

Régie de l'énergie

DOSSIER R-3842-2013

DÉPOSÉE EN AUDIENCE

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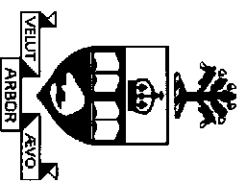
*Fair Return and Capital Structure for
HQD & HQT*

R-3842-2013

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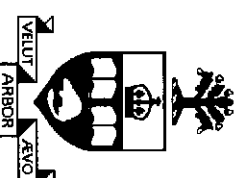
Key Issues before the Regie

- ◆ Has the business risk of either HQT or HQD increased since 2002/3 when the Regie last reviewed them in detail?
- ◆ What is a fair and reasonable ROE for both given that the common equity ratios adjust for their differential risk?
 - What has changed since Intragaz earlier this year
- ◆ Should HQT and HQD be put on a formula ROE similar to that used by the Regie for Gazifere and Gaz Metro?



HQT and HQD Business Risk

- ◆ Risk is the probability of incurring harm; in finance that means losing money
- ◆ Short run: return on capital
 - Quantitative assessment: degree of over (under) earning by the utility: allowed vs actual ROE (Moody's has 25% of their credit analysis weight on this)
 - Qualitative factors in terms of degree of protection
- ◆ Long run: return of capital
 - The ability to recover the investment in rate base
 - Viability of the commodity being transported
 - Qualitative assessment
- ◆ *Important since it determines capital structure and whether a financial risk premium is needed (Dr. Coyne's offset to generation risk)*

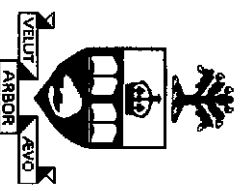


Short Run: Over-Earning

- ◆ History of over earning: Answer to Regie IR#13 \$million

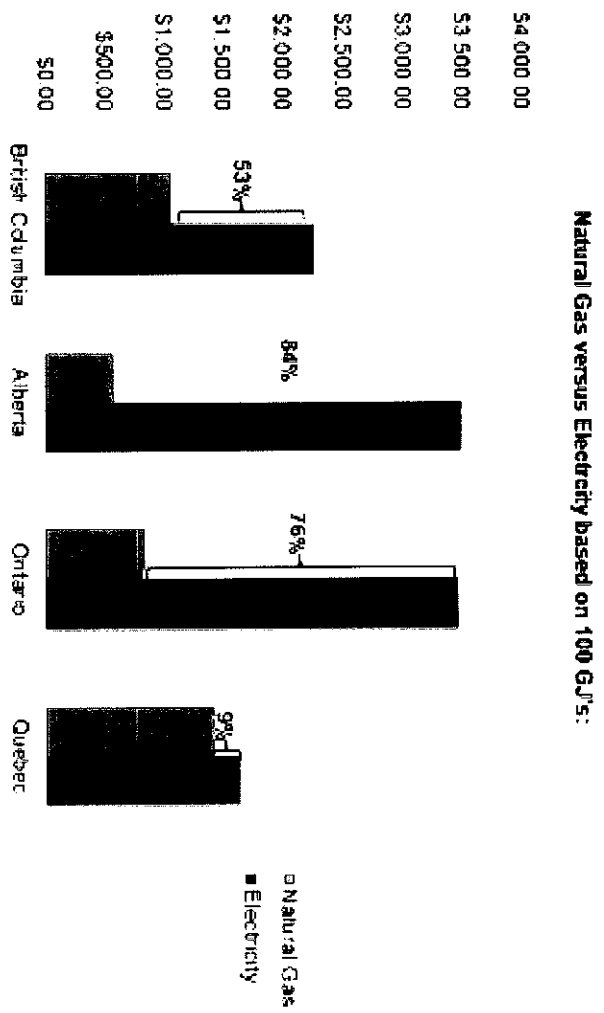
	2007	2008	2009	2010	2011	2012
HQT -	63.4	31.7	83.6	87.9	66.9	152.0
HQD	9.4	26.6	105.7	171.4	101.2	111.4

- ◆ Main problems: forecasting O&M expense and depreciation
- ◆ Improvement in forecasting techniques
- ◆ Maturing of regulatory process and new deferral accounts
- ◆ No indication of any material short run risk



Long Run Risk

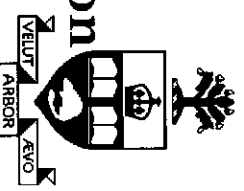
- ◆ Demand for electricity comes from many sources such as street lighting. Space heating electricity comp



- ◆ Electricity in Quebec is more competitive than in any of the other major markets

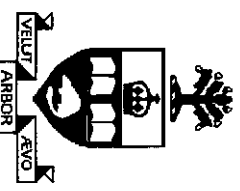
- ◆ The Regie's 0.30% added risk premium for Gaz Metro reflects its additional risk and by definition

BOTH HQT & HQD's lower risk



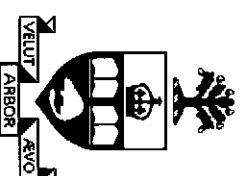
Business Risk Summary

- ◆ Demonstrated ability of HQT and HQD to earn allowed ROE
- ◆ Protective regulatory environment with increasing deferral accounts
- ◆ Some of the dams backing the system are depreciated over 100 years, so commodity being sold has a very long life
- ◆ Many aspects of demand are monopolistic such as street lighting and much of home non-space heating use
- ◆ *Electricity transportation is usually regarded as the lowest risk utility asset with electricity distribution the second lowest, mainly because there is revenue variability built into the rate design.*



Capital Structure

- ◆ HQT and HQD are requesting the continuation of the 30% and 35% common equity ratios set by the Regie.
- ◆ My recommendations are exactly the same.
- ◆ The common equity ratio in Canada is deemed and adjusted for differences in business risk as noted by HQ (page 16).
- ◆ The lower common equity ratio for HQT does *not* mean that HQT's ROE needs to be higher than HQD's due to its higher "financial" risk. Otherwise there is double counting
- ◆ Similarly, when we make comparisons with other utilities their common equity ratios have been set to reflect their business risk, so NO "financial risk" premium is added to the ROE.
- ◆ This is the standard practice of the NEB, AUC, OEB and others who set generic ROEs



Policy of OEBB (EB-2011-0354,

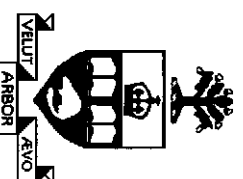
page 5)

Comparisons with others and the FRS)

This interpretation of the Board's policy is incorrect. The Board states explicitly in the Cost of Capital Report that the current policy on capital structure continues to be appropriate and that capital structure will only be reviewed if there is a significant change in risk for the specific company. This does not entail a full cost of capital analysis and assessment against the FRS unless there has been a significant change in risk. The Board has structured its policy in a way that applies the FRS while promoting regulatory efficiency and predictability. The Board's policy does not require a full FRS analysis in each rate case. However, it ensures that the Board will perform a full review of capital structure in instances where a significant change in risk indicates that a change may be needed in order to continue to meet the FRS. The Board considers that where there has not been a significant change in risk, the FRS continues to be met. The Board notes that another Enbridge witness, Mr. Lister, expressed this as Enbridge's understanding as well: "It is our position that if the Board found that there was no change in business risk, then by definition the Board would be saying that the fair return standard has been met."

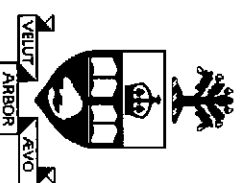
Decision of the Board on Equity Ratio

The Board concludes that there has been no significant increase in Enbridge's business and/or financial risk since 2007. Accordingly, the Board finds that Enbridge's equity ratio shall remain at 36% and that a full FRS analysis is not required.



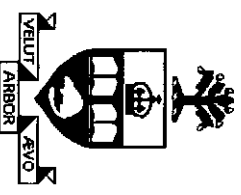
Generation Risk

- ◆ Depends on the type of generation
 - Hydro/coal/gas
 - cogen/nuclear/solar/wind/biomass
 - And the mix: how much is base load vs peaking
- ◆ Europe
 - Green energy causing problems
 - Marginal cost is close to zero: dispatch problems
 - CFO of RWE (major German utility) is quoted as saying “conventional power generation, quite frankly, as a business unit, is fighting for its economic survival.” Economist (October 12, 2013)
- ◆ 0.40% seems a small adjustment for generation and does not offset any “financial risk” premium due to different capital structures.



Fair ROE

- ◆ Comes out of the capital market as a result of changed “conditions in the money market”
- ◆ Two standard methods:
 - Risk premium models
 - ❖ Risk-free time value of money
 - ❖ Risk value of money
 - ❖ Tax value of money
 - Discounted cash flow (DCF) models that reverse engineer the investors decision to back out the investors required return
- ◆ The DCF and Risk premium models should give the same answer but rarely do!



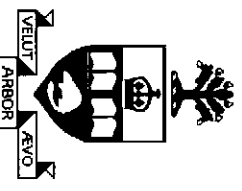
DCF vs Risk Premium

◆ CAPM
$$K = R_F + MRP * \beta$$

The investor's required return is equal to the risk free rate (TVM), plus a risk premium which is the product of the market risk premium (MRP) and its risk relative to the market (beta coefficient)

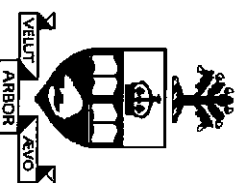
◆ DCF
$$K = \frac{d_1}{P} + g$$

Assuming constant long run growth the investor's required return is the dividend yield plus the capital gain from underlying long run growth: only appropriate for stable companies, or the market as a whole not appropriate for most companies since assumptions are not met!

