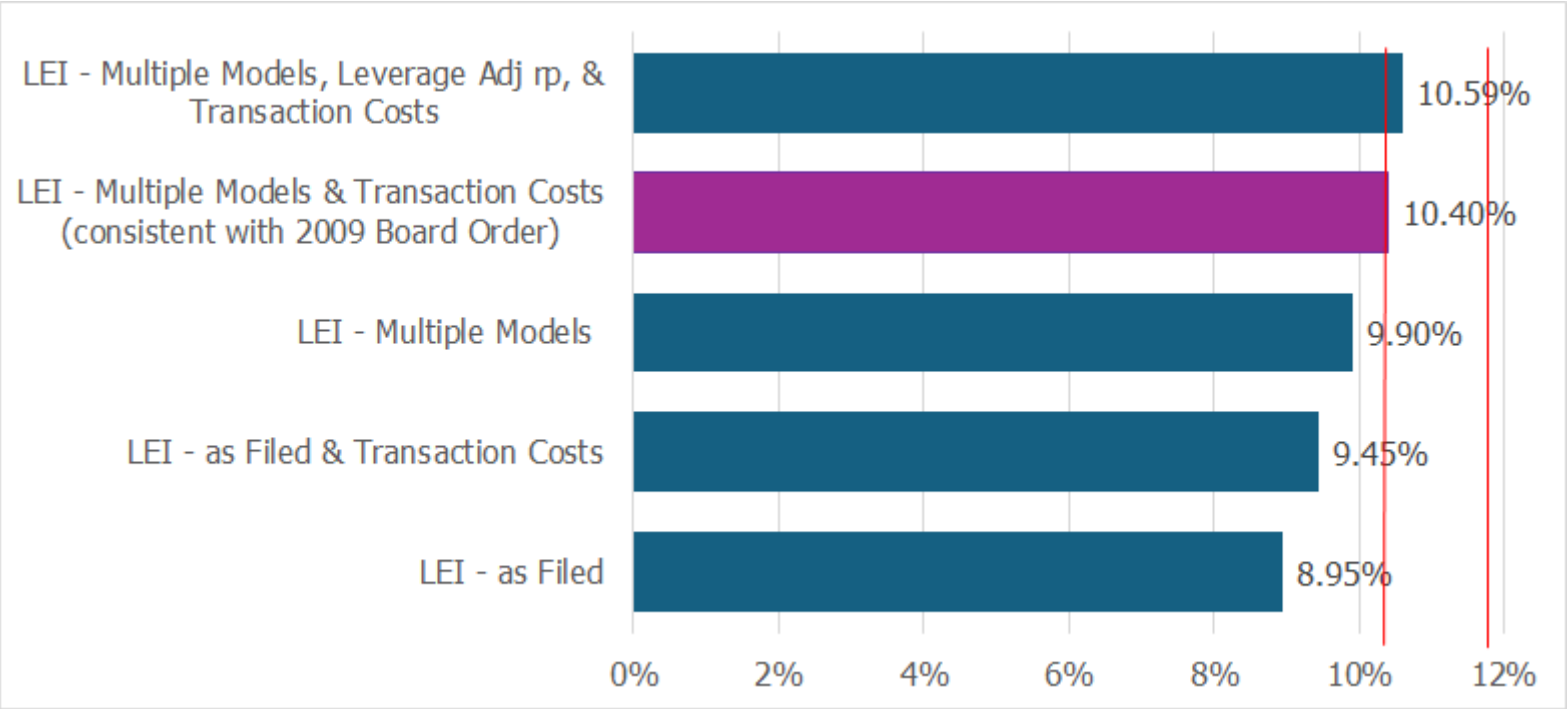
- **Multiple** methods
- **Flotation Costs**
- **Comparability** in operating & financial risks (including US electric utilities)



Concentric, LEI (consistent with 2009 Board) and Nexus are clustered in or near the 95% confidence interval. LEI (as filed) and Dr. Cleary are outliers.

LEI (consistent with 2009 Board Order) = Averages LEI's **multiple ROE approaches** and adds **flotation costs**. (next slide)

Adjusted to the 2009 Order Guidelines, LEI's Analysis Supports an Increase in ROE



Each adjustment is noted in the margin of the graph. Adjusted only for **transactions costs** and **multiple models** (as per 2009 Board), the LEI proposal would be **10.40%** (within the confidence intervals proposed by Nexus and denoted by the red lines).

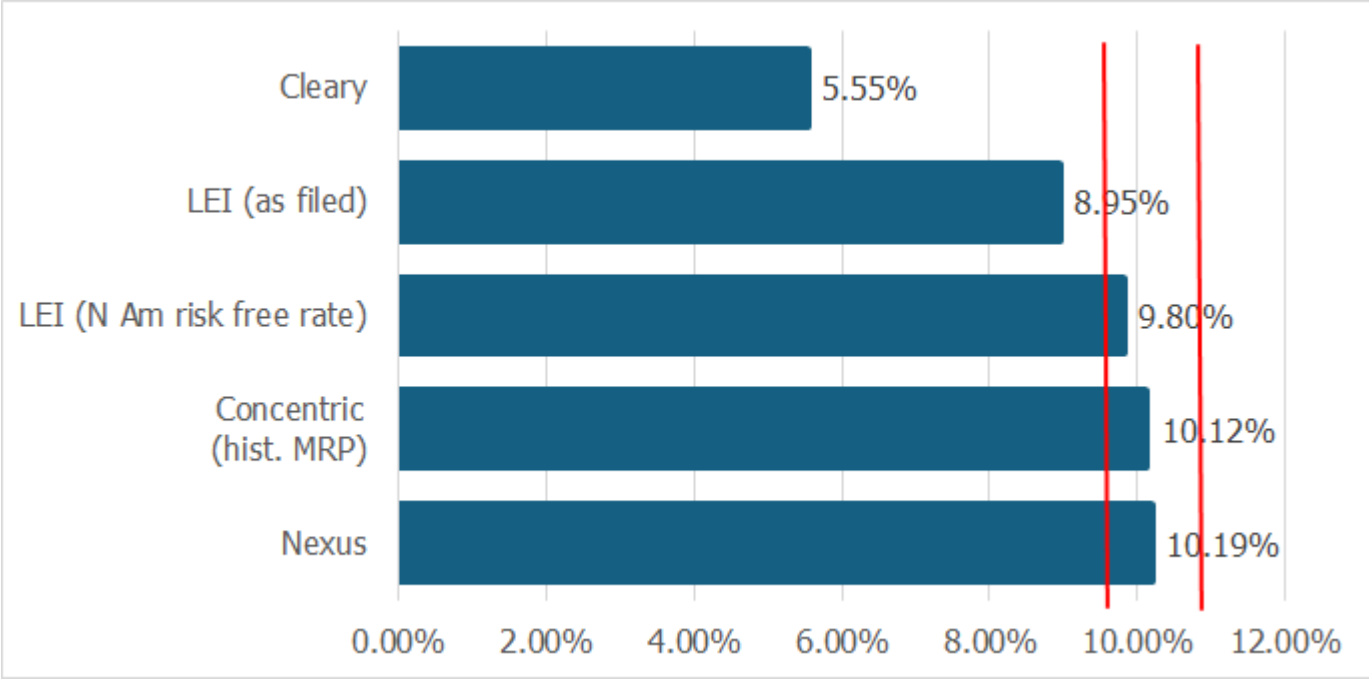
Three Approaches to Estimating ROE

- Capital Asset Pricing Model
- Discounted Cash Flow Model
- Risk Premium Model

Most CAPM Results are Similar

(excludes flotation costs)

- LEI would fit in confidence interval **if** the US risk-free rate of 4.06% were used (producing 9.80%) instead of the 3.19% Canadian rate (producing 8.95%)
- Three CAPM results are within Nexus' 95% confidence interval

