

Utility Regulation: The view of an Intervener Expert

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BOOTH Utility Regulation



Outline

- ◆ **Why utilities are regulated**
- ◆ **How utilities are regulated**
- ◆ **How the ROE is estimated**
- ◆ **Implication of the NEB 's TQM Decision on ATWACC**
- ◆ **Implications for utility regulation**



AltaLink

- ◆ Owns the main electric transmission grid in Alberta
- ◆ Formerly owned by TransAlta
- ◆ Other parts of the grid are owned by ATCO and the City of Calgary and Edmonton (ENMAX & EPCOR)
- ◆ Economic requirement for regulation: monopoly power since prices would otherwise be too high and abusive
- ◆ Legal requirement
 - Rates “fair and reasonable”
 - Stockholders get a fair return



AltaLink Approximate Revenue Requirement

Components

Return	29.64%
Depreciation & Amortization	28.68%
Income Taxes	11.74%
Operating Expense	20.45%
Hearing Cost Reserve	2.54%
Taxes Other than Income Tax	6.96%
Miscellaneous Revenue	
Total Revenue Requirement	



Implications

- ◆ **Cost structure**
 - Almost 100% fixed costs
 - Financial is 70%: return, depreciation and income tax
 - Rest is O&M, hearing costs
 - Almost nothing varies with throughput
- ◆ **Extreme:**
 - most electric and gas discos and transmission utilities have very small variable components in costs and rates
 - Variable component is reducing (decoupling) due to rate restructuring
- ◆ **Merchant function is absent for almost all Canadian utilities**



Forbearance

- ◆ **Telcos: price cap regulation**
- ◆ **Removal of non-monopoly services**
 - Heater rentals in Ontario
 - Commodity service
 - ❖ Natural Gas
 - ❖ Electricity
- ◆ **Incentive regulation (PBR)**
 - Traditional regulation cost of service pass through
 - Prices should equal minimum cost!
 - Sharing benefits or true ups seem to generate cost reductions!
 - OEB gas utilities, BCUC, Regie, NEB Pipes all have PBRs or settlements



Traditional: Revenue Requirement

ROE* Average Equity

+

Corporate Income Taxes

+

Embedded Interest Cost

+

Depreciation

+

O&M



Regulatory Tools

- ◆ **Common Equity Ratio**
 - Long distance competition Telcos 55% common
 - NEB oils vs Gas pipes (45% vs 30%)
 - More equity to offset higher business risk
- ◆ **Return on Equity**
 - Union Gas 0.15% more than Consumers Gas
 - NorthWestel 0.75% over regular Telcos
- ◆ **Deferral Accounts**
 - Weather deferral account
 - PNG large companies deferral account
 - Still at risk for imprudent costs
- ◆ **Depreciation rate**
 - RH-1-2002 NEB raised TCPL Mainline's rate to 4.0%
 - Shorter useful life offsets supply risk from WCSP



Short Run Risk:1

EARNED ROE vs ALLOWED

	Mainline		Foothills		TCPL BC (ANG)		TQM	
	Allowed	Actual	Allowed	Actual	Allowed	Actual	Allowed	Actual
1990	13.25	13.34	14.25	14.25	13.25	13.25	13.75	14.87
1991	13.5	13.65	14.25	14.25	13.38	13.38	13.75	13.94
1992	13.25	13.43	13.83	13.83	13.43	13.43	13.75	13.97
1993	12.25	12.31	11.73	11.73	12.08	12.08	12.25	12.5
1994	11.25	11.16	11.5	11.5	12	12	12.25	12.55
1995	12.25	12.56	12.25	12.25	12.25	12.25	12.25	12.65
1996	11.25	11.83	11.25	11.25	11.25	11.25	11.25	11.83
1997	10.67	11.15	10.67	10.67	10.67	10.67	10.67	10.94
1998	10.21	10.63	10.21	10.21	10.21	10.21	10.21	10.32
1999	9.58	9.64	9.58	9.58	9.58	9.58	9.58	9.94
2000	9.9	9.99	9.9	9.9	9.9	9.9	9.9	9.96
2001	9.61	9.72	9.61	9.61	9.61	6.86	9.61	10.21
2002	9.53	9.95	9.53	9.53	9.53	9.53	9.53	9.8
2003	9.79	10.18	9.79	9.79	9.79	8.21	9.79	10.21
2004	9.56	9.83	9.56	9.56	9.56	9.56	9.56	9.84
2005	9.46	9.66	9.46	10.14	9.46	9.46	9.46	9.92
2006	8.88	8.92	8.88	9.53	8.88	8.47	8.88	8.99
2007	8.46	9.13	8.46	8.89	8.46		8.46	8.74
Average	10.70	10.95	10.82	10.92	10.74	10.59	10.83	11.18
ovearn		0.25		0.10		-0.14		0.35



Short Run Risk:2

Earned vs Allowed ROE

	EGDI		UNION		Terasen		GMI	
	Allowed	Actual	Allowed	Actual	Allowed	Actual	Allowed	Actual
1990	13.25	13.60	13.50	13.40			14.25	14.25
1991	13.13	13.29	13.50	12.50			14.25	14.25
1992	13.13	13.40	13.00	13.70	12.25	9.06	14	14
1993	12.30	14.43	12.50	14.30	na	11.91	12.5	12.5
1994	11.60	12.49	11.75	12.14	10.65	9.73	12	12.04
1995	11.65	12.66	11.75	12.12	12.00	12.03	12	11.78
1996	11.88	13.14	11.75	12.52	11.00	11.80	12	12.04
1997	11.50	13.00	11.00	12.26	10.25	11.27	11.5	11.9
1998	10.30	11.97	10.44	11.14	10.00	9.41	10.75	11.09
1999	9.51	10.77	9.61	10.10	9.25	10.70	9.64	10.22
2000	9.73	10.83	9.95	10.11	9.50	10.75	9.72	10.06
2001	9.54	10.03	9.95	11.45	9.25	9.38	9.6	10.38
2002	9.66	11.81	9.95	12.36	9.13	10.03	9.67	10.67
2003	9.69	13.14	9.95	12.08	9.42	10.23	9.89	10.82
2004	9.69	10.66	9.62	10.45	9.15	9.46	9.45	11.47
2005	9.57	9.46					9.69	10.51
2006							8.95	9.66
Average	11.01	12.17	11.21	12.04	10.15	10.44	11.17	11.63
Overearn		1.16		0.83		0.29		0.46