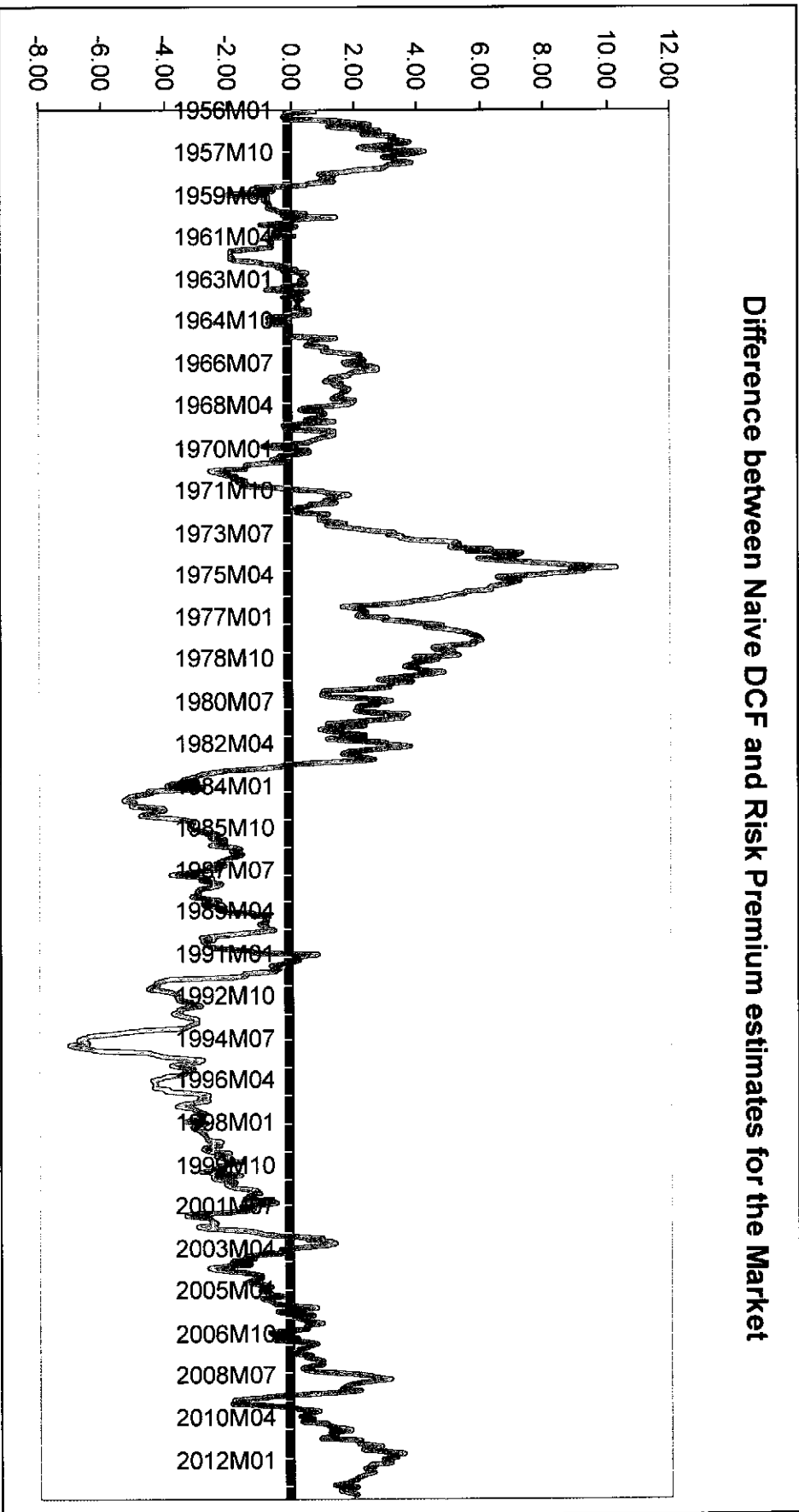


Market RP and DCF

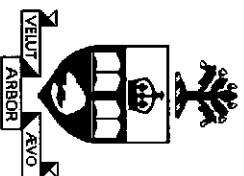
- ◆ For the market $\beta=1$ and the growth rate approximates overall GDP, so the main estimation problems disappear
- ◆ For *all* risk premium models we can assume an MRP of 3.5% and add this to the long Canada yield to get a market return
- ◆ For the constant growth DCF model we can assume real growth of 3.5% and add the contemporaneous inflation rate to get nominal growth. Then use the actual TSX dividend yield to get the DCF return
- ◆ We can then subtract the RP from the DCF to look at the annual difference between the two



Difference between Naive DCF and Risk Premium estimates for the Market



I call this naive since it uses constant assumptions, but the average DCF and RP estimates since 1956 are both about 10.69%.

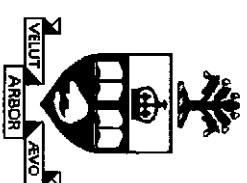


RP vs DCF Analysis

- ◆ Main deviation is due to the real interest rate
 - In the 1970's & now the real interest rate has been very low
 - 1970s due to high inflation
 - Now due to global monetary policy
- ◆ Also neither the market risk premium nor the real growth rate have been constant, they vary with the business cycle and the uncertainty in the inflation rate
- ◆ Note I have always used both DCF and RP models

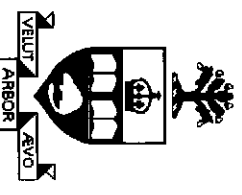
Currently RP models are under-estimating the fair return when used with current long term bond yields

BOOTH HQT & HQD 2013

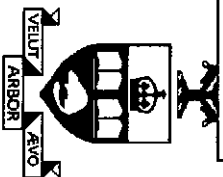
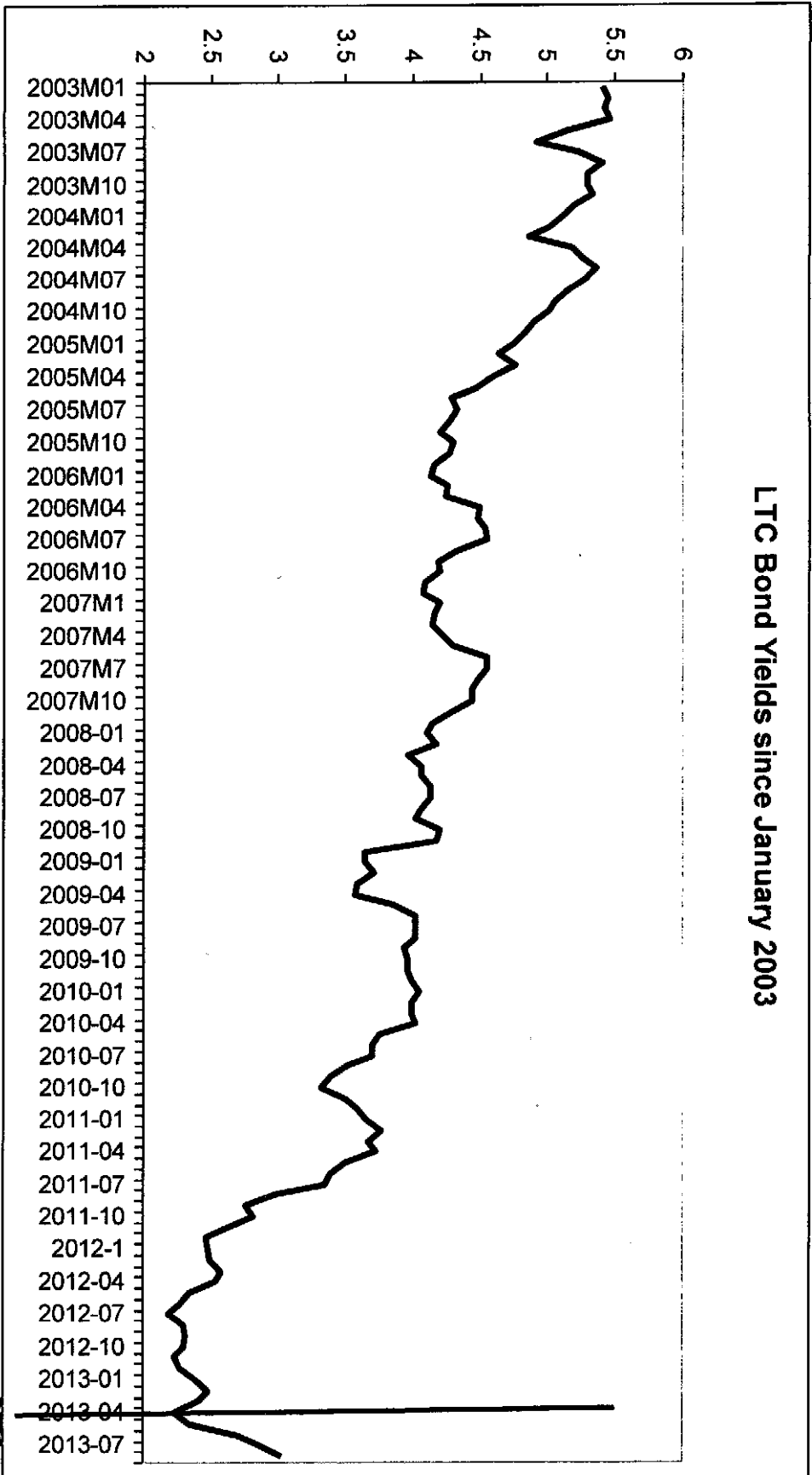