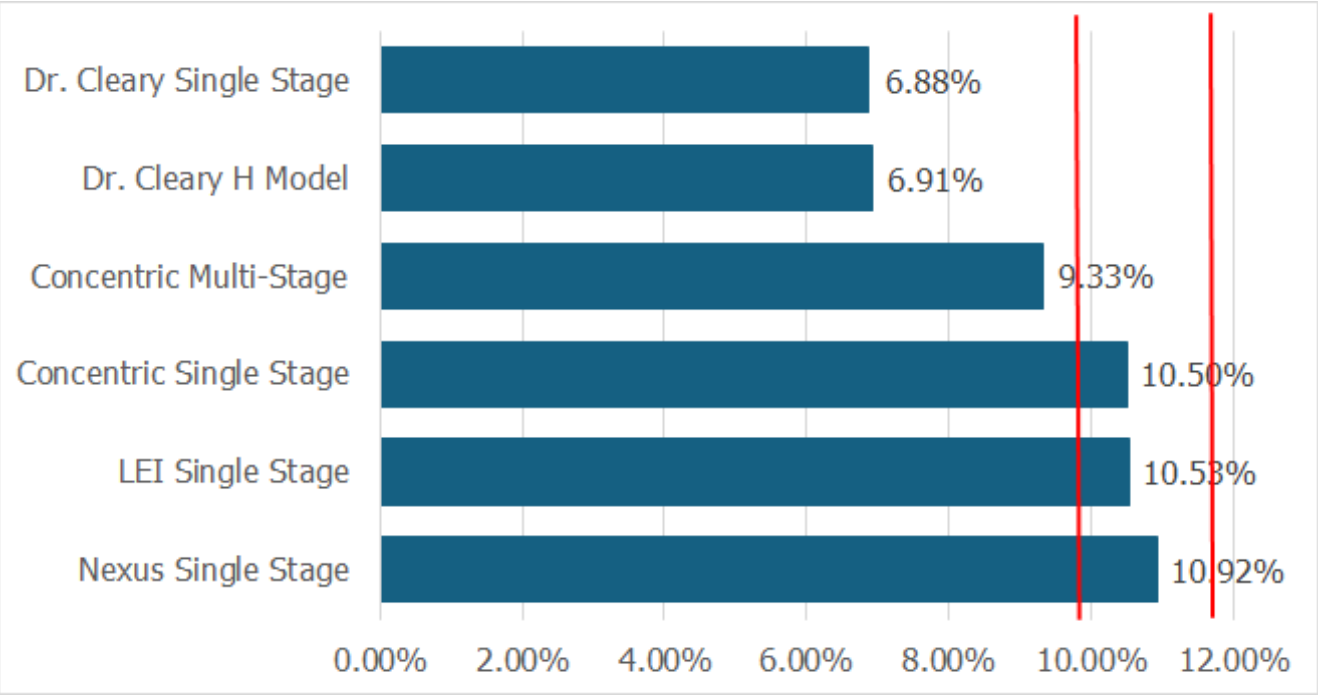


For Canadian electric utilities, Dr. Cleary's 5.55% CAPM result (ex. flotation) offers the investor about the same rate as a Moody's Baa bond (5.56% as of 8/30/2024). The unreasonableness is self-evident.

Most Discounted Cash Flow Results are Similar

(excludes flotation costs)

- Results are within or near 95% Confidence Interval -- except for Dr. Cleary

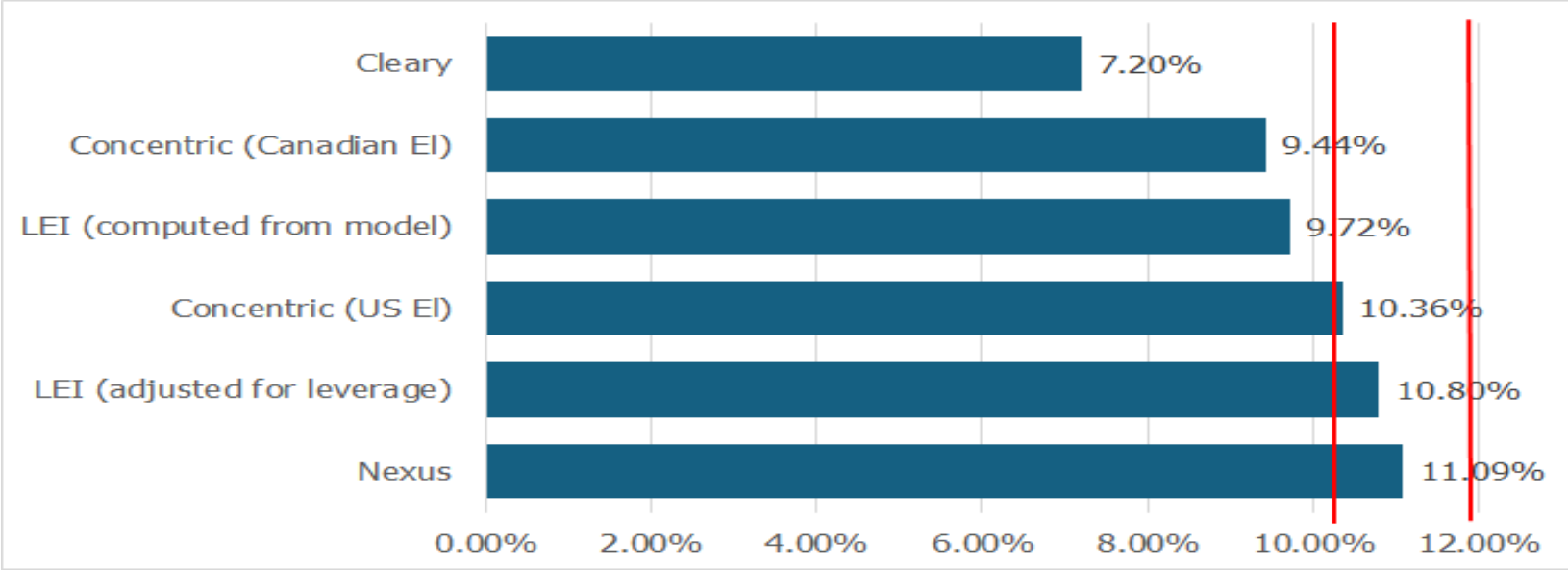


*Differences due mostly to **growth rates** and to **model selection** (single- vs. multi-stage).*

Most Risk Premium Results are Similar

(excludes flotation costs)

- LEI, Concentric, Nexus used similar approaches: reviewed authorized returns
- Concentric (US electrics), LEI (computed from model), LEI (adjusted for leverage), and Nexus are clustered in or close to the 95% confidence interval
- Dr. Cleary reviewed Canadian Corporate Bonds and added a risk premium without any empirical basis – Dr. Cleary's result is an outlier

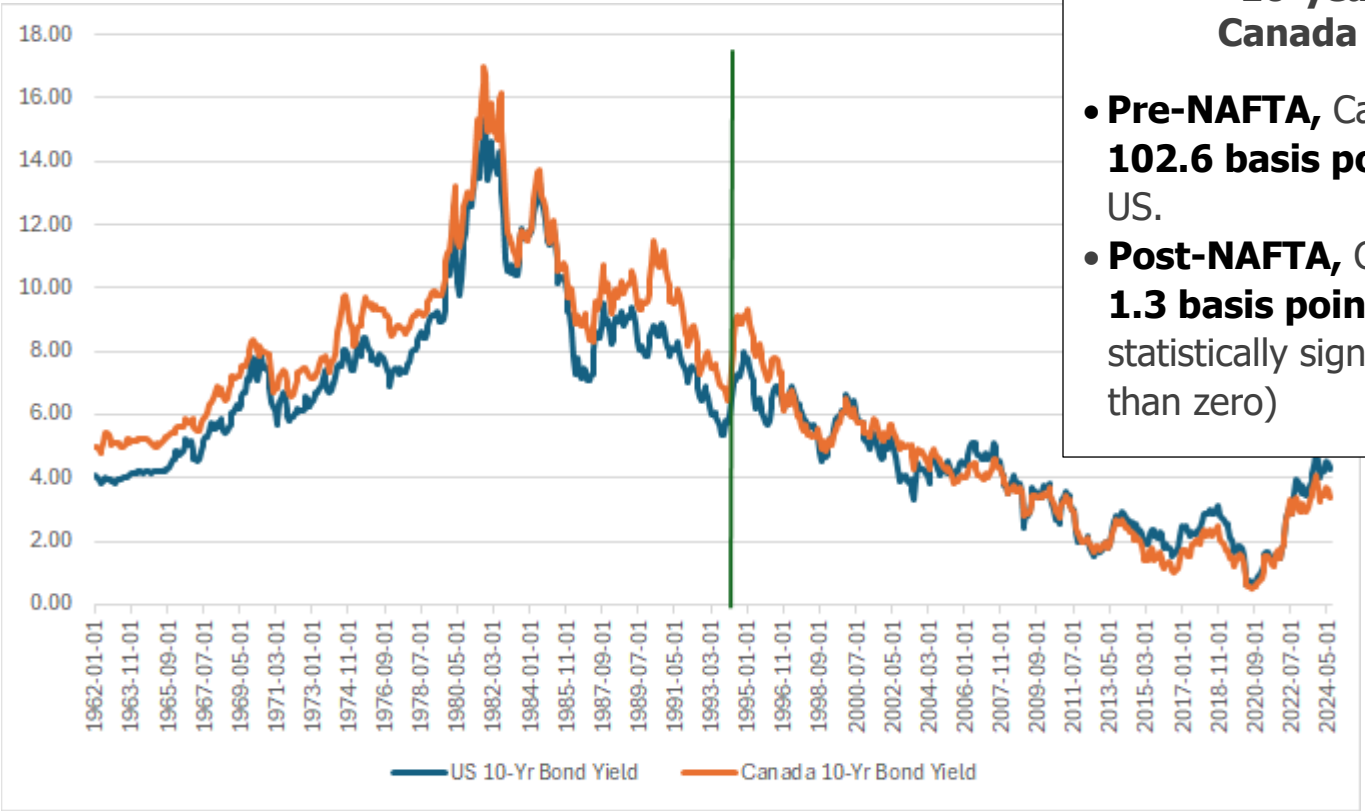


"The risk-adjusted allowed returns on alternative investments in this case is represented by US utilities . […] The U.S. is a relevant source for comparable data." (2009 Board Report, p. 23)