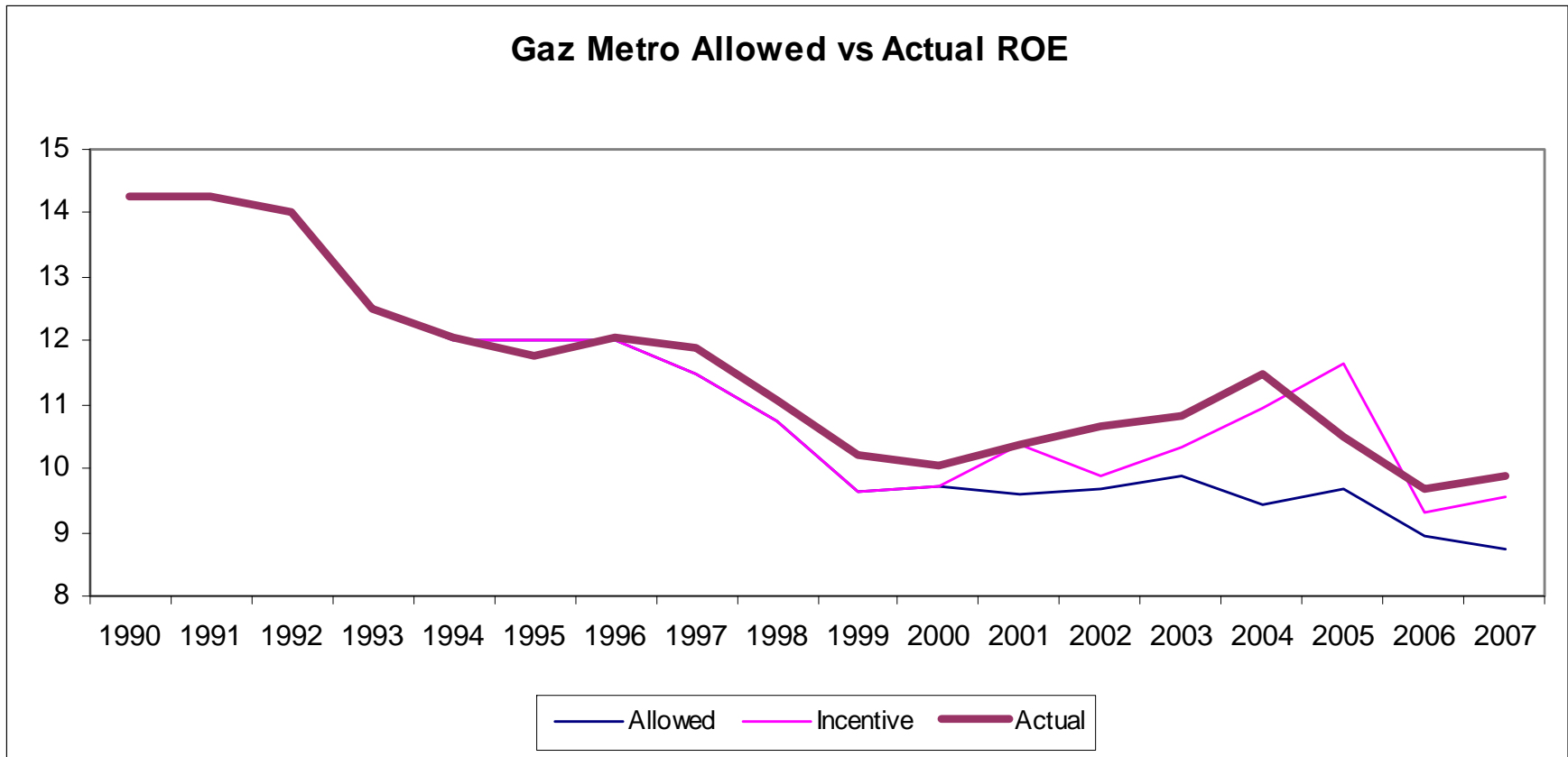


Short Run Risk: UHCs

	CU Ltd	Emera	Enbridge	Fortis	GMI	PNG	Terasen	TransAlta	TCPL	Mainline	Foothills	Canada
1993	13.37	12.02	17.53	11.84	19.29	12.92	10.82	16.00	14.01	12.31	11.73	3.81
1994	13.71	11.90	9.59	10.71	19.73	13.44	7.24	15.10	12.86	11.16	11.5	6.7
1995	14.12	11.55	16.91	10.74	19.50	11.77	8.51	14.00	13.20	12.56	12.25	9.77
1996	14.86	10.59	14.47	9.61	19.91	13.32	17.59	13.24	12.33	11.83	11.25	10.35
1997	14.87	10.56	14.04	9.43	18.91	13.32	8.34	12.84	11.25	11.15	10.67	10.93
1998	14.75	9.47	13.25	7.16	19.11	10.14	12.09	16.41	7.04	10.63	10.21	8.78
1999	14.54	10.83	13.35	8.56	17.66	10.79	13.35	4.88	7.42	9.64	9.58	9.88
2000	15.44	10.88	15.65	9.71	17.93	9.75	15.16	8.14	8.44	9.99	9.9	10.93
2001	14.96	10.58	14.90	12.25	17.45	7.50	10.26	7.23	10.89	10.01	9.61	7.42
2002	17.56	6.65	10.11	12.24	18.91	5.94	9.59	2.31	11.93	9.95	9.53	5.67
2003	13.71	9.77	17.31	12.28	18.05	7.59		8.67	12.80	10.18	9.79	9.64
2004	15.19	9.80	16.43	11.25	18.21	6.97		5.97	15.49	10.18	9.56	11.63
2005	12.24	9.03	13.90	12.39	16.94	8.34		7.45	17.56	9.66	9.46	12.71
2006	14.24	9.07	14.26	11.83	15.80	5.86		1.81	14.10	8.92	8.88	14.18
2007	15.96	10.93	14.53	9.96	13.31	5.00		13.07	13.99	9.13	8.46	12.04
2008	15.67	9.92	22.69	8.68	16.57	6.79		9.77	12.70		8.71	10.38
STDEV	1.21	1.32	3.04	1.59	1.71	2.97	3.28	4.72	2.80	1.10	1.12	2.69
Ratio	0.45	0.49	1.13	0.59	0.64	1.11	1.22	1.76	1.04	0.41	0.42	
Beta	-0.05	-0.07	0.20	-0.08	-0.36	-0.40	0.43	-0.57	0.23	-0.22	-0.21	



Effect of PBR?