Under-Statement of the Long Canada Rate

- ◆ **Operation Twist (Quantitative Easing (QE) 3)**
 - \$85 billion in monthly purchases of government bonds & Mortgage backed securities
 - Aim to “twist” the yield curve and lower long term yields
 - Money has come to Canada as a AAA rated borrower
- ◆ **Long term interest rates collapsed in September 2011**
- ◆ **May 2013 Governor Bernanke indicated a road map to reduce QE3**
 - Purchases end when unemployment rate around 7%
 - Federal Funds rate increases when unemployment rate about 6.5%
 - NAIRU 5.3%

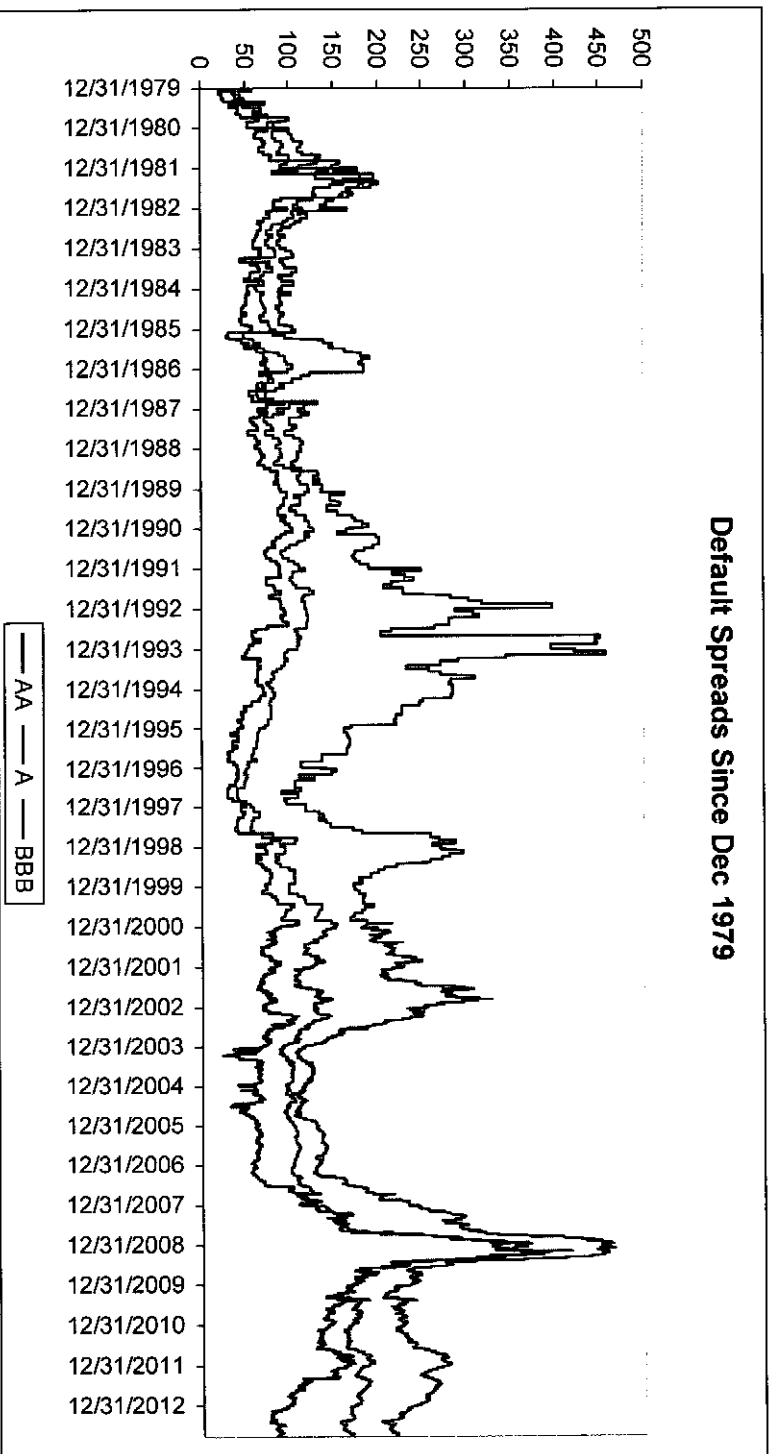


LTC Bond Yields since January 2003



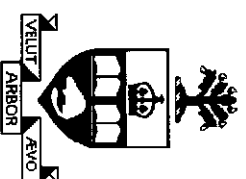
Impact on Equity vs Bond Markets 1

Default Spreads Since Dec 1979



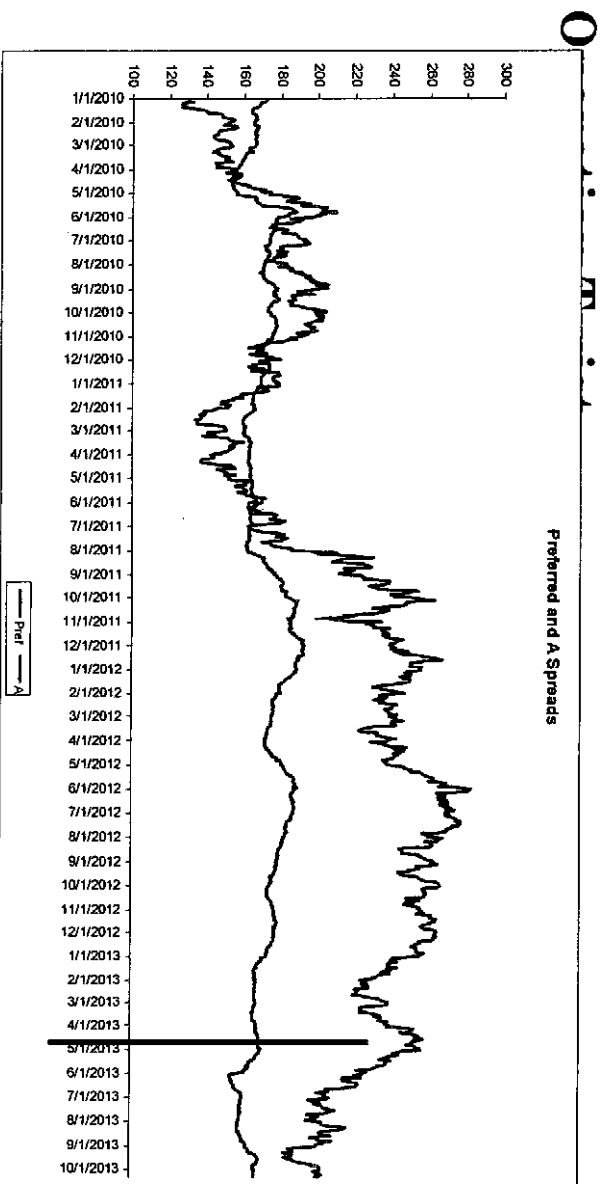
Slight decline in Credit Spreads: now about 1.66% of generic A's over long

BOOTH HQT & CANADAS

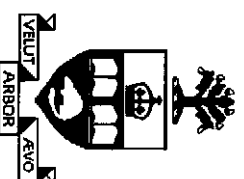


Impact on Equity vs Bond Markets 2

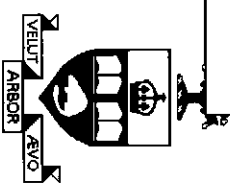
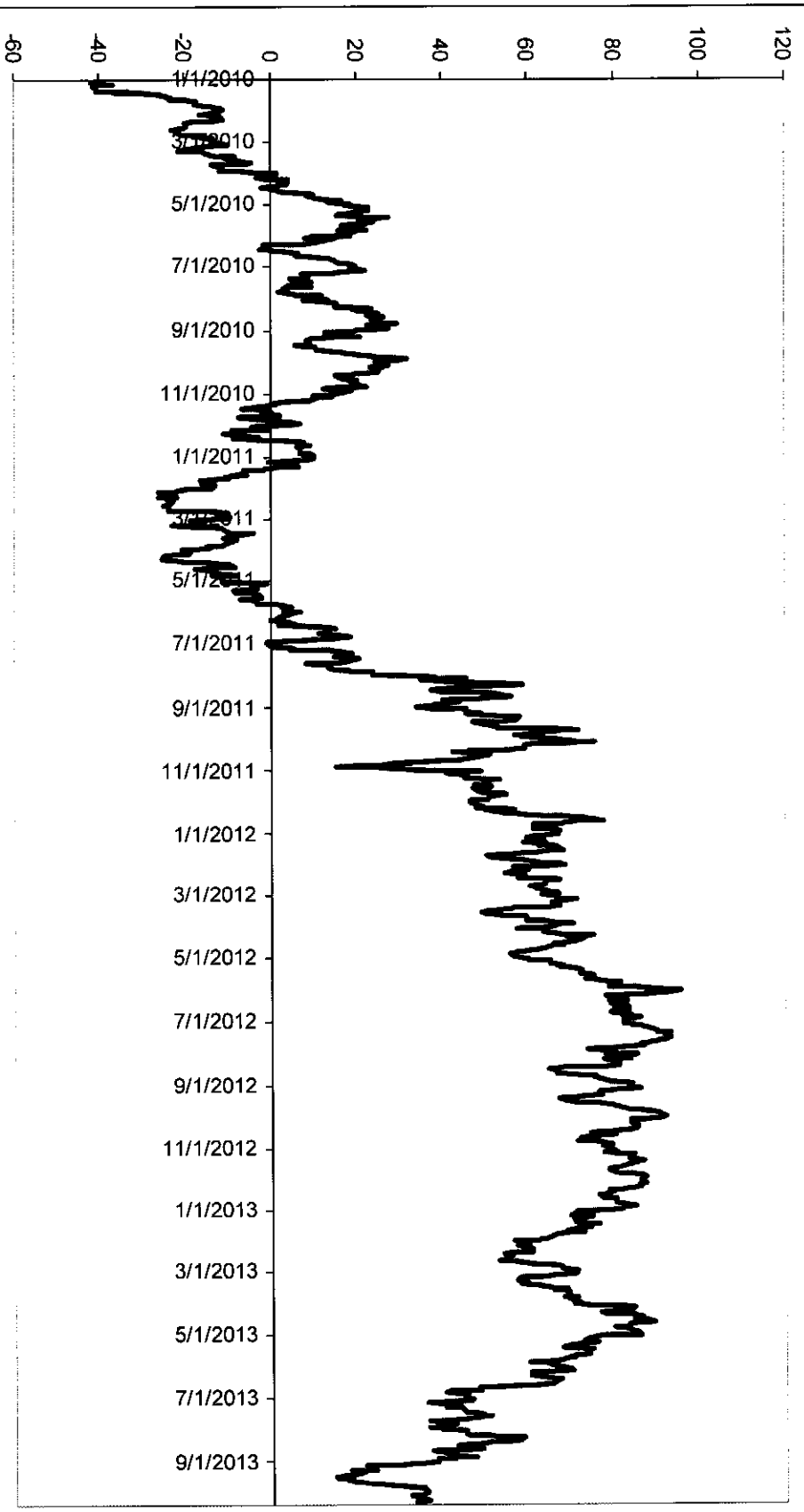
- ◆ Preferred shares are a Canadian product as they attract the dividend tax credit: not as affected by