Nexus Economics

Capital Markets have Harmonized Since NAFTA

US & Canada 10 Year Treasury Yields



10-year Yields: Canada minus US

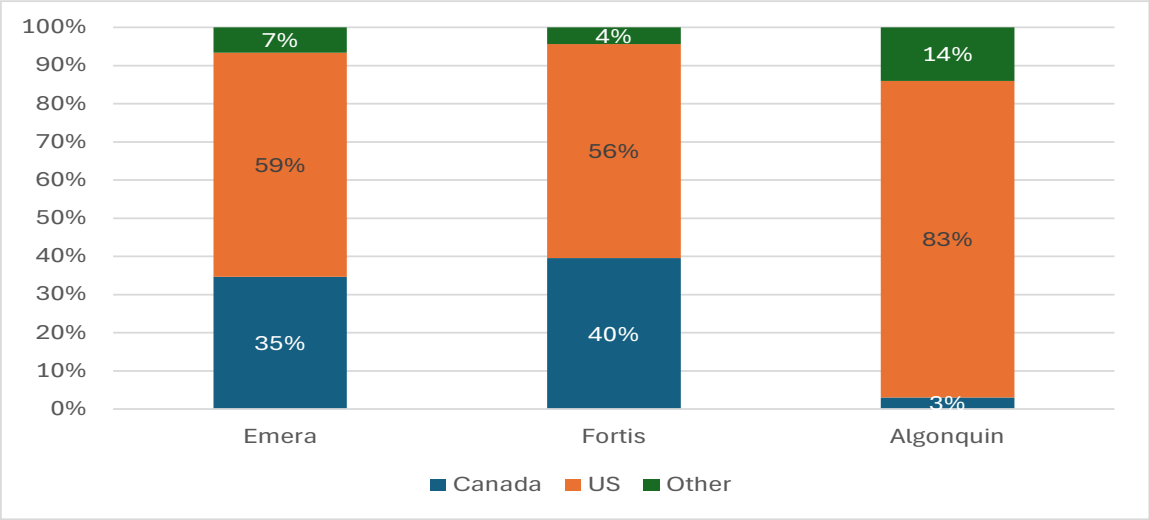
- **Pre-NAFTA,** Canada averaged **102.6 basis points** higher than US.
- **Post-NAFTA,** Canada averaged **1.3 basis points** lower. (not statistically significantly different than zero)

NAFTA in 1994 (and later USMCA) helped harmonize Canadian and US economies and create a **single North American capital market**. Implications: betas and MRPs computed using US capital market data should also use US capital market data to predict new results. US comparables provide **opportunity cost** in competition for capital with Canadian utilities.

Post-NAFTA interest rate differentials are likely transient. LEI's use of the Canadian 30-year bond in lieu of the US 30-year in its analyses is incorrect. Dr. Cleary's decision to ignore US comparables in his analyses is also incorrect.

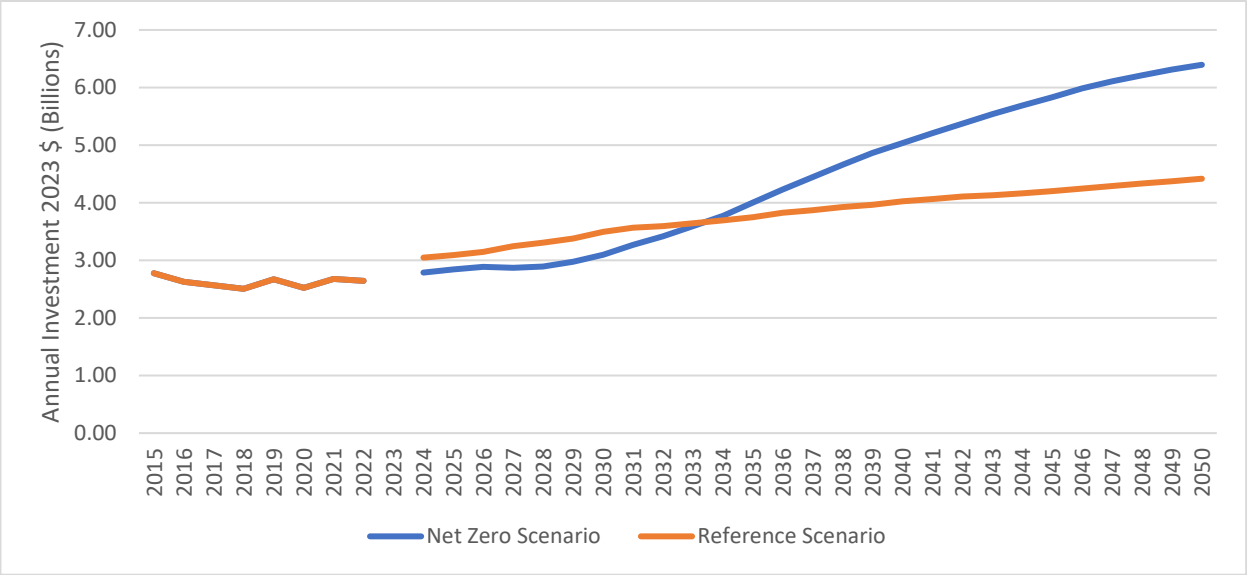
Canadian Peers Have Significant U.S. Operations

- 2009 Board guidance
  - *"Like" does not mean the "same."* (p. 21)
  - *The Board is of the view that the U.S. is a relevant source for comparable data.* (p. 23)
- Three of five Canadian peers are largely US utilities in their operations
- Canadian electric utilities compete with US utilities for capital



Canadian utilities have extensive operations in the US and in some cases are primarily U.S. companies in their operations and revenues. Canadian-based and U.S. firms are comparable.

Changing Load Growth Trends Introduces Strategic Risk to Ontario Distributors



Compare (2014):

An analysis of weather-normalized residential electricity usage per customer indicates an overall decreasing trend in the Province. However, a minority of electricity distributors are experiencing growth in average usage per customer while other distributors are showing no trend in average usage.

"Analysis Investigating Revenue Decoupling for Electricity and Natural Gas Distributors in Ontario," Navigant Consulting, 2014

CAPEX is expected to grow significantly based on IESO projections of load growth. In contrast, historical analyses performed for the OEB provided flat or decreasing load per customer. Therefore, the existing regulatory mechanisms were not designed to reflect the anticipated changes in CAPEX.

Appendix

ROE - Multiple Models >> High-level observations

- All models simplify reality. All models imperfectly capture reality. All models contain unrealistic assumptions. All useful models produce prediction error
  - The CAPM and DCF are based on rational investors. The RP model is based on authorized returns (regulatory-determined prices that form an opportunity cost)
  - If you reject the results of a model because of "unrealistic assumptions", each approach **must** be rejected (see next slides)
- Each ROE modeling approach takes a different perspective on the capital market. Collectively, they may reinforce one another. If they contradict one another, more research is required
- One may be more accurate in a particular situation but not in another
- Using multiple can help establish a zone where the true Ke is
- Use of a single model, such as the CAPM - - without contemplating confidence intervals or other models - - produces false assurance as to the correct ROE

[M]odels are to be used but not to be believed. Henri Theil. PRINCIPLES OF ECONOMETRICS. (New York) (1971) John Wiley & Sons, p. vi

[A]ll interesting models involve unrealistic simplifications. (Fama & French, The Capital Asset Pricing Model: Theory and Evidence. Journal of Economic Perspectives—Volume 18, Number 3—Summer 2004—Pages 25-26, p. 30)

ROE - Multiple Models >> Evaluating the 3 methods

- **CAPM**
  - *[The] empirical record of the [CAPM] is poor—poor enough to invalidate the way it is used in application.* (Fama & French)
  - Produces wrong results *even when seemingly reasonable inputs are used*:
    - CAPM Ke estimates are biased low for low beta stocks
  - CAPM assumes infinite short selling
  - CAPM attributes **all** investor risk assessment to a single variable - - beta – when empirical research shows that investors consider other factors as well
  - CAPM's betas are historical and vary considerably - - even for a single company
  - Market Risk premium has large variability depending on historical, forward-looking.
    - *The problems [of CAPM mis-estimation]* ***are compounded by the large standard errors of estimates of the market premium and of betas for individual stocks, which probably suffice to make CAPM estimates of the cost of equity rather meaningless****, even if the CAPM holds* (Fama and French)

Unfortunately, **the empirical record of the [CAPM] is poor—poor enough to invalidate the way it is used in applications**. The CAPM's empirical problems may reflect **theoretical failings**, the result of many simplifying assumptions. But they may also be caused by **difficulties in implementing** valid tests of the model. Eugene F. Fama and Kenneth R. French, "The Capital Asset Pricing Model: Theory and Evidence," Journal of Economic Perspectives. Volume 18, Number 3—Summer 2004—pp. 25-46.

ROE - Multiple Models >> Evaluating the 3 methods (2)

- **Discounted Cash Flow**
  - Based on the fundamental theory of value
  - Results are sensitive to growth rates
  - Multi-stage is **complex** and requires unsupportable assumptions about the future

- **Risk Premium**
  - Ad hoc. No real theory supporting it
  - May be helpful in determining a relevant **opportunity cost**
  - **Model specification** is an open issue

Care must be taken when using any model, including the CAPM, due to known (and perhaps unknown) frailties.