Conclusions

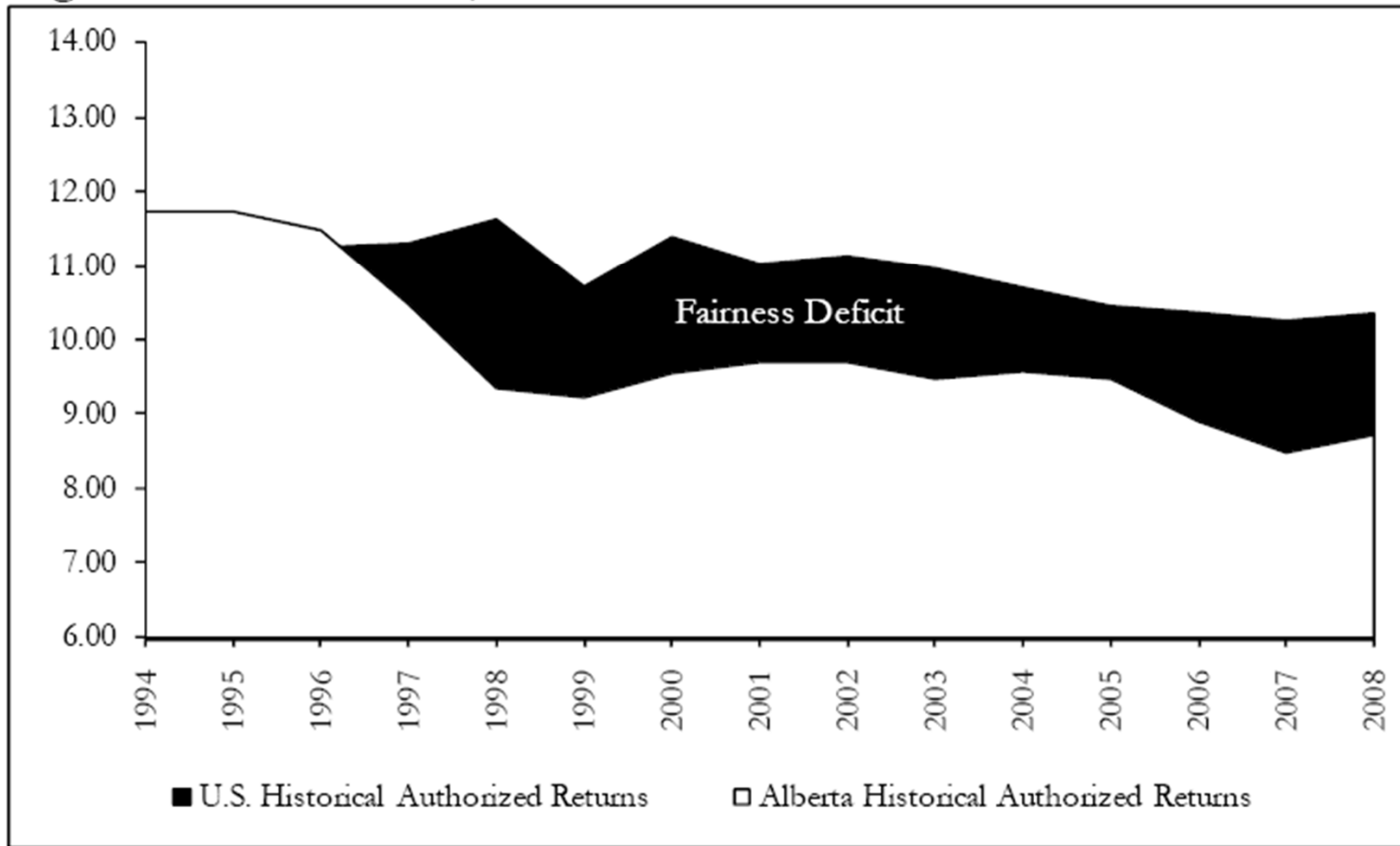
- ◆ Very little risk attached to Canadian utilities
- ◆ Invariably earn their allowed ROE
- ◆ Always go back to regulator for a true up

- ◆ Enbridge Gas Distribution (& Union)
 - Charged excessive late fees that violated the income tax
 - Supreme court order them to refund
 - OEB allowed them to recover the settlement in rates and was supported by consumers



Canadian Utility Pressure

Figure 1: Fairness Deficit, U.S. vs. Alberta Historical Authorized Returns



Testimony of Concentric before the AUC June 2009

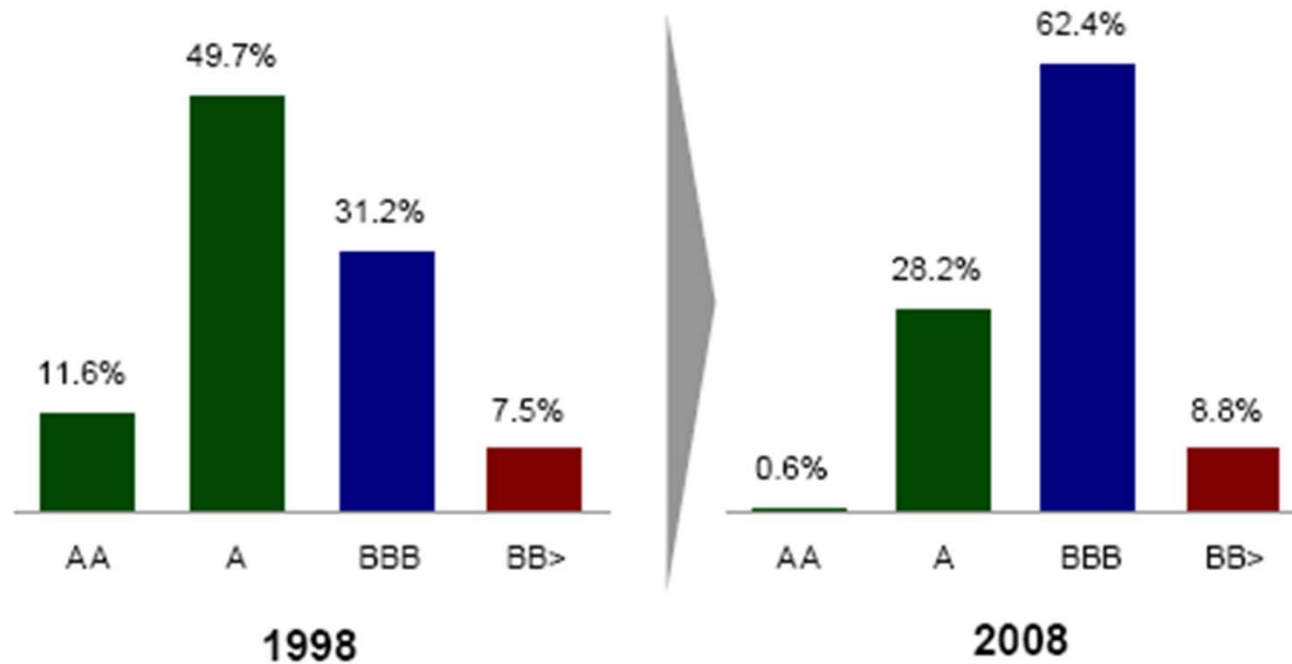
US vs Can Regulation

- ◆ **Basic Comparison**
 - ◆ **Competition vs consumer protection**
 - ◆ **Marginal vs Rolled in Tolling**
 - ◆ **Utility/pipe competition: impact on others**
 - ◆ **Bypass risk/load retention rates**
 - ◆ **Rate reviews more frequent in Canada**
 - ◆ **Commodity exposure more important in US**
 - ◆ **Deferral accounts more prevalent in Canada**
 - ◆ **Normalised vs flow through taxes**
- ◆ **Financial**
 - ◆ **ROE**
 - **FERC & Most US states use DCF**
 - **Canada CAPM**
 - **ROEs are higher**
 - ◆ **Equity ratios higher in US: less financial risk**
 - ◆ **Debt ratings higher in Canada: A vs BBB**



US Utility Bond Ratings

POWER & UTILITIES INDUSTRY: RELATIVE CREDIT PROFILE 1998 - 2008



Source: Merrill Lynch, Feb 2009 NARUC

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US Utility Experience

- ◆ **Frontier Telephone**
 - ◆ Rated AA- purchased by Global Crossing and rating cut to BB+ as New York Public Service Commission did not prevent the acquisition.
- ◆ **Cincinnati Bell**
 - ◆ Rated AA- when parent acquired IXC which had a B-rating. Public Utilities Commission of Ohio did not impose restrictions on Cincinnati Bell.
- ◆ **Qwest**
 - ◆ Rated A+ Acquired US West Communications S&P warned its rating would be cut to BBB- but no regulatory interference: concern was on service quality not protection of bond
- ◆ **Enron**
 - ◆ Raided its pipelines for \$1 billion in trying to avoid bankruptcy



S&P Policy

- ◆ **Telecom**

- Will not rate regulated sub higher than corporate credit rating!