- ◆ Preferred yield increased after QE3 by 0.80% (preferreds barely changed with QE3), but started to drop after Bernanke's May 2013 "roadmap" currently 0.35%

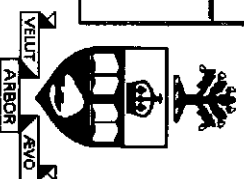


Pref-A Spread



Regie Gaz Metro 2009 Decision

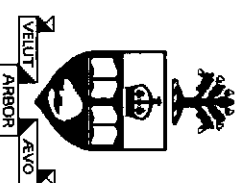
Parameters	Bottom of range	Top of range
Risk-free rate	4.23%	4.50%
Market risk premium before financial crisis	5.50%	5.75%
Benchmark gross beta (not adjusted)	0.50	0.55
Adjustment for Gaz Metro's risks	0.25%	0.35%
Issuance costs	0.30%	0.40%
Sub-total n° 1: Result produced by CAPM	7.53%	8.41%
Adjustment to take account of results of other models	0.25%	0.50%
Sub-total n° 2: Rate of return before adjustment to take account of effect of financial crisis	7.78%	8.91%
Adjustment to account for the effect of the financial crisis	0.25%	0.55%
Total: Rate of return after adjustment to account for the effect of the financial crisis	8.03%	9.46%



Changes since 2009

- ◆ Risk Free Rate: Consensus Economics has the ten year rate at 3.10% in September 2014, add the 10 to 30 spread implies 3.60%
- ◆ Note Dr. Coyne uses 2013-2018 forecast so his 4.3% is a long run fixed rate ROE, *not* a test year ROE
- ◆ RBC October forecast: 3.60%

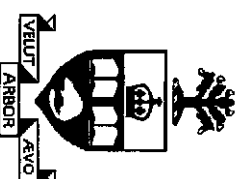
Canada	12Q3	13Q4	14Q1	14Q2	14Q3	14Q4
Overnight	1.00	1.00	1.00	1.00	1.25	1.50
10 year	2.55	2.75	2.90	3.15	3.30	3.75
Long term	3.07	3.25	3.40	3.55	3.65	3.75
US						
Fed Funds	0.13	0.13	0.13	0.13	0.13	0.13
Ten year	2.64	2.85	3.05	3.30	3.45	3.60
Long Term	3.69	3.90	4.10	4.20	4.30	4.35



Market Risk Premium (APP B)

- ◆ My historic Canadian and US data still supports 5.0-6.0% (Actual data Canada 1.31% less than US)
- ◆ Dr. Coyne's historic market risk premium
 - 5.38%-6.60% (C-US); Canada 1.22% less than US
 - Biased low as uses bond “income” not total returns
- ◆ Dr. Coyne's forward looking MRP
 - Constant growth: all firms in SP500 and TSX, 6.14%-8.55% (C-US), Canada 2.41% less than US
 - “constant growth for SP500 firms averages 10.39% in US vs 4.96% for GDP; Canada 7.19% vs 4.04% for GDP: *totally unrealistic* for a constant growth model
 - Note these are not “market” estimates they simply use *optimistic* analyst forecasts

BOOTH [◆] *Fernandez* 2013 survey ₂
– Canada average MRP 5.40% • TTS 5.70%

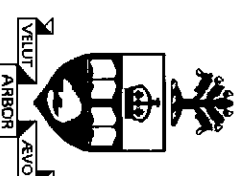


Estimates of Overall market Return

- ◆ Fernandez Survey equity market return
 - Canada 7.4%
 - US 8.0%
- ◆ TD Economics
 - TD's is a long run compound or geometric growth rate: adjustment to arithmetic returns means 8.50-9.0% for equity market

FINANCIAL PROJECTIONS OVER THE NEXT DECADE	
Financial Instrument	Average Annual % Return
Cash (3-Month T-bills)	2.00%
Bonds (DEX Universe Bond Index)	3.00%
Equities	
Canada (S&P/TSX Composite)	7.00%
U.S. (S&P 500)	7.00%
International (MSCI EAFE)	7.00%

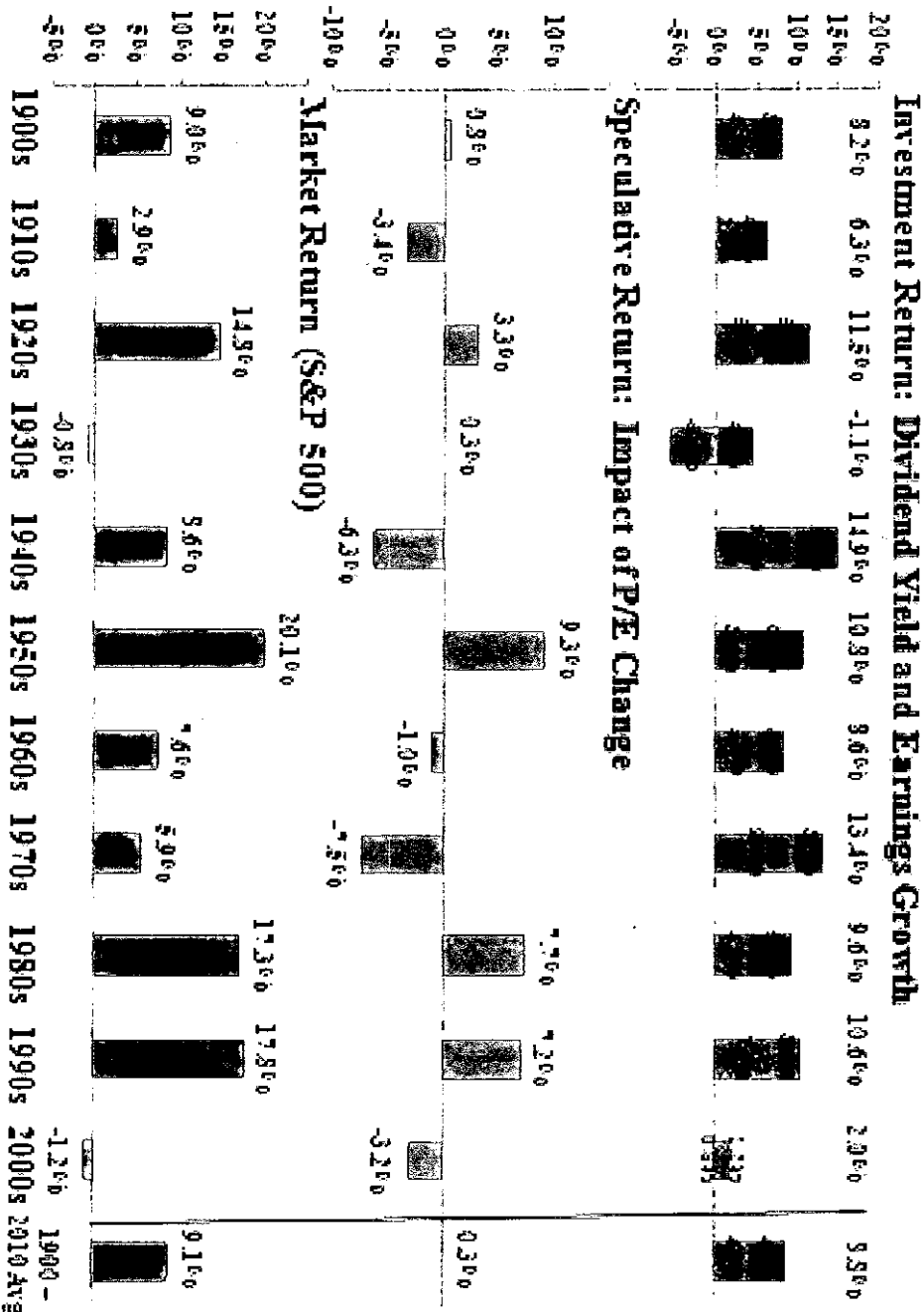
Source: TD Economics



Investment vs Speculative Return

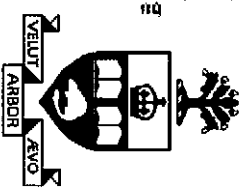
Eleven Decades of Returns on U.S. Stocks