ROE >> Detail of Results

Comparison of ROE Recommendations					
		Lower Confidence Limit	Average	Upper Confidence Limit	Comment
[1]	LEI (as filed)		8.95%		excludes flotation
[2]	LEI (using 2009 Board methods)		10.40%		DCF, CAPM, rp. Includes flotation. Excludes US rf adj.
[3]	LEI (adjusted)		10.59%		DCF, CAPM, rp. Includes flotation. Includes US rf adj.
[4]	Dr. Cleary		7.05%		includes flotation
[5]	Concentric		10.00%		includes flotation
[6]	Nexus	10.36%	11.08%	11.81%	includes flotation
[7]	Nexus (Alt Comps)	10.19%	10.81%	11.43%	includes flotation
[1]	See, LEI Report pp. 120-122 and Figure 41.				
[2]	Simple average of DCF (10.53%), CAPM (8.95%) and rp from Figure 69 (10.80%) + 50 bps for flotation.				
[3]	As with [2], but using US risk-free rate in place of Canadian 30-year bond rate in CAPM.				
[4]	See, Cleary report, p. 46.				
[5]	Concentric Report, p. 9 at Figure 1.				
[6]	Nexus Report, p. 38.				
[7]	Nexus CAPM and DCF recomputed using Concentric's list of comparable firms (ex. Canadian Utilities Ltd due to data limitations during the short time period).				

ROE – Models >> CAPM >> Detail of Results

- Most results are within or close to the Nexus 95% Confidence Limits

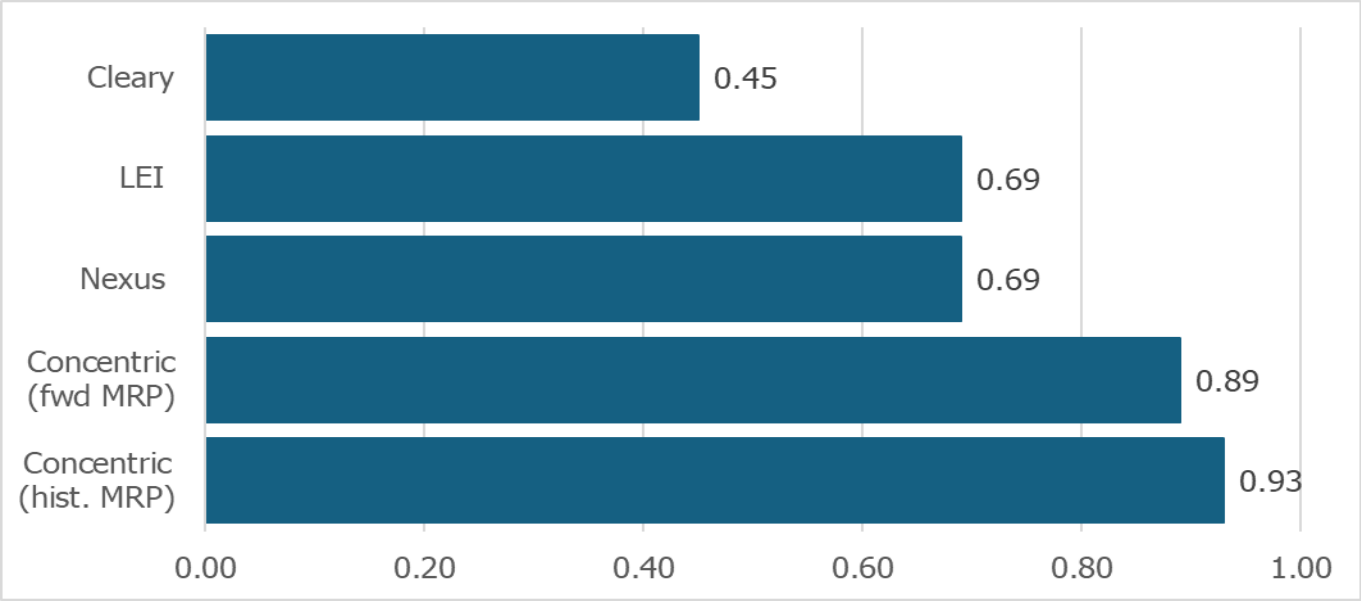
Comparison of CAPM Results (all CAPM ROEs exclude flotation costs)							
		rf	Beta	MRP	Ke (CAPM)	Lower Confidence Limit	Upper Confidence Limit
[1]	LEI (as filed)	3.19%	0.69	8.32%	**8.95%**		
[2]	LEI (N Am. Capital Mkt)	4.06%	0.69	8.32%	**9.80%**		
[3]	Cleary	3.30%	0.45	5.00%	**5.55%**		
[4]	Concentric (hist. MRP)	4.14% (US) 3.46% (CA)	0.93	6.43%	**10.12%**		
[5]	Concentric (fwd MRP)	4.14% (US) 3.46% (CA)	0.89	11.07%	**14.43%**		
[6]	Nexus (as filed)	4.06%	0.69	8.83%	**10.19%**	9.73%	10.65%
[7]	Nexus (Alt. Comps)	4.06%	0.65	8.83%	**9.75%**	9.25%	10.26%

[1]	See, LEI Report p. 120 at Figure 41.
[2]	LEI adjusted by putting in US rf (4.06%) in place of Canadian 30-year bond forecast rate.
[3]	See, Cleary Report, p. 79 for rf; p. 92 for beta; and p. 86 for MRP. Ke has the flotation adder of 0.5 ppts removed.
[4]	See, CEA Report, p. 65 for rf; pp. 66 and 70-71 for beta; pp. 69-71 for MRP. See also OEB Ontario ROE Exhibits 2007.19.24 at pdf p.
[5]	See, CEA Report, p. 65 for rf; pp. 66 and 70-71 for beta; pp. 69-71 for MRP. See also OEB Ontario ROE Exhibits 2007.19.24 at pdf p.
[6]	See, Nexus Report, p. 63 for rf; pp. 64-69 for betas (and NAICS 2211 (as filed).xlsx at tab [Ke Analysis]; p. 63 for MRP.
[7]	Nexus Ke spreadsheet using Concentric's list of comparable firms (except for CU Ltd due to adjustment issues).

Dr. Cleary's result of 5.55% is over 18 standard errors even from LEI's (N. American Capital Market) of 9.80%. The probability that Dr. Cleary is measuring even the same concept as LEI, Concentric, or Nexus is infinitesimally small.

ROE – Models >> CAPM >> Beta

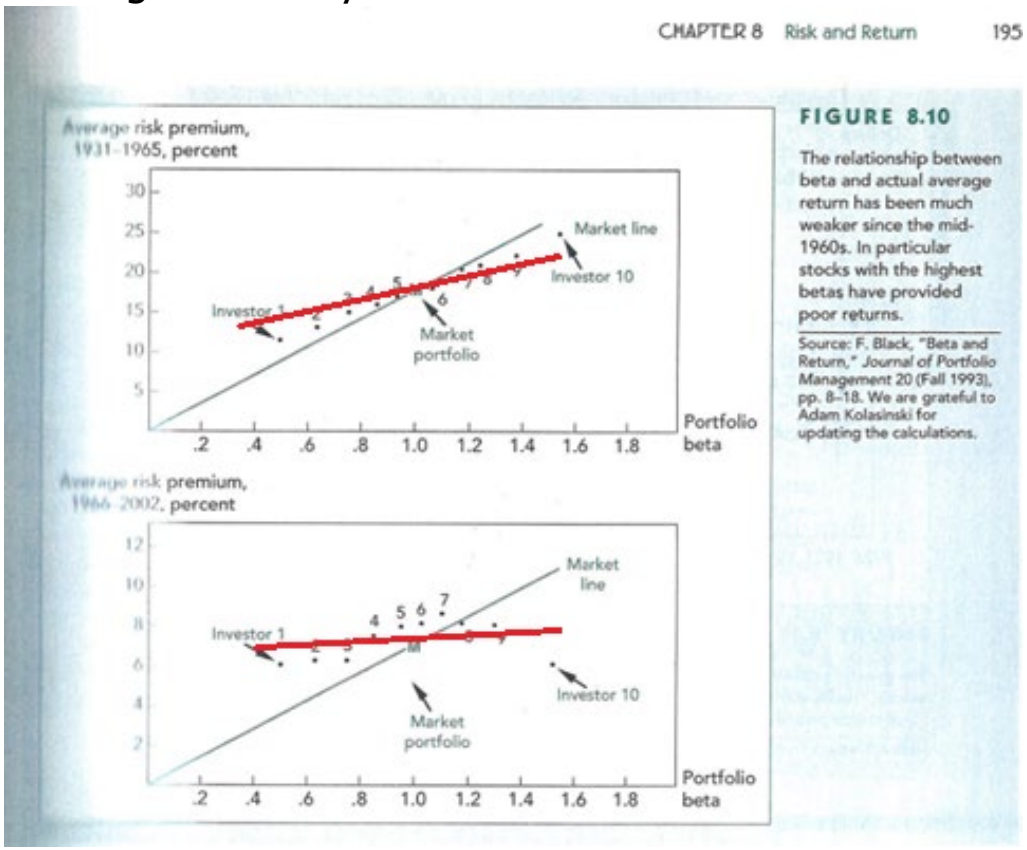
- Betas used by LEI, Nexus, Cleary, and Concentric are historical. They should be forward-looking, but this is not possible in this case
- Dr. Cleary's beta (0.45) is less than one-half that used by Concentric in its historical CAPM model (0.93).



Betas can change substantially over time. Using a long-term average as a predictor of the forward-looking beta has no economic basis. It assumes economic stasis and no fundamental firm, industry, or economic changes.

ROE – Models >> CAPM >> Blume Adjustment

- CAPM predictions are wrong when using historically estimated betas. CAPM performance has gotten worse over time.