- ◆ **Non-Telecom**

“rarely view(s) the default risk of an unregulated subsidiary as being substantially different from the credit quality of the consolidated entity. Regulated subsidiaries can be treated as exceptions to this rule – if the specific regulators involved are expected to create barriers that insulate a subsidiary from its parent.”

“the bar has been raised with respect to factoring in expectations that regulators would interfere with transactions that would impair credit quality. To achieve a rating differential for the subsidiary requires a higher standard of evidence that such intervention would be forthcoming.”

- ◆ **Ring Fencing**

- ◆ Separate incorporation of the sub/Independent directors/Minority ownership stakes/Restrictions on dividends/pledging of assets/Regulatory oversight to insulate the subsidiary/ separation of cash management



Bank Regulation

- ◆ **Confirms different US attitude towards regulation than in Canada**
 - OSFI requires 7 & 10% Tier 1 &2 capital and they have much more; US banks undercapitalised and risk takers
- ◆ **US (near) failures**
 - Wachovia, NCC, Countrywide, WashMu, Merrill, Citibank, Bear Sterns, Lehman Brothers etc
- ◆ **PM Harper**

“Unregulated financial markets do not work. Canada has known that for a long time. I thought frankly, we all knew that from events of many decades ago – but obviously the United States went on a different path.”



ROE Estimation Methods

- ◆ **Discounted Cash Flow**

- Perpetual

$$K = \frac{D_1}{P_0} + g$$

- two stage

- ◆ **Equity Risk Premium (CAPM)**

- CAPM

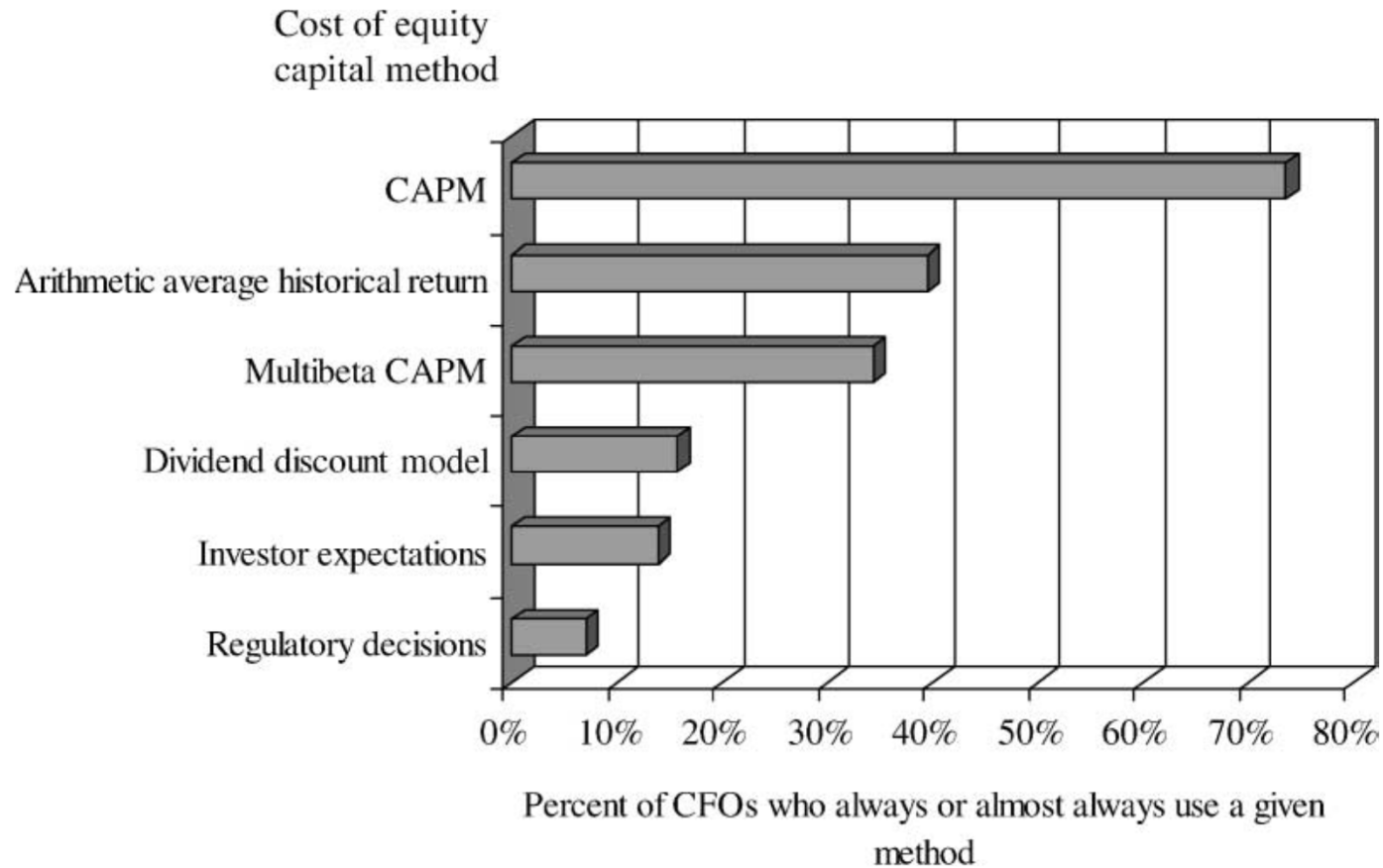
- Two factor models

$$K = R_F + MRP * \beta$$

- ◆ **Canada relies on CAPM US on DCF**



Graham and Harvey (JFE 2001) Survey



Annual Returns 1926-2008

Annual Rate of Return Estimates 1926-2008						
U.S.			CANADA			
	S&P Equities	Long US Treasury	Excess Return	TSE Equities	Long Canadas	Excess Return
AM	11.66	6.05	5.61	11.10	6.56	4.54
GM	9.61	5.67	3.94	9.41	6.21	3.20
OLS	11.13	5.06	6.07	10.44	5.74	4.70
Volatility ¹	20.56	9.19		18.90	8.84	

Arithmetic is simple average; geometric is compound and OLS is the least squares estimate.