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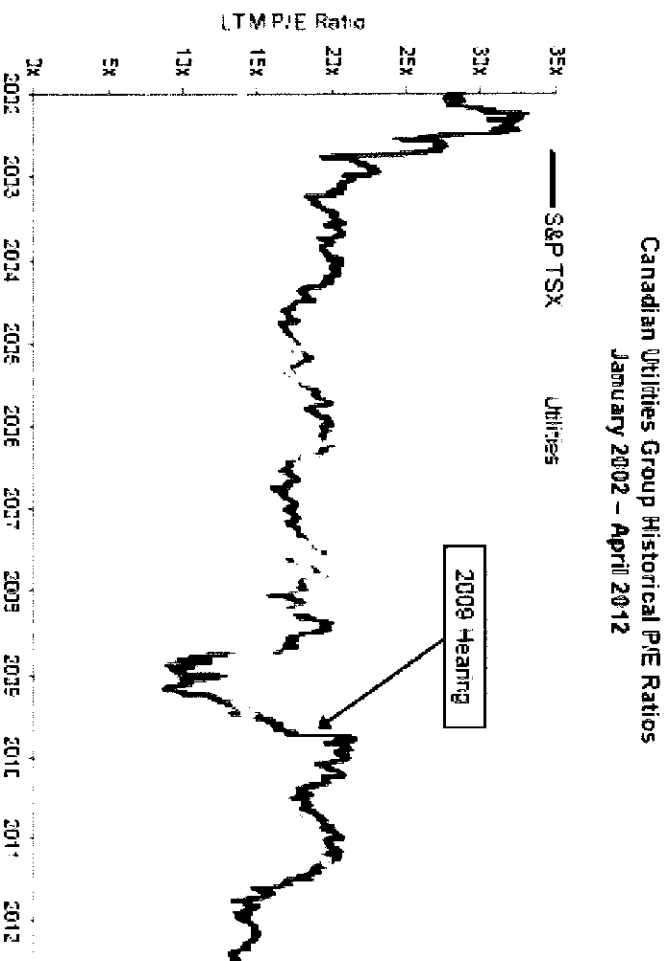
Source: Jack Bogle founder of Vanguard Mutual Funds

BOOTH HQT & HQD 2013



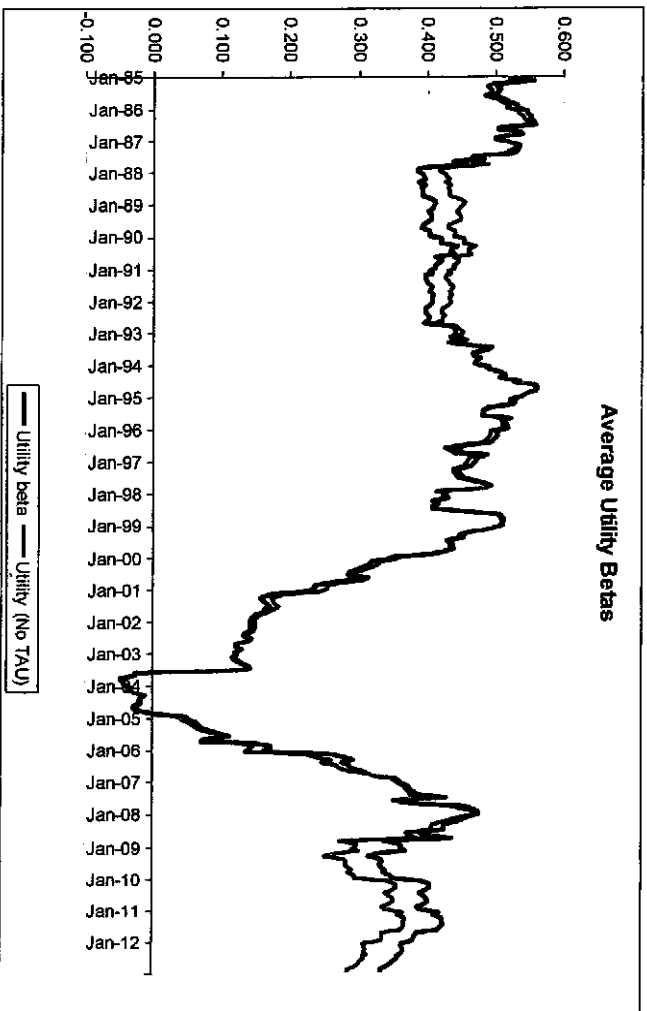
Relative Risk

◆ Performance of utilities



- ◆ Equities in an up market but downside interest protection in a down market: Maureen Howe RBC utility analyst produces low betas

Canadian Utility Betas



Company	RBC Yield	Booth	RBC	GOOGLE	MKT CAP
TransCanada	4.18	0.33	0.36	0.26	30
Enbridge	2.99	0.22	0.21	0.05	34.89
Canadian Utilities	2.74	-0.02	-0.03	-0.12	9.1
Emera	4.77	0.23	0.21	0.19	3.87
Fortis	4.01	0.13	0.28	0.04	6.55
Valener	6.45	0.32	0.24	0.15	0.59
Veresen	8.39	0.4	0.28	0.27	NA
Average	4.19	0.20	0.21	0.10	14.17
Median	4.10	0.23	0.23	0.10	7.83

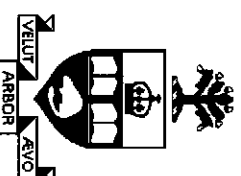
BETAS



Overall CAPM

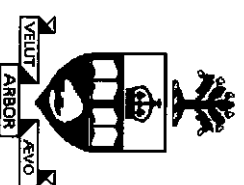
- ◆ Risk-Free rate **3.60%**
 - Beta **0.45-0.55**
 - MRP **5.0-6.0**
- ◆ Utility Risk premium: **2.25-3.30%**
- ◆ Issue costs: **0.50%**
- ◆ CAPM: **6.35-7.40%**
- ◆ Adjustments for other Models
 - Operation Twist: **0.35%**
 - Credit spreads: **0.30%**
 - Recommendation **7.00-8.05%**

◆ *Note ANY recommendation can be expressed as a Long Canada rate + risk premium.*



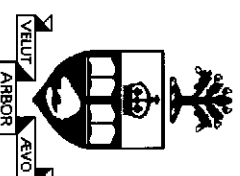
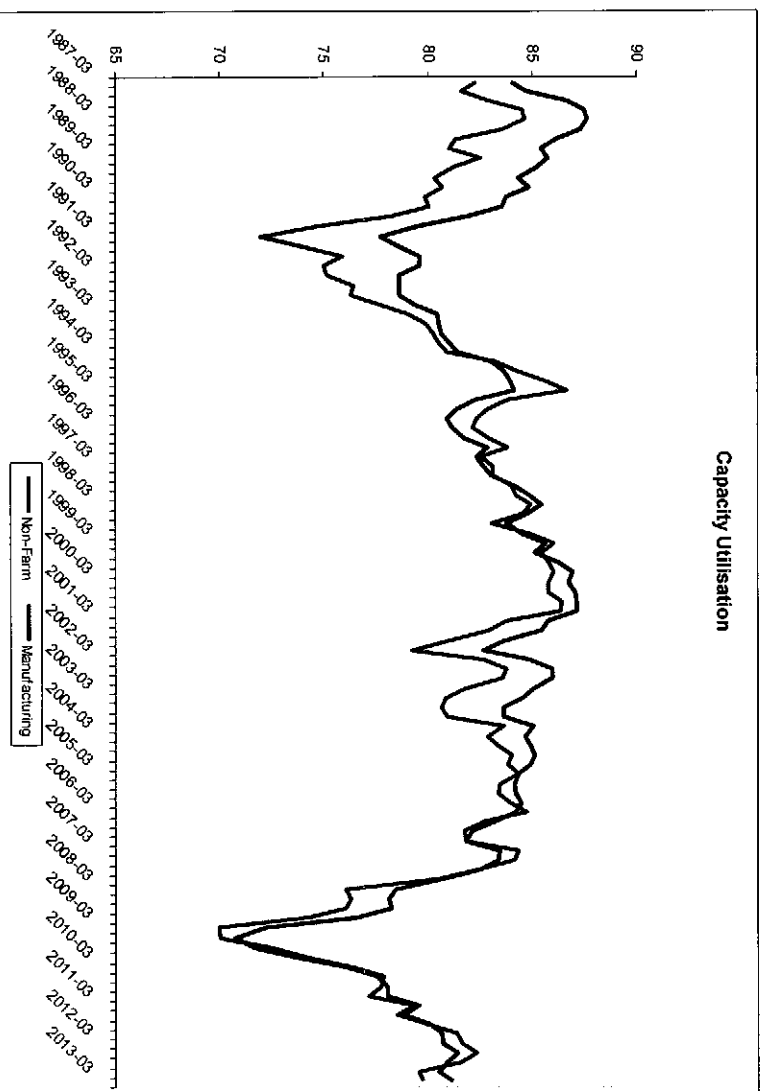
Dr. Coyne (page 13)

- ◆ **CAPM:**
 - Risk-free rate: 4.23% “long run”
 - Beta 0.59 “adjusted”
 - MRP: 6.67% “clearly high”
 - Floatation cost 0.30%
 - Overall CAPM: 8.47%
 - *Adjustment for other models* 0.75% “to get to DCF?”
 - Recommended ROE 9.20%
- ◆ **DCF from US utilities:** 9.20%