Black line (Market line) = CAPM prediction

Red line = actuals

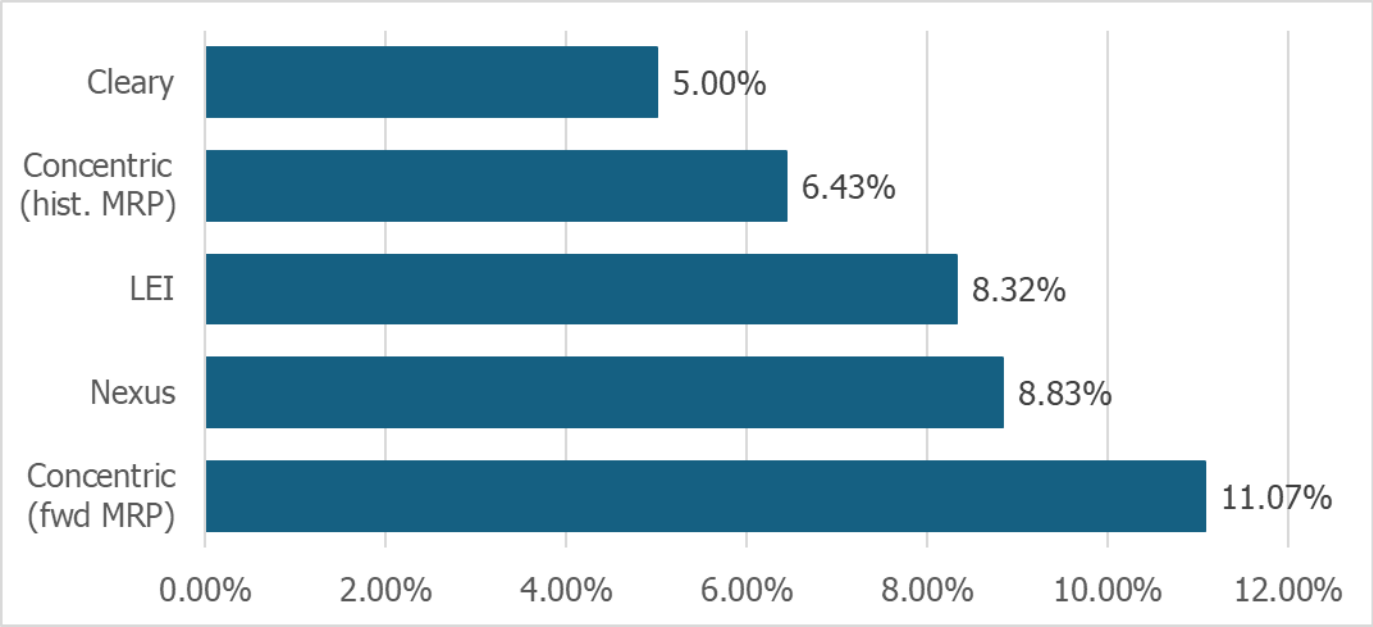
Source: Brealey & Meyers MBA Finance textbook (based on Fisher Black JPM article and updated)

Blume adjustment **helps correct** for poor CAPM performance.

*[E]mpirical work, old and new, **tells us that the relation between beta and average return is flatter than predicted** by the Sharpe-Lintner version of the CAPM. As a result, CAPM estimates of the cost of equity for […] low beta stocks are too low*
(Friend and Blume. 1970).

ROE – Models >> CAPM >> Market Risk Premium (1)

- LEI and Nexus MRPs are reasonably close
- Dr. Cleary MRP is substantially lower than all others
- Nexus MRP is forward-looking and based on market evidence. We nevertheless recognize that differences in the MRP make the CAPM less reliable as an estimating tool



ROE – Models >> CAPM >> Market Risk Premium (2)

- Market Risk Premium used for CAPM is estimated with **large standard errors**
- Results of MRP estimates are **statistically uncertain**
- Historical MRP 1927-2003 is 8.3% (Nexus estimated a forward-looking MRP of 8.83%, with a longer-term risk-free rate, or the same assuming a flat yield curve)
- From 2013 Nobel winner Eugene Fama (& Kenneth French):

> *[T]he average value of the equity premium RMt - Rft for 1927–2003 is 8.3 percent per year, with a standard error of 2.4 percent.* ***The two standard error range [on the historical Market Risk Premium] thus runs from 3.5 percent to 13.1 percent, which is sufficient to make most projects appear either profitable or unprofitable.***

Eugene F. Fama and Kenneth R. French, "The Capital Asset Pricing Model: Theory and Evidence," Journal of Economic Perspectives. Volume 18, Number 3—Summer 2004—pp. 25-46 at footnote 7.

Even well-defended MRPs can vary enough to make an investment appear profitable or unprofitable. This implies that CAPM results may provide little information regarding the asset's cost of capital.

ROE – Models >> CAPM >> Market Risk Premium (3)

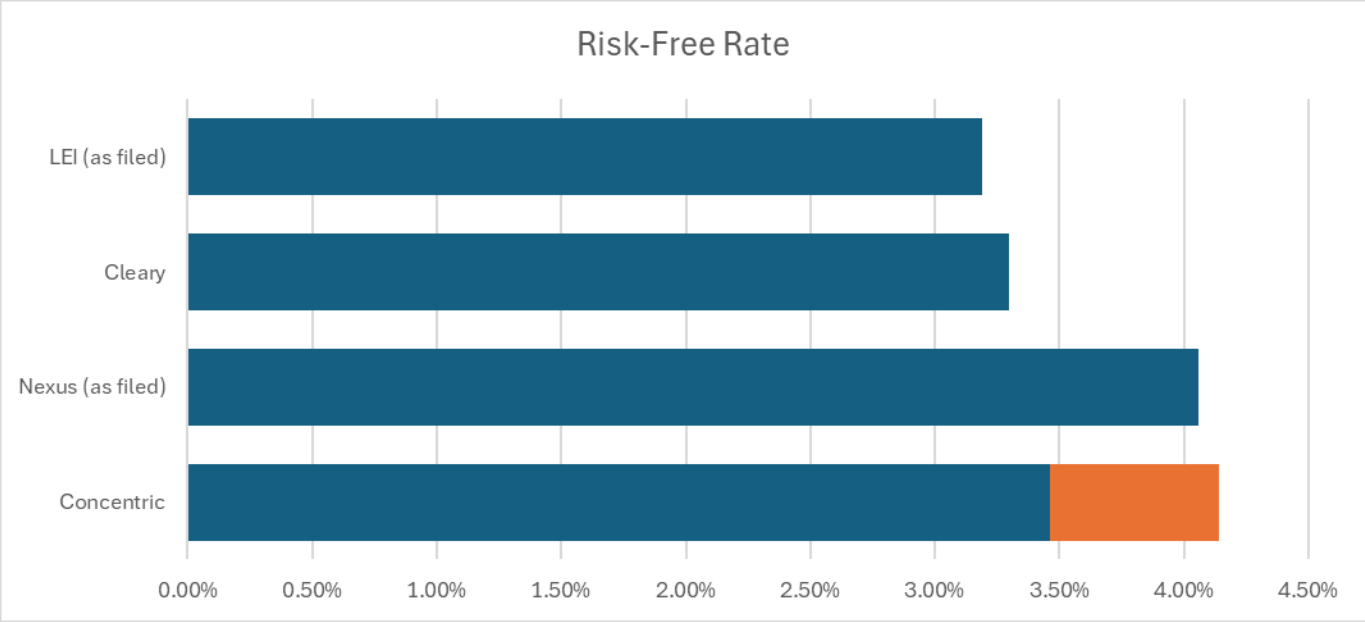
- MRP based on the "br" method is useful
- Nexus' br computations show g=11.49% (S&P 500 ROE of 17% x (1- dividend payout ratio of 35.5%)
- "Sustainable" growth of 4% requires the market's ROE to decline by 60+% to about 6% and stay there forever
- The table shows that recent ROE is around 17%, PE is around 25x, and M2B ratio is around 4.25
  - ROE at 6% but retaining the PE requires that M2B decline to 1.5. This is not high enough. (See slides on Tobin's Q)
  - Or, PE will have to triple to 71x to maintain the M2B ratio of 4.25
  - Either must be defended rather than simply adopted **since neither provides any more realism or accuracy** in the result than does the single-stage DCF

			Scenarios	
		Today	Required for 4% Growth	Required for 4% Growth
[1]	ROE	17%	6%	6%
[2]	PE	25	25	71
[3]=[1] x [2]	M2B	4.25	1.5	4.25

An economist should explain the evidence pointing to a market ROE declining from 17% to 6%. Simply saying "it needs to be this way" is not an economic way of thinking about a problem and provides no more "realism" than does using the single-stage DCF.