Approximately Geometric Mean = Arithmetic Mean - .5*variance

For example, US variance is about 4%, so AM and GM diverge by about 2%



US & Canadian Risk Premium

	Equity	Bonds	MRP
◆ Canada	11.10	6.56	4.54
◆ US	11.66	6.05	5.61
◆ Difference	<i>+0.56</i>	<i>-0.51</i>	<i>1.07</i>

“Equally” split equity & bond markets

US lower bond returns reflects reserve currency status



Academics on MRP: 1

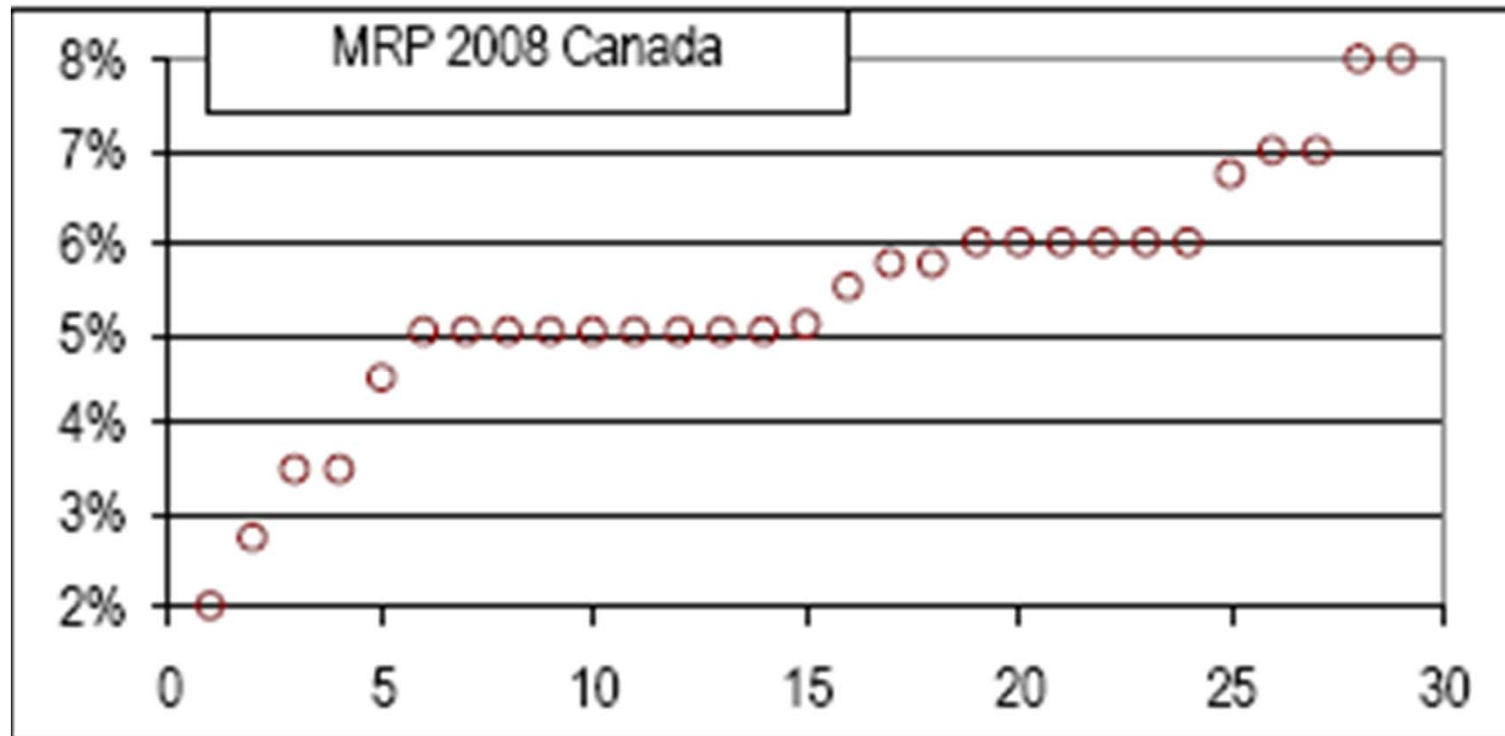
Table 2. Market Risk Premium used in 2008 by 884 finance professors

		USA	Euro	UK	Canada	Australia	Other	Sum
MRP used in 2008	Average	6.3%	5.3%	5.5%	5.4%	5.9%	7.9%	
	St. dev.	2.2%	1.5%	1.9%	1.3%	1.4%	3.9%	
	MAX	19.0%	10.0%	10.0%	8.0%	7.5%	27.0%	
	Q3	7.2%	6.0%	7.0%	6.0%	7.0%	10.0%	
	Median	6.0%	5.0%	5.0%	5.1%	6.0%	7.0%	
	Q1	5.0%	4.1%	4.0%	5.0%	6.0%	5.5%	
	min	0.8%	1.0%	3.0%	2.0%	2.0%	2.0%	
	Number	487	224	54	29	23	67	884