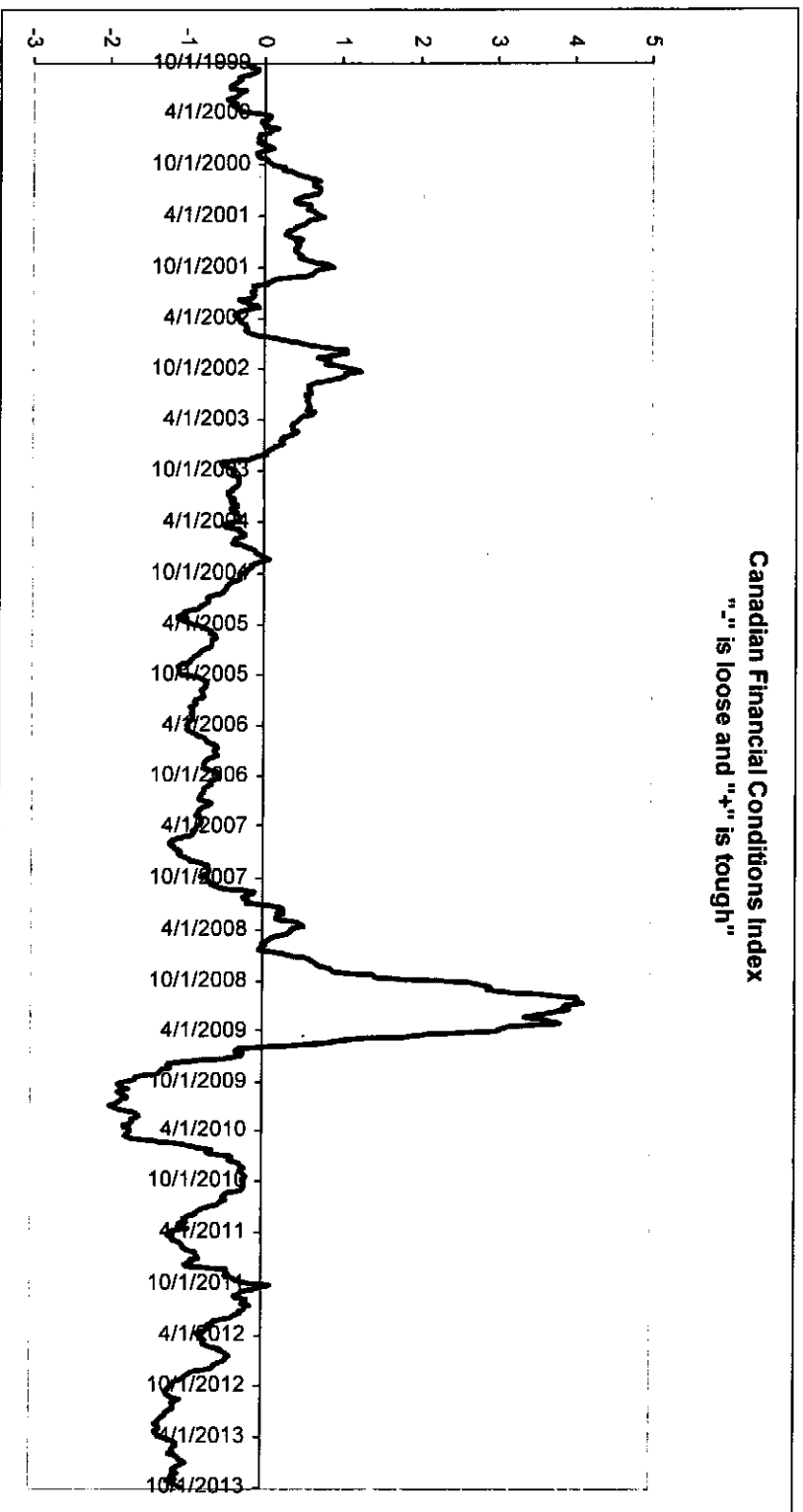
Current Capital Market Conditions

- ◆ Canada slowed down in mid 2012, so full employment is still 18+ months off



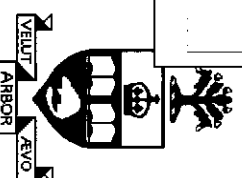
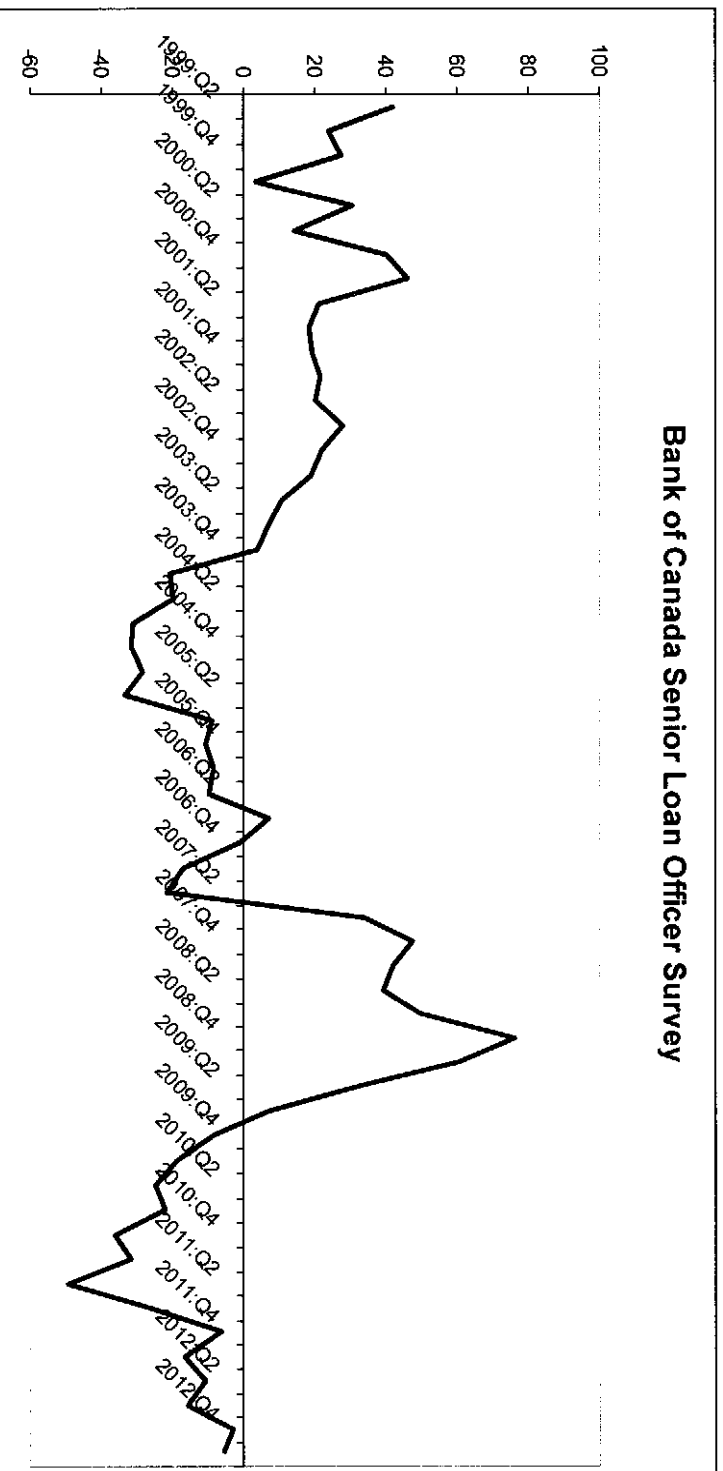
Bank of Canada's Financial Conditions Index

◆ Still loose

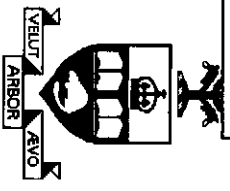
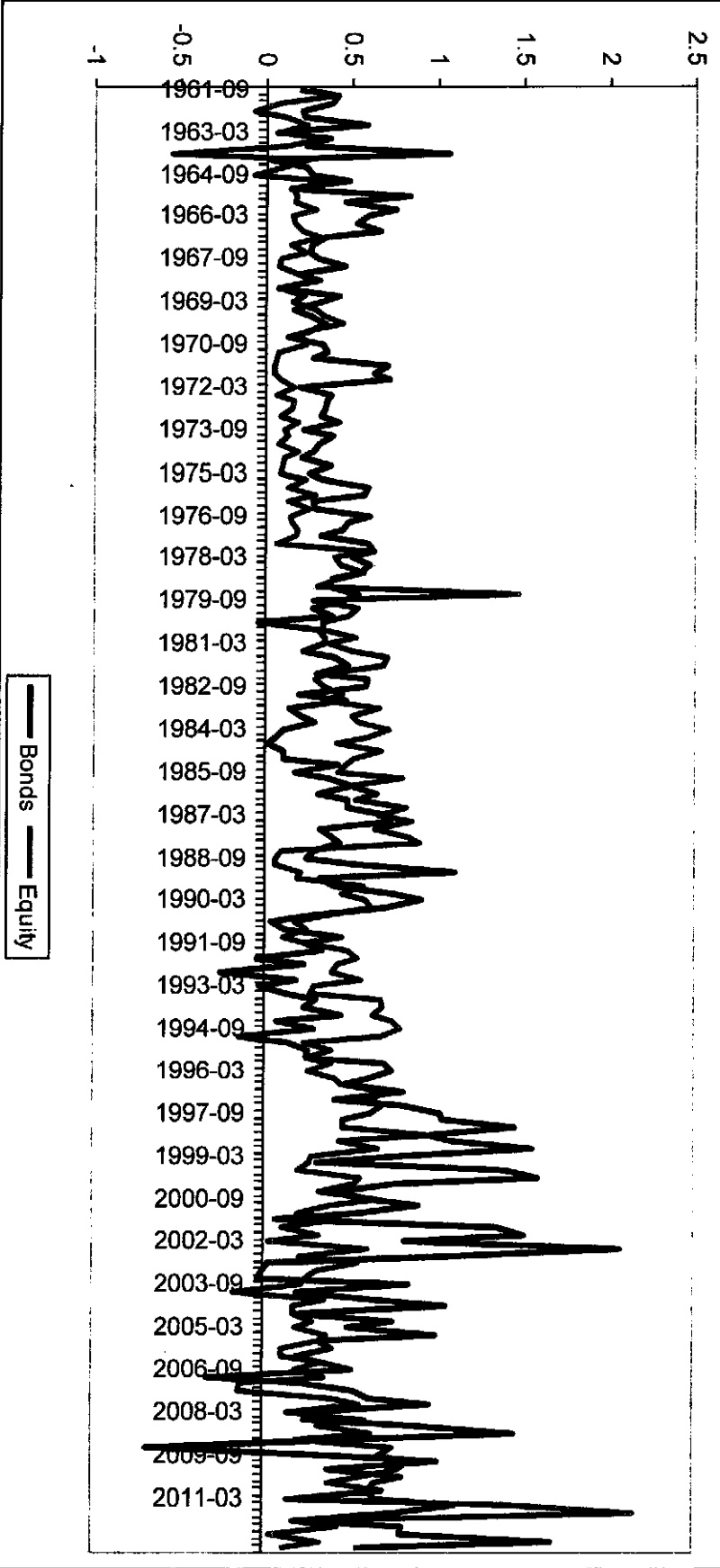