ROE – Models >> CAPM >> Risk Free Rate (1)

- Nexus US and Concentric (blue+orange= approx. 4.2%) are US rates and are relatively close.
- LEI and Cleary use Canadian rates.
- Concentric uses blended (Canadian rf for Canadian firms in the sample, and US rf for US firms in the sample)

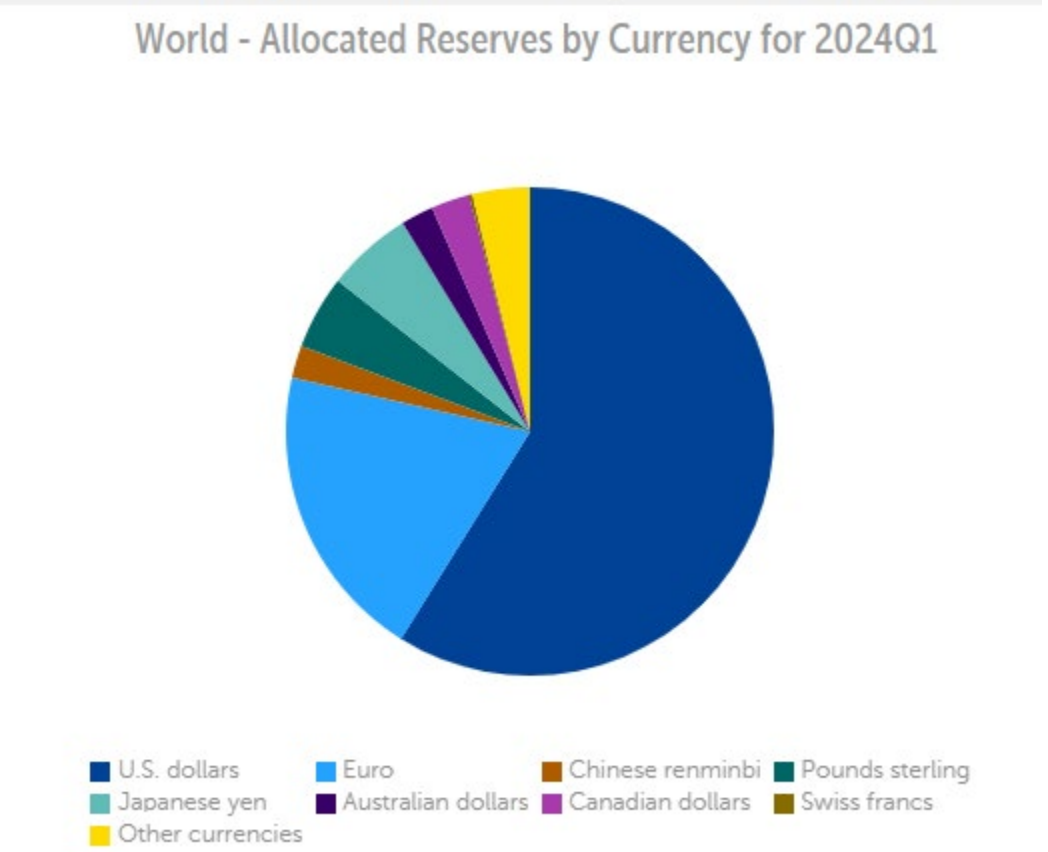


With a **single capital market**, it is relevant to use a single risk-free rate and not mix and match. This is especially the case with LEI who specified their MRP and betas using US dollar-based data.

Nexus Economics

ROE – Models >> CAPM >> Risk Free Rate (2)

- The US dollar is substantially the reserve currency of the North American Capital Market, and the world
- Since the mid-1990s the Canadian and US yields have been substantially the same indicating that any current yield differences are transient



ROE – Models >> DCF >> Detail of Results

Comparison of DCF Results (excluding flotation costs)										
		Type	Div Yield	Growth Period 1	Growth Period 2	Growth Period 3	Ke (DCF)	Lower Confidence Limit	Upper Confidence Limit	Margin of Error
[1]	LEI	SS	4.12%	6.41%	same	same	**10.53%**			
[2]	Dr. Cleary	SS	5.06%	1.77%	same	same	**6.91%**			
[3]	Dr. Cleary H-Model	H-Model	5.06%	1.91%	na	1.70%	**6.88%**			
[4]	Concentric (SS)	SS	4.50%	5.98%	same	same	**10.50%**	9.37%**	11.37%**	
[5]	Concentric (MS)	MS	4.87%	5.98%	4.99% (avg)	4.00%	**9.33%**			
[6]	Nexus	SS	3.56%	7.11%	same	same	**10.92%**	9.92%	11.93%	1.01%
[7]	Nexus (Alt. Comps)	SS	3.54%	6.67%	same	same	**10.44%**	9.81%	11.07%	0.63%

[1]	See LEI Report p. 115, Figure 37 and 116, Figure 38. Ke is an average of individual companies and so may not be directly computable from the averages of the Dividend Yield and Growth Rate.
[2]	See, Cleary Report, p. 103 for 6.91% (excluding flotation). Dividend yield is from Cleary Table 12. Growth is implied using the 6.91% result.
[3]	See, Cleary Report, p. 105 at Table 12 of 6.88% (excluding floation). Same dividend yield as [2].
[4]	See, CEA Report, pp. 61-62 and OEB Ontario Exhibits 07.19.2024.pdf at p. 9. **These are low and high estimates, not confidence intervals.
[5]	See, CEA Report, pp. 61-62 at Figure 13 (with 50bp flotation removed) and CEA-5, p. 4 of 6 (at pdf p. 15). Growth is from Figure 11.
[6]	See Nexus Report pp. 69-70. See also NAICS 2211 (as filed).xlsx at tab [Ke Analysis] for average Growth Rate (columns V through Y) and the implied Dividend Yield (based on a company-by-company computation).
[7]	Same as [6] but using Concentric's comparable firms.

Dr. Cleary's result of 6.91% is 4.75 standard errors from Concentric's Multi-State DCF results of 9.33% (next lowest).

ROE – Models >> DCF >> Single stage

- **Single Stage**
  - **Understandable**
  - **Minimizes intervention** by the ROE analyst
  - **Useful and insightful**, especially if using forward-looking growth rates by investment analysts
  - Growth
    - Growth of 7% each year based on investment analyst averages
    - Not unreasonable during the adoption of Electrification, Net Zero, AI (to 2050)
      - Capex growth rate for Net Zero is forecast to triple from 1% to 3% (excluding inflation) between now and 2050
    - Provided that Ke > g, a growth rate in excess of GDP growth nevertheless produces **finite valuations** because each year in the future is discounted more and more
  - GDP & inflation estimates after 2050 have wide confidence intervals

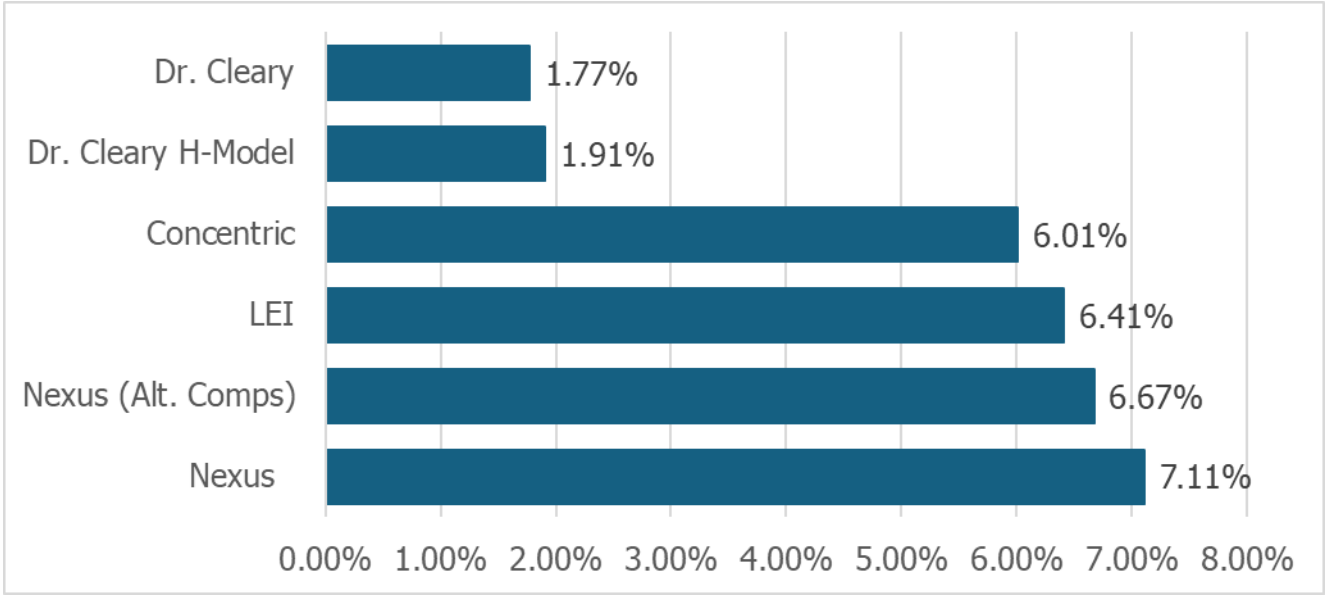
Tradeoffs with the single-stage and multi-stage DCF. This underscores why **multiple models are important**.