Survey by Professor Pablo Fernandez May 2009

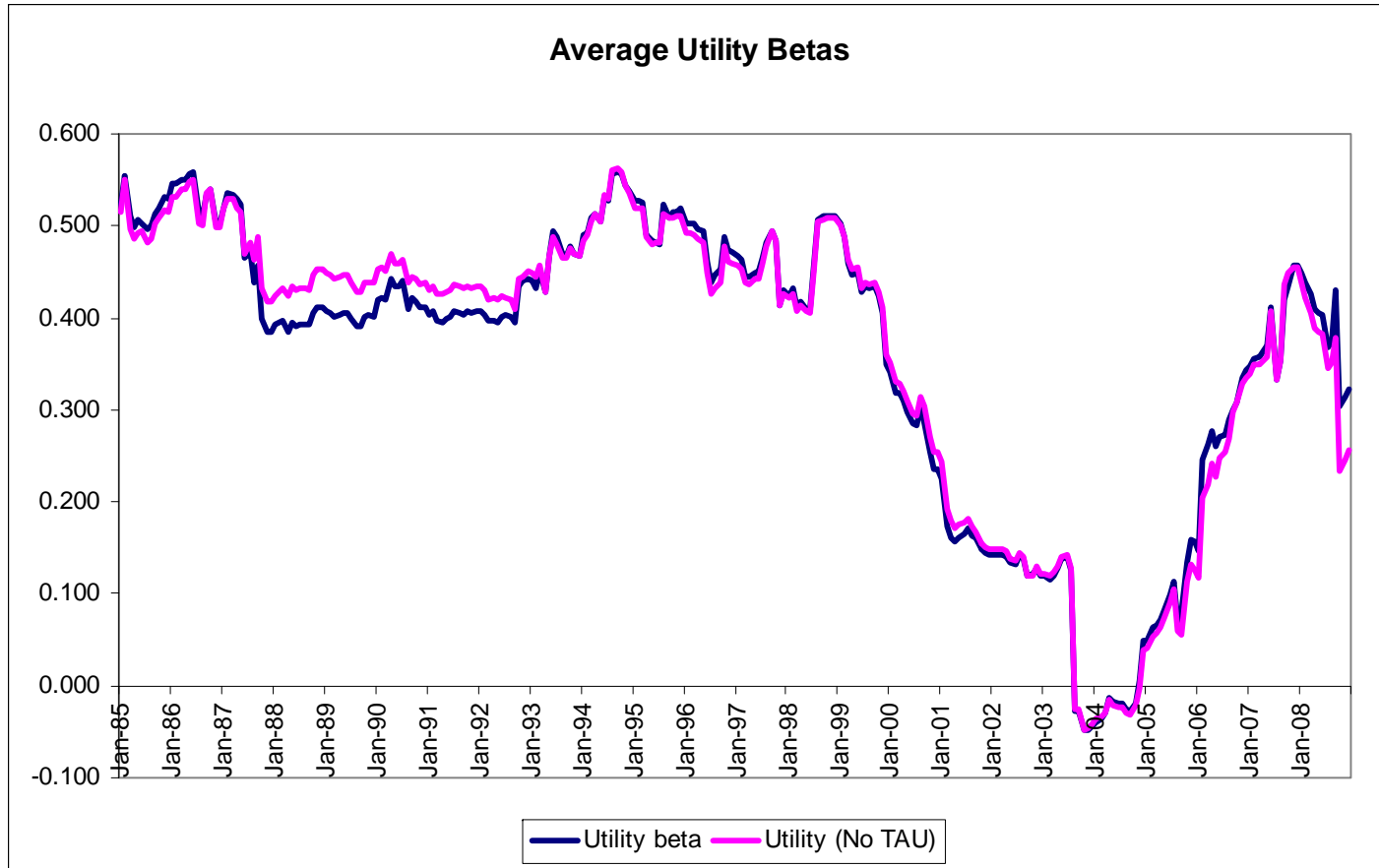


Academics on MRP: 2



Survey by Professor Pablo Fernandez May 2009

Risk: Betas



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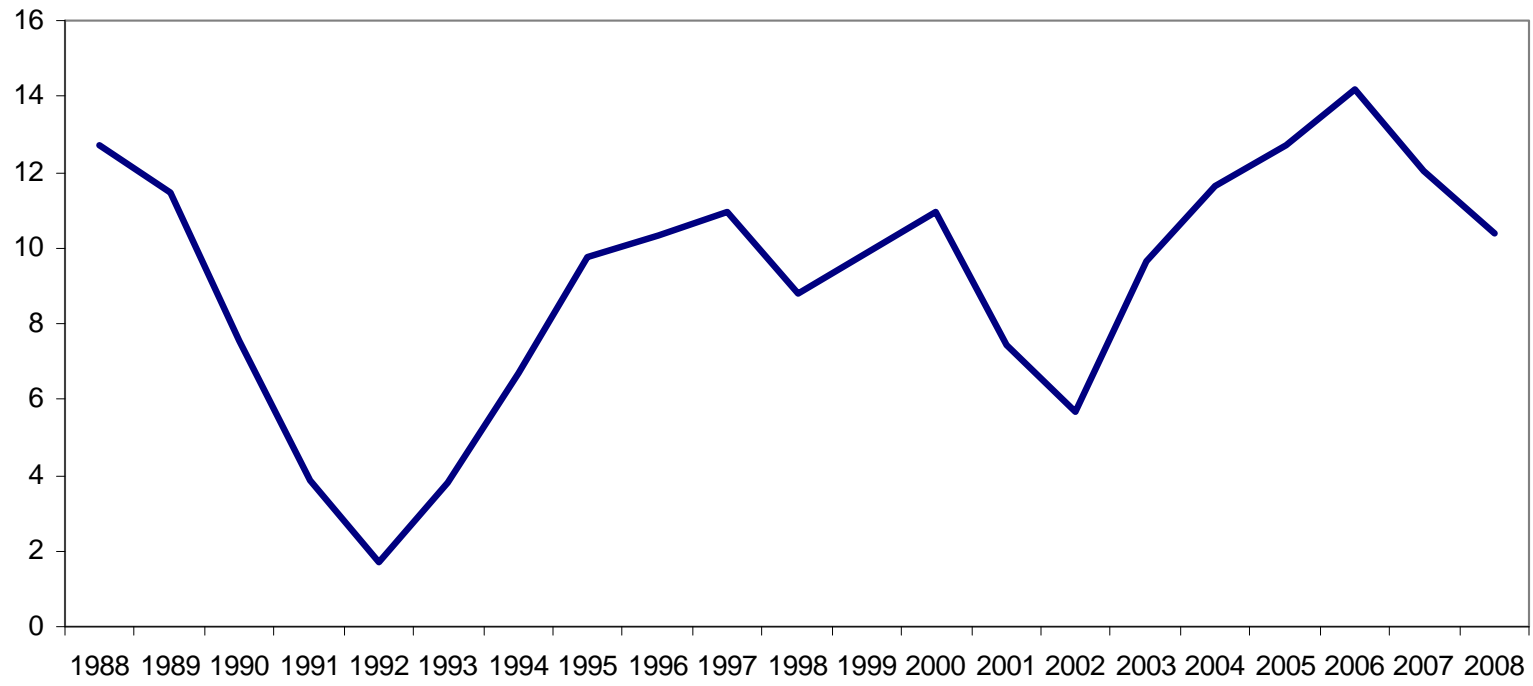


Quick & Dirty CAPM

◆ Long Canada forecast for 2010:	4.5%
◆ Market risk premium :	5.0%
◆ Beta/relative risk:	0.5
◆ QDCAPM:	7.0%
◆ Financial flexibility, fair ROE	7.5%
◆ ROE Formulae:	8.5-9.0%
◆ Gaz Met Request:	12.39%



Corporate Canada ROE
Tables 11.4 CEO



Utility Case for MORE

- ◆ **Markets are becoming more international : they need US style returns to attract capital**
- ◆ **A yields have increased and are close to allowed ROEs and equity cost more so they need more (out of date already)**
- ◆ **They need an ATWACC as a modern approach to regulation (NEB's TQM Decision)**