Senior Loan Officers Survey

- ◆ Slightly tighter than 2 years ago but still easier than normal



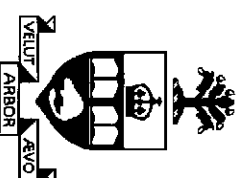
Corporate Financing Activity % of net issues to GDP



Conclusions

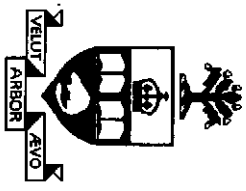
- ◆ Easy financial market conditions
- ◆ Loan markets are still easier than normal
- ◆ Lots of debt market activity
- ◆ Spreads are high mainly due to the continuing impact of loose monetary policy

No need for any further financial flexibility adjustments other than to correct for the impact of QE3 and credit market conditions



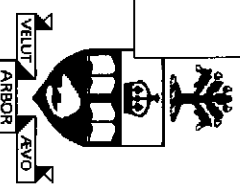
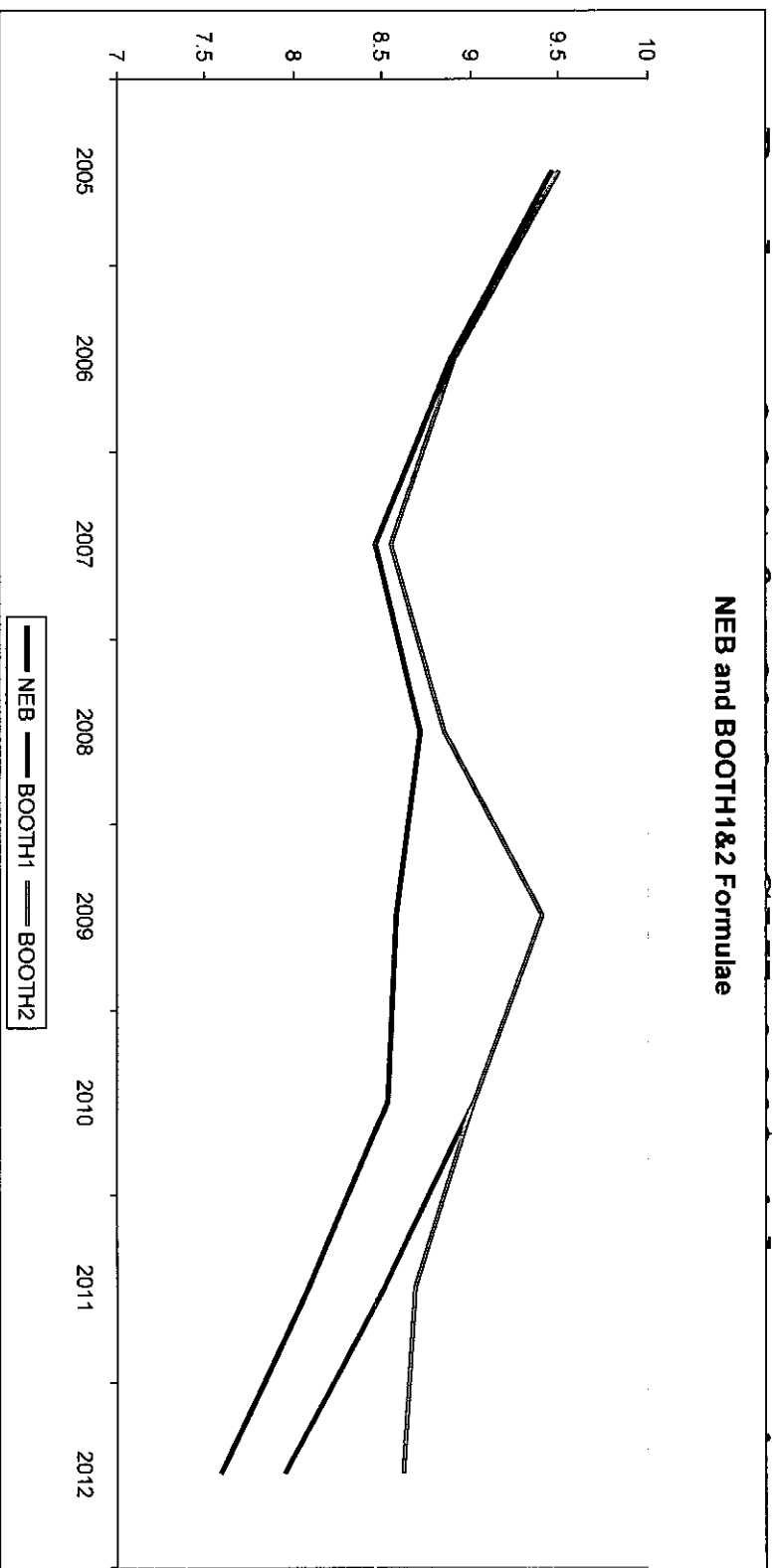
ROE Formula Reviews

- ◆ Regie 2007 Gaz Metro decision
- ◆ Regie Gazifere 2010 and Gaz Metro 2011
 - Accepted a credit spread adjustment of 50% of the change in corporate credit spreads
 - 75% of change in long Canada yield forecast
- ◆ Current recommendation
 - Same except the long Canada yield does not reflect the actions of the market trading off risk versus return
 - It reflects what RBC calls the “global policy maker”
- ◆ I would recommend that the base long Canada yield is 3.95% = current 3.60% forecast + 0.35% for QE3



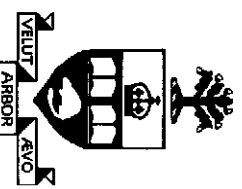
ROE Formula

- ◆ Booth1 has the credit spread and Booth 2 has that plus the interest rate floor
- ◆ Below is *NEB* formula + these 2 adjustments



Actual Parameters

- ◆ I use the *generic* spreads since they go back to 1994 and the NEB ROE model
- ◆ I recommend the use of the parameters set by the Regie for both Gazifere and Gaz Metro in their ROE formulae
 - Bloomberg 30 year A utility bond yield
 - Long Canada Cansim V39056
 - Implemented in an identical format
- ◆ My 1.66% generic spread translates into a 1.40% spread using these parameters since the utility A yield is lower than generic and the 30 year Canada bond yield is higher than the generic long term Canada bond.

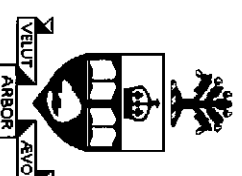


Note Canada is NOT the US

- ◆ No debt market ceiling debate/ No QE3
- ◆ AAA bond rating
- ◆ Epicentre of the global crisis was the US not Canada

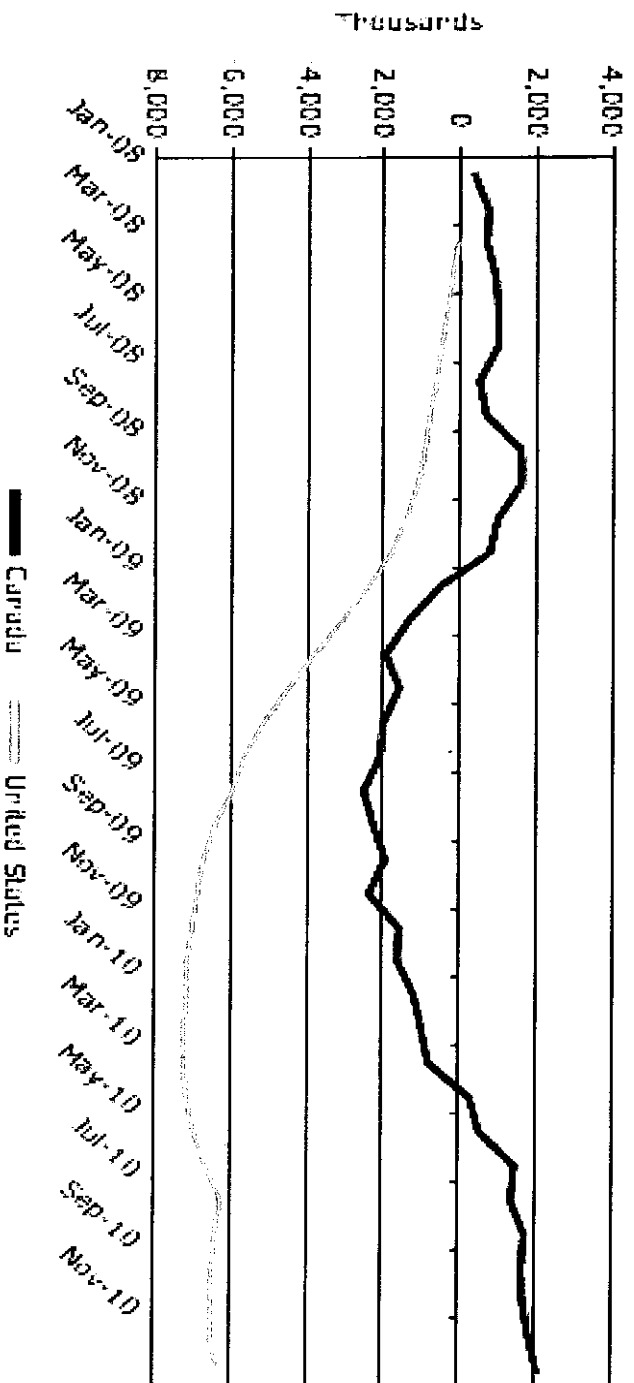
◆ Yield curve totally different reflecting the stage in the business cycle