ROE – Models >> DCF >> Multi-stage

- **Multi-Stage DCF**
  - **Useful**, but complex
  - **More logically realistic** regarding growth rates than the single stage
  - **Tradeoff**: Requires more analyst intervention, which means the **results can be more easily engineered**. Analyst must:
    - Determine the timing and glide path from first-period growth to terminal growth
    - A first period growth of 5 years is short in light of Electrification and Net Zero by 2050 (26 years) -- may require continued growth
    - Terminal growth may occur 20- to 30-years in the future
      - Estimates of GDP growth and inflation 20+ years in the future are unknowable -- standard errors around those future estimates would be substantial
  - Other parameters (i.e., length of transition, type of transition, and terminal growth rate guesstimates at best)

ROE – Models >> DCF >> Growth Rate

- Dr. Cleary's growth rates are lower than all others by factors of 3 to 4x
- Nexus, LEI, and Concentric are reasonably clustered (this is the growth rate used in the single-stage models and the first stage of the multi-stage models)
- Nexus used market data - - growth rates available from investment analyst
  - Are investment **analysts biased optimistically? (see next slide)**
  - Is the "sustainable growth rate" (Dr. Cleary's approach) useful for electric utilities? (2nd next slide)



Nexus Economics

ROE – Models >> DCF >> Growth Rate Analyst Forecasts

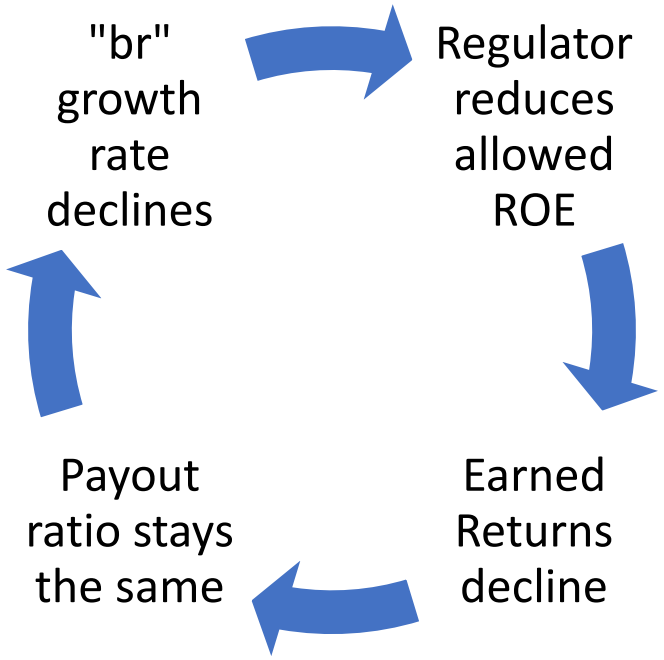
- Dr. Cleary provides a **2007** paper that concludes analyst forecasts are biased high
- FINRA law seeks to remove bias. Passed in 2015 (updated in 2019)
- **FINRA 2241(b)(2)(f)** requires
  - Analysts must be **evaluated annually** by the Compensation Committee
  - Committee may not have any member from the investment banking department
  - The Committee **must** (*inter alia*)
    - Evaluate the **quality** of the analyst's research; and
    - [Evaluate] **the correlation between the research analyst's recommendations and the performance of the recommended securities** (direct quote, emphasis added).
- Recommending growth rates **without a reasonable basis is a violation** of FINRA and could result in sanctions and legal actions against the analyst and/or employer
- Dr. Cleary rejects analyst growth rates but accepts analyst MRP estimates, which likewise would be too low (to overvalue a stock)

Dr. Cleary's evidence is out of date in the modern investment world

FINRA 2241(c)(1)(b): *[A]ny recommendation, rating or price target [must be shown to have] a **reasonable basis** and [be] **accompanied by a clear explanation of any valuation method used and a fair presentation of the risks** that may impede achievement of the recommendation, rating or price target.*

ROE – Models >> DCF >> "Sustainable" growth

- This growth rate is: $g = br$ or sometimes $g = br + sv$
- b= 1-Dividend Payout Ratio, r = ROE (from accounting books)
- s=expected increase in stock (through new issues), v=accretion to shareholders
- g=br is **not suited to regulated firms**
  - Circularity. Lower earned ROE (and same b) results in lower g and hence lower allowed ROE
- Nexus used the br approach to compute MRP from market data
  - We didn't use br+sv since stock buybacks reasonably balance stock issuances on a market level. This is not necessarily true for electric utilities in this transitionary environment



With earned ROE of 8.0% and retention of 30%, then dividend growth can be no faster than 2.4% (same or less than inflation, so no real growth). Is this enough growth to achieve Electrification?

ROE – Models >> RP >> Detail of Results

- Most of the results are above 9% (excluding flotation) and around 10% (including flotation) and adjusting for leverage differences between the US and Canada

Comparison of Risk Premium Results (excluding flotation costs)					
		Lower Confidence Limit	Recommended Average	Upper Confidence Limit	Comments
[1]	LEI (computed from model)		9.71%		Not adjusted for leverage
[2]	LEI (adjusted for leverage)		10.70%		
[3]	Cleary		7.20%		
[4]	Concentric (Canadian El)		8.93%		Not adjusted for leverage
[5]	Concentric (US El)		9.86%		Not adjusted for leverage
[6]	Nexus	10.19%	11.09%	11.98%	
[1]	See, LEI Report, Figure 69 for formula: Auth ROE = 8.416 + 0.25904 US 30-Yr + .12883 Moodys Baa. Subract out 50 bp for flotatoin that may be granted by state authority.				
[2]	LEI result of 9.71% based on US firms with an average equity thickness of 50%. Adjusted to 40%				
[3]	See, Cleary Report, pp. 107-108. This is based on a different methodology so no flotation costs were removed.				
[4]	CEA Report, p. 79 and CEA-9, p. 2 of 2. Less 50 bp for floation.				
[5]	CEA Report, p. 76 and CEA-8.2, page 3 of 3 of 10.36% less 50 bp for flotation.				
[6]	See Nexus Report pp. 69-70. See also NAICS 2211 (as filed).xlsx at tab [Ke Analysis] for average Growth Rate (columns V through Y) and the implied Dividend Yield (based on a company-by-				
	NOTE: Concentric US relevered from 50% to 40% equity would increase from 9.86% to 10.87%.				
	9.86% (i.e., 10.36% - 0.5%) to 10.87% ex flotation or 11.37% with flotation added in.				
	No change to the Canadian since this likely would be levered to 40% already.				

ROE – Models >> RP >> Authorized Returns Data

- **Are Authorized ROEs relevant to investors**? **Yes.**
  - Are **substituting** for what would be the **price** in an unconstrained market
  - Represent regulatory intervention into a market pricing system
  - Accordingly, these returns would be relevant to investors in evaluating opportunities
- Should Authorized Returns decrease in lock-step with increase rate decreases?
  - **No, this is not supported by the evidence**
  - Investors **increase in risk aversion** sell risky assets and buy the risk-free asset. This portfolio readjustment causes the yield on the risk-free asset to decline and the implied cost of the risky asset to increase.
  - Hence, this is **consistent with evidence** showing a greater spread between Authorized ROEs and interest rates when interest rates are low

Authorized ROE is a **relevant indicator of opportunity cost** for the investor since it provides an indication of potential returns for a given level of risk. Authorized returns are not guaranteed returns.

ROE – Market to Book Ratio is an inadequate indicator of economic profitability

- Dr. Cleary claims that a market-to-book ratio greater than 1.00 indicates that a firm is earning economic profits contrary to the Fair Return Standard (pp. 108-112)
- Dr. Cleary's **claim**:
  - M2B > 1.00 means that the **market value** of the assets is greater than the **book value** of the assets, *ergo* economic profits
- The **reality**:
  - M2B < 1.00 unequivocally indicates that the firm is on a glide path to extinction (unless reversed)
  - But M2B > 1.00 **does not necessarily indicate profitability**. (M2B is more useful on a comparative basis than on a fundamental valuation basis)
- The example on the next page shows that **Tobin's q** is more relevant than M2B

$$Tobin's\ q = \frac{Total\ Firm\ Value}{Replacement\ Cost\ of\ Assets} \quad vs. \quad Market - to - Book = \frac{Market\ Value\ of\ Equity}{Book\ Value\ of\ Equity}$$

M2B is a useful comparative metric and as an early warning signal to poor performance if < 1.00, but not a useful one for determining fundamental value or over-earnings. In the electric utility industry, replacement cost > book cost. M2B > 1.00 may still indicate a decaying investment! Use Tobin's q instead.

ROE – Market to Book Ratio >> Example of M2B Failure

- M2B in the example is 2.00. Can we conclude that the firm is earning economic profits or even a reasonable rate of return? No.
- Even with no inflation an M2B ratio implies Tobin's Q of 1.00. Just breakeven!
- But with **any inflation**, Tobin's Q drops below 1.00 and there **is no incentive for investors to add capital - - even though M2B is 2.00**
- Firm value is $100.00 but it would cost $134.39 to build it: Don't invest any more in this firm

	M2B Analysis			**Tobin's Q**	No Inflation	3% inflation
[1]	Market Value of Equity	**$100.00**			$100.00	$100.00
[2]	Market Value of Debt	$0.00			$0.00	$0.00
[3]=[1]+[2]	Market Value of the Firm	$100.00			$100.00	**$100.00**
[4]	Original Cost of Assets	$100.00		Replacement Cost	$100.00	**$134.39**
[5]	Accumulated Depreciation	$50.00				
[6]=[4]-[5]	Net Asset Value	$50.00				
[7]	Debt	$0.00				
[8]=[6]-[7]	Net Equity Value	**$50.00**				
[9]=[1]/[8]	M2B	**2.00**				
[10]=[3]/[4]					**1.00**	**0.74**

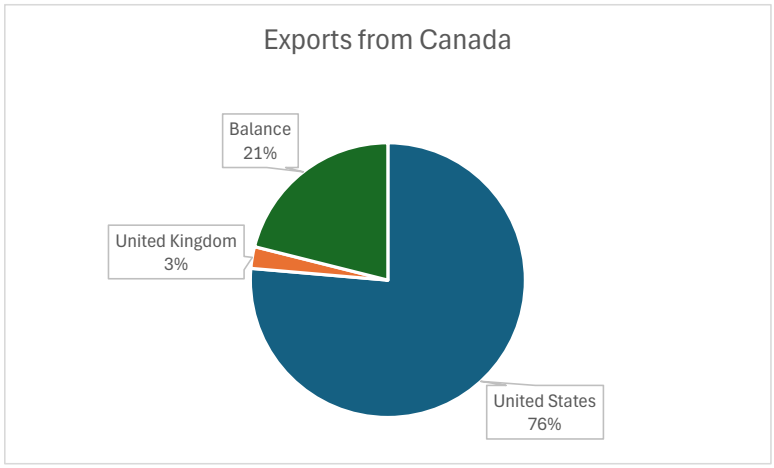
M2B is an inadequate metric for evaluating whether a firm can attract capital.