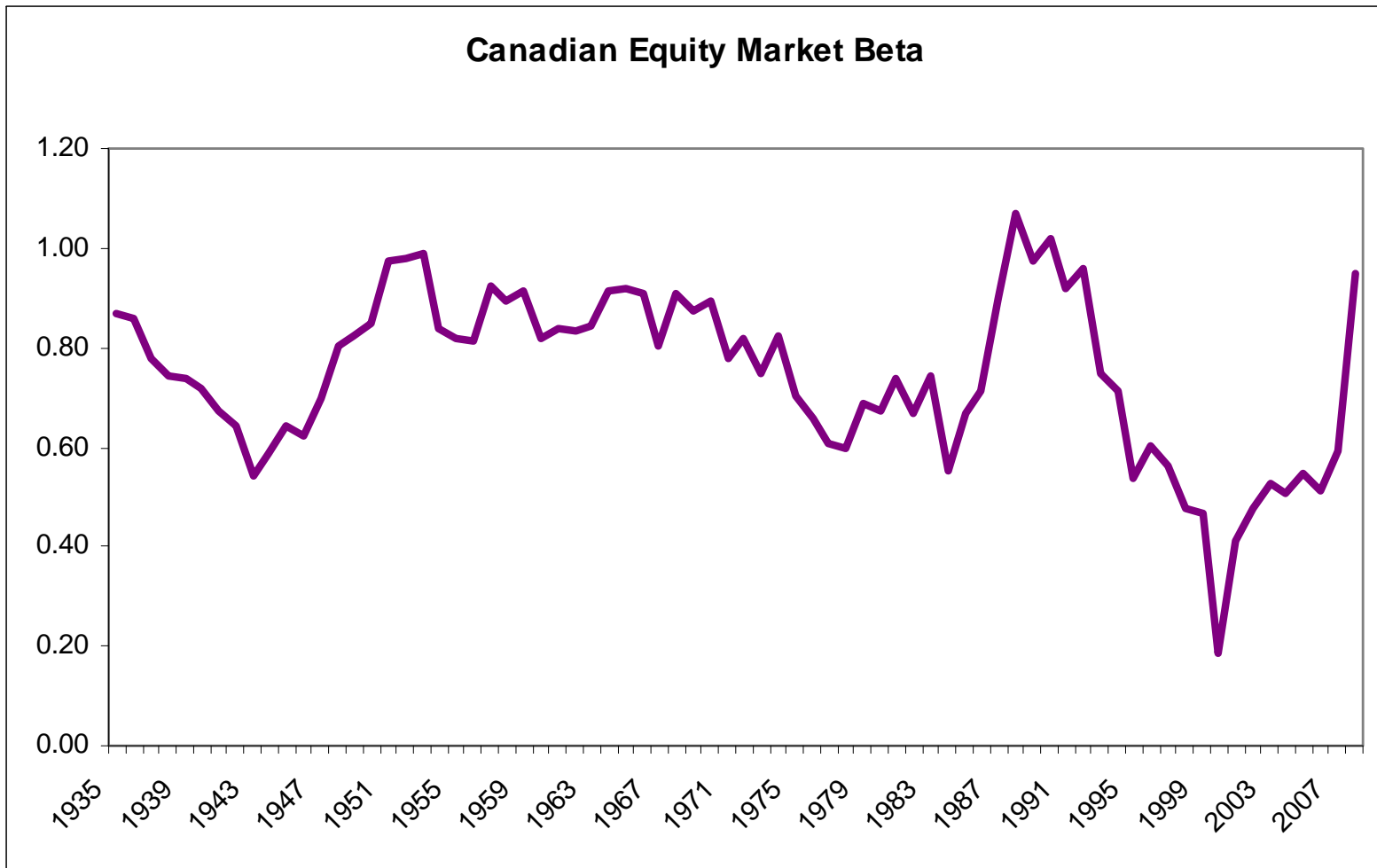
Market Integration

“The relatively high ex post returns provided by internationally diversified portfolios of securities may well be related to market imperfections. If current restrictions on international capital flows, to say nothing of other market imperfections, were removed, returns on internationally diversified portfolios would be expected to decline relative to the risk-free rate of interest. More importantly, the equilibrium rate of exchange of risk and return should decline for most countries, non-diversifiable risk should decline for most projects, and the resulting reduction in the risk premium component of the cost of capital to firms should improve the efficiency of real capital allocation.”

R. Cohn and J. Pringle, “Imperfections in International Financial Markets: Implications for Risk and the Cost of Capital to Firms,” *Journal of Finance*, March 1973, pp 59-66