	Canada 12Q3	13Q4	14Q1	14Q2	14Q3	14Q4
Overnight	1.00	1.00	1.00	1.00	1.25	1.50
10 year	2.55	2.75	2.90	3.15	3.30	3.75
Long term	3.07	3.25	3.40	3.55	3.65	3.75
US						
Fed Funds	0.13	0.13	0.13	0.13	0.13	0.13
Ten year	2.64	2.85	3.05	3.30	3.45	3.60
Long Term	3.69	3.90	4.10	4.20	4.30	4.35



Canada not the US:2

Net Jobs in Canada versus the United States (January 2008 to December 2010)



US Jobless recovery

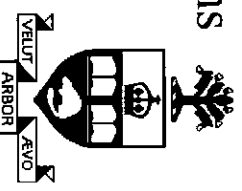


US Data

- ◆ **Moody's**
 - **25% regulation**
 - **25% ability to earn the allowed ROE**
 - **10% diversification**
 - **40% financials: the numbers**
- ◆ **Financial ratios in Canada look weaker due to lower business and regulatory risk**

“Moody’s views the regulatory risk of US utilities as being higher in most cases than that of utilities located in some other developed countries, including Japan, Australia and Canada. The difference in risk reflects our view that individual state regulation is less predictable than national regulation; a highly fragmented market in the US results in stronger competition in wholesale power markets; US fuel and power markets are more volatile; there is a low likelihood of extraordinary political action to support a failing company in the US; holding company structures limit regulatory oversight; and overlapping and unclear regulatory jurisdictions characterize the US market. As a result no US utilities, except for transmission companies subject to federal regulation, score higher than a single A in this factor.”

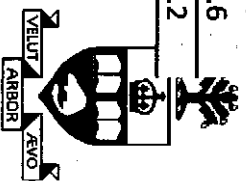
“as is characteristic of the US, the ability to recover costs and earn returns is less certain and subject to public and sometimes political scrutiny.”



US Utility Bond Ratings

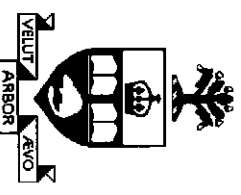
COMPANY	% REGD ELEC REV	S&P BOND RATING	MOODY'S BOND RATING	COMMON EQUITY RATIO (3)	% RETURN ON	
					BOOK VALUE EQUITY (4)	TOTAL CAPITAL
ALLETE, Inc. (NYSE-ALE)	91	A-	A2	53.1	8.8	7.1
American Electric Power Co. (NYSE-AEP)	90	BBB/BBB-	Baa2	44.8	7.9	6.4
Cleco Corporation (NYSE-CNL)	95	BBB/BBB-	Baa2/Baa3	53.3	10.4	8.6
Edison International (NYSE-EIX)	97	BBB+	A3	43.3	NM	7.9
El Paso Electric Company (NYSE-EE)	100	BBB+	Baa2	45.3	11.5	8.1
FirstEnergy Corporation (ASE-FE)	51	BBB	Baa2	38.3	2.3	3.8
Great Plains Energy Incorporated (NYSE-GXP)	100	BBB	Baa2	45.6	7.2	6.0
Hawaiian Electric Industries, Inc. (NYSE-HE)	92	BBB-	Baa2	47.8	8.5	6.4
IDACORP, Inc. (NYSE-IDA)	100	A-	A2	50.7	10.7	8.1
Nextera Energy (NYSE-NEE)	71	A-/BBB+	Aa3	37.0	10.7	6.0
OGE Energy Corp. (NYSE-OGE)	61	BBB+	Baa1	49.4	12.5	8.5
Otter Tail Corporation (NDQ-OTTR)	86	BBB-	Baa3	54.5	5.1	9.8
Pinnacle West Capital Corp. (NYSE-PNW)	100	BBB	Baa1	52.9	10.8	8.4
PNM Resources, Inc. (NYSE-PNM)	100	BBB	Baa3	44.7	6.5	6.3
Portland General Electric Company (NYSE-POR)	100	A-	A2	50.3	5.4	5.7
PPL Corporation (NYSE-PPL)	59	A-	A2	34.4	14.0	8.1
Southern Company (NYSE-SO)	95	A	A3/Baa1	45.3	9.2	6.5
Westar Energy, Inc. (NYSE-WR)	100	A-	A3	44.9	10.6	7.6
AVERAGE				46.4	9.0	7.2

Booth answer to Regie IR#4.1. These are all the AUS US electric utilities



Utility Financial Ratios

- ◆ Note US utilities
 - tend to have higher common equity
 - tend to have higher allowed ROEs
 - Tend to have inferior bond ratings
- ◆ Only 40% of Moody’s evaluation is based on the financial ratios
- ◆ 50% weight on the impact of regulation
- ◆ More protective regulation in Canada means higher bond ratings with “weaker” financial ratios
- ◆ No need to target US financial ratios or include a *financial risk* adjustment for the lower equity ratios in Canada



US Electric Earned ROEs

US ELECTRICS ROES

Reuters	Annual ROEs											Average Rf	
	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002		STDEV
Alliette	8.5	9.1	7.8	6.9	10.5	12.4	12.2	2.9	3.6	10.6	10	3.13	8.59
AEP	8.4	10.7	9.1	11.4	13.2	11.7	10.7	11.7	13.8	7	0.3	3.73	9.82
Cleco	11.2	14.3	21	9.8	9.9	16.1	9.6	29.5	12.5	0	13.3	7.42	13.38
Edison	15.4	10.09	12.3	8.8	13.5	13.6	15.1	17.1	3.8	15.9	29.4	6.35	14.09
First Energy	5.8	8.1	9.2	12	15.6	14.5	13.8	9.8	10.4	5.5	9.5	3.33	10.39
IDA Corp	9.9	10.5	9.7	9.2	7.8	7.1	9.3	6.3	7.8	5.4	7	1.64	8.18
NextEra	12.3	13.1	14.3	13.1	14.6	12.7	13.9	11	12	13.4	10.7	1.26	12.83
PNM Resources	6.6	11	-2.84	3.1	0	3.5	8.2	5.7	7.1	5	6.4	3.85	4.89
Southern	13.1	13	12.7	11.7	13.6	14.6	14.3	15.2	15.4	16.1	15.8	1.42	14.14
Westar	9.6	8.9	9	6.4	8.9	10	11.1	9.6	8.2	16.4	0	3.86	8.92
Portland	8.3	9	8	6.6	6.5	11.4	5.9	5.2	7.5	2.7	5.8	2.26	6.99
PNW	9.9	8.8	10	2.4	6.1	8.6	9.2	7	8.1	8.4	8.3	2.15	7.89
Hawaiian	8.9	9.2	7.8	5.9	6.8	7.2	9.3	10.5	9.4	11.1	12	1.87	8.92
Great Plains	6.3	5.9	7.5	5.7	5.8	10.8	9.8	13.7	16.4	16	14.8	4.32	10.25
US Average	9.60	10.12	9.68	8.07	9.49	11.01	10.89	11.09	9.71	9.54	10.24		
NSPI	9.6	9.6	9.6	9.2	9.7	9.2	9.6	8.7	10	10.5	10.3	0.54	9.64
NP	9	9	9.21	8.96	9.13	8.66	9.46	9.6	10.12	10.22	10.65	0.64	9.50

0 indicates losses S&P does not report negative ROEs
Data for EI Paso not available

Note: Some are holding companies since they are the ones the DCF and beta analysis is based on



Newfoundland Power Decision

(PU2013-04-17)

The Board finds that the evidence demonstrates that Canadian utility data is inadequate to complete a discounted cash flow analysis and that, in the particular circumstances, it may be informative to look to data from the United States. As to how this data is to be used the Board accepts the evidence of both Dr. Booth and Mr, MacDonald that there are differences in the United States and Canadian experience that justify an adjustment to the discounted cash flow results. Dr. Booth suggests an adjustment of 100 basis points. Mr. MacDonald makes a 72 basis point adjustment, The British Columbia Utilities Commission has found that the United States data should be adjusted by between 50 and 100 basis points. The Board finds that an adjustment of 50 to 100 basis points is appropriate at this time.

Dr. Coyne's 9.2% ROE would become 8.20-8.7% as a fixed rate ROE, since the base is a long term interest rate forecast. With an adjustment for generating risk this is similar to mine