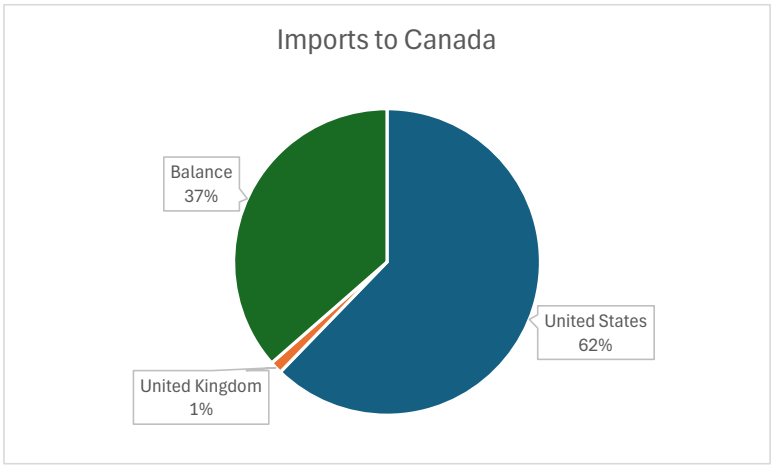
Debt and Equity Transaction Costs

- Debt and Equity transaction (or "flotation") costs are costs incurred when issuing securities to finance the capital costs of the utility
- All parties except LEI support a flotation cost of 50 BPS for equity
  - LEI proposes the recovery of equity flotation costs as expenses in the period where they are booked
- LEI's proposal is incorrect
  - **contrary to accounting polices**
  - The issuance of securities by a utility typically occurs to support additions to rate base or some other long-term component of the revenue requirement
- Contrary to the regulatory **matching principle** in rate design - - costs should be recovered consistently over the life of the instrument supporting service to customers
  - Recovering transaction costs as **expenses** introduces a **mismatch** of when the cost if recovered from customers at the time they are incurred rather than over the life of the relevant financial instrument
  - Recovering these costs as an expense introduces an intergenerational transfer: an earlier generation incurs the costs, and the later generation receives benefits

Transaction cost should not be expensed because it does not compart with accounting rulings and is contrary to rate design principles

The Canadian and US Capital Markets and Real Economies are Substantially Integrated





Source: https://www150.statcan.gc.ca/n1/daily-quotidien/230509/t001a-eng.htm

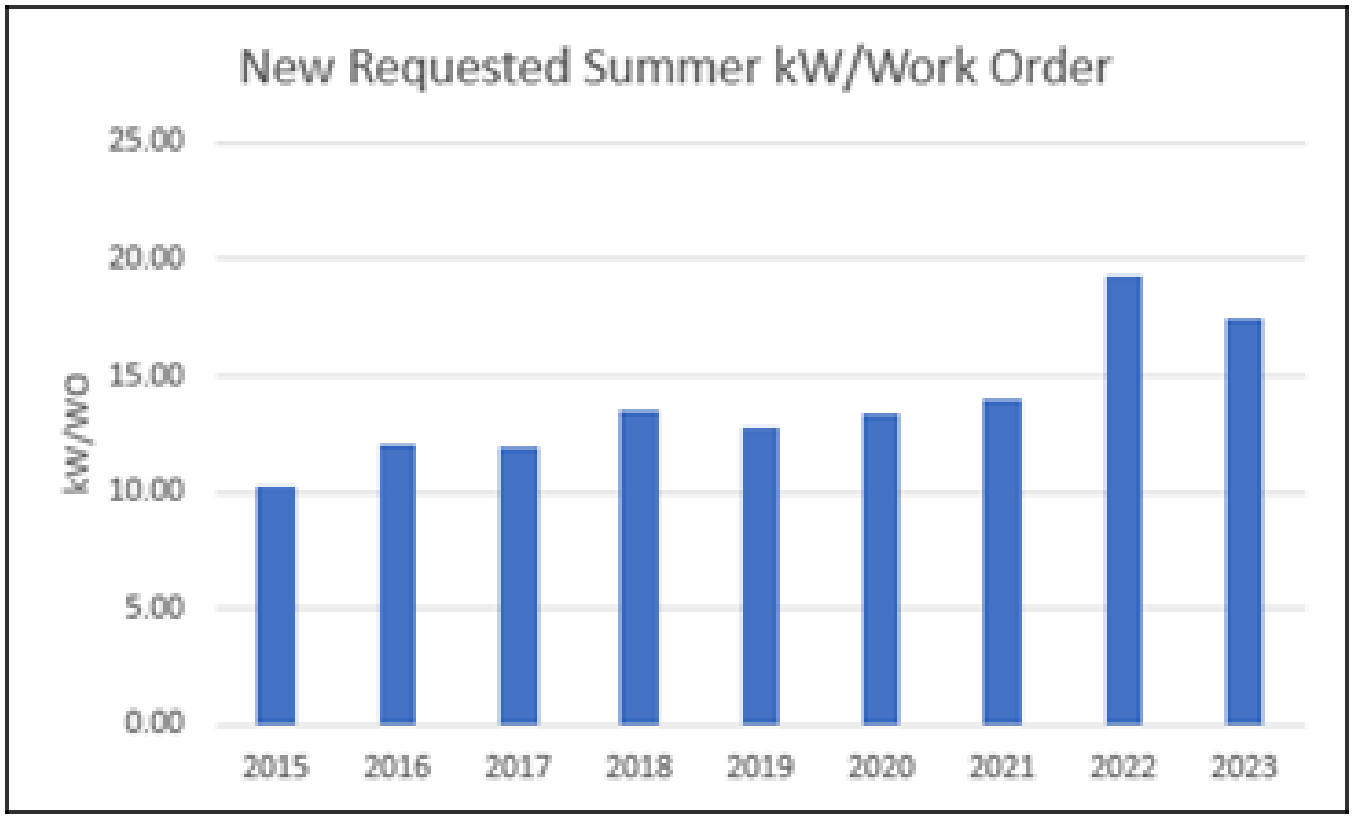
Canadian trade is predominantly with the U.S. The only Commonwealth country in the 10 largest trading partners is the U.K. which captures 3% of exports and 1% of imports.

Strategic Risk

- Strategic risk occurs **outside of the normal operations** of an electric distributor and is typically associated with changes in dramatic technology, market structure, or consumer behavior
  - Strategic risk does not always exist - the industry will often remain stable for extended time periods
- **Examples** of Strategic Risk in the electric power industry includes:
  - The introduction of nuclear generation technology in the 1960-70s
  - Adoption of Wholesale Market and Retail market reforms in several provinces and U.S. states in the 1990s
  - The current move to Net-Zero emissions and Electrification
- Pre-Electrification the past 20 years can be characterized by
  - Modest growth supported primarily customer additions
  - CAPEX needs driven by replacement capital and customer additions
  - Normal risk associated with "business as usual"
- **The Energy Transition** is an industry transition that triggers Strategic Risk
  - Significant uncertainty associated the timing of adoption of new end-uses
  - Government policy course-corrections
  - Customers demanding different type of services (e.g., clean energy, flexibility for renewables.

- Distributors are challenged by the uncertainty of the market, but are required to have infrastructure in place to meet both actual and potential demand, which introduces the threat of adverse regulatory reactions if new load does not materialize and disallowances occur
    - A policy which emerged in previous Energy Transitions was the "**Used and Useful**" doctrine providing a mechanism to exclude assets from rate base which did not currently provide service to customers
    - The Used and Useful doctrine uses a "backward" looking review of the planning process and ignores prudency of decisions based upon information available at the time
- Events triggering Strategic risk are not observable in historical data precisely because there is a break with the past -- (e.g., behavior patterns have changed) and therefore introduce unknown outcomes that are a challenge to policy makers
    - Nuclear plants were over-constructed in the 1970-80s based upon load forecasts using historical information. The results was excess capacity and higher prices
    - The original design of retail open-access envisioned various market designs and designs and new products. Most of these concepts did not materialize
- Nexus Economics has not adjusted the ROE computations to reflect Strategic Risk, but suggests that the risk be considered by the Board in its decision making

Other Jurisdictions are Experiencing Growth – Massachusetts



- National Grid Massachusetts provides an example of the increases in load per customer triggered by electrification. As a result of the growth per customer, Massachusetts has changed its regulatory mechanisms, reflecting the increased CAPEX requirements