The integration of capital markets
reduces market risk premiums



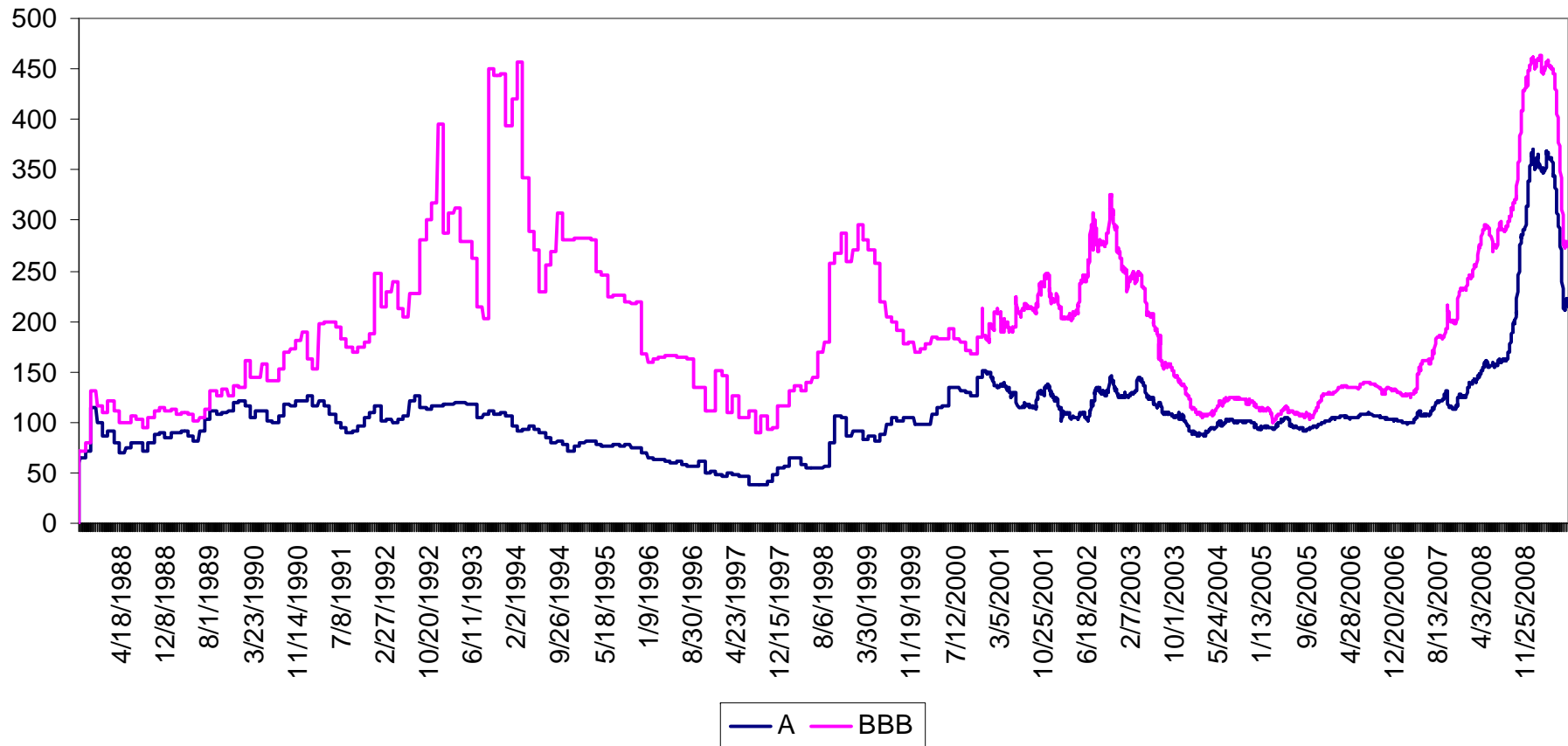


The Canadian market is low risk compared to the US
from a US perspective

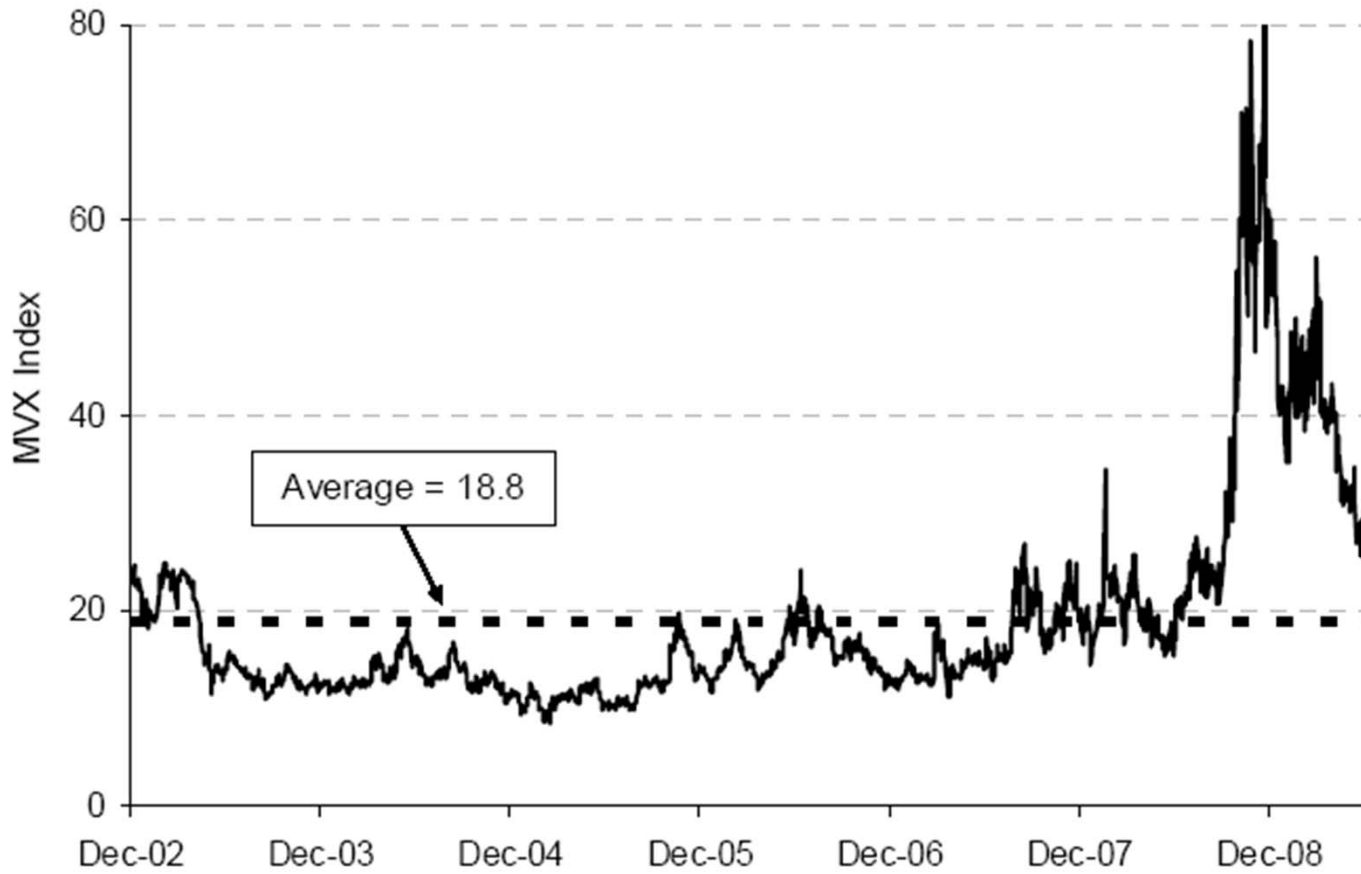
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A and BBB Spreads



Historical MVX Index Performance December 2, 2002 to Present



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Borrowing Costs

Gaz Métro Estimated 2010 30-Year Yield Spreads	
<u>Current Gaz Métro Indicative Spreads⁽¹⁾</u>	
<u>1-Year</u>	80 bps
<u>30-Year</u>	163 bps
<u>Current GoC Yields⁽²⁾</u>	
<u>1-Year</u>	0.581%
<u>30-Year</u>	3.916%
<u>Current All-in Gaz Métro Yields</u>	
<u>1-Year</u>	1.381%
<u>30-Year</u>	5.546%
<u>Estimated 2009 Gaz Métro 30-Year Rate</u>	
<u>Implied 29-Year Rate 1 Year from Now⁽³⁾</u>	5.407%
<u>Current 30-Year Rate</u>	5.546%
30-Year Gaz Métro Average Yield for 2010⁽⁴⁾	5.477%
30-Year Gaz Métro Average Spread for 2010⁽⁵⁾	167 bps



ATWACC

- ◆ Shareholder value maximisation implies
 - Maximise future cash flows
 - Minimise the discount rate or ATWACC

$$ATWACC = K_e \frac{E}{V} + K_d (1 - T) \frac{D}{V}$$

- The weights D/V and E/V are the market value weights in the firm's capital structure
 - The costs are the equity opportunity cost (K_e) and the after tax debt cost ($K_d(1-T)$)
- ◆ NEB applied this to TQM in March 2009 with an ATWACC of 6.4% and allowed them to finance anyway they wanted



Problems with ATWACC: 1

- ◆ **Lax regulation lax: Allowed ROE > fair**
 - Market values increase ATWACC places a heavier weight on the higher equity cost and return goes up not down!
- ◆ **AEUB (U99099)**
 - *“The Board observes that the intrinsic long-run value of a pure play regulated entity is best represented by book value. In other words, the present worth of future regulated earnings, discounted at the allowed return, is by definition equal to book value assuming achieved regulated earnings on average equal allowed regulated earnings. Accordingly, the Board considers that book capitalization represents the best indicator of the long-run market capitalization for a pure play regulated firm.”*
 - *“The Board would be derelict in its statutory responsibilities to recognize market capitalization ratios that are derived from a market value capitalization that deviates from the intrinsic long-run value of the regulated firm.”*



Problems with ATWACC-2

◆ Increases estimation error

- Error in ROE is magnified in ATWACC and increases with market value
- Embedded debt cost which for most utilities exceeds their market cost

“The Board notes that the provision for actual or embedded costs, and the allowance for estimated income taxes payable based on the deemed capital structure, are part of the traditional approach to toll making which considers the individual components of the cost of capital. However, the board has decided to set an aggregate return on capital, guided by market based principles. The Board is not specifying TQM’s capital structure for 2007 and 2008. In keeping with that perspective, the Board finds that a fair treatment of embedded debt costs is to consider such costs accounted for in the market based ATWACC number. In this regard, the board subscribes to the views expressed by Dr. Kolbe to the effect that, notionally, this is the superior way from an economic perspective.”

- Tax rates: Normalisation vs Flow through: which tax rate should be used in a common ATWACC
- ATWACC changes with market value: 40% drop in 2008/9!



ATWACC Implementation

◆ **Gaz Met's return if awarded NEB ATWACC of 6.4%**

		Source
TQM ATWACC	6.40%	[1] NEB's TQM Decision
Gaz Métro After-Tax Embedded Interest Rate	4.80%	[2] Gaz Métro [6.87% x (1-30.15%)]
Gaz Métro After-Tax Assumed Preferred Rate	5.22%	[3] Gaz Métro
Percent Debt	54.0%	[4] Gaz Métro
Assumed Percent Preferred	7.5%	[5] Gaz Métro
Assumed Percent Common	38.5%	[6] Gaz Métro
Implied Allowed Rate of Return on Equity	8.88%	[7] = ([1] – [2]x[4] – [3]x[5]) / [6]

◆ **Gaz Met wants:**

- **7.75% or ATWACC plus 0.50% for embedded debt, increased risk and issue costs**
- **ATWACC of 7.25% increased due to financial crisis and A spreads which have now receded...**



ATWACC

- ◆ **Intrinsically bad regulation**
 - increases cost of capital when allowed ROEs should be cut
 - holds utilities responsible for their embedded debt costs
 - implicitly moves from flow through to normalised taxes
 - allows utilities to opportunistically finance with short term debt
 - difficult to implement mechanically
- ◆ **TQM decision only applies to TQM for 2007 and 2008,**
 - ◆ **NEB continuing with formula for other pipes & reviewing its general applicability**
 - ◆ **Only Gaz Met has asked for an ATWACC**

