Fair ROE and Capital Structure for Intragaz

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Regulation

- Many forms of regulation: public interest
- Monoplies
  - Actions of a monopolist are presumed to be in conflict with the public interest
    - Cost of service/price cap/performance based regulation (PBR)
- Forebearance
  - When technology or other factors change so cost of service is no longer appropriate
  - Telecommunications
    - Still regulated, but not by cost of service

Intragaz

- Two depleted gas reservoirs as storage
- Not a monopoly
- Regulated by ***avoided cost***
  - Satisfies public interest that consumers are not over-charged
  - Cost of service may result in higher charges depending on ROE and capital structrue
- If cost of service regulation is allowed, rates should be equivalent to avoided cost. This can be done by changing the starting rate base.
- Risks are then partially transferred to Gaz Metro ratepayers.

Intragaz

- 10/15 year contract (Booth page 19)

	$1,000														
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	202
Rate base	108571	105103	101652	98188	94711	91225	87737	84274	80892	77657	74222	70787	67352	63918	6048
Change in rate Base	3435	3468	3451	3464	3478	3486	3488	3463	3382	3235	3435	3435	3435	3435	343
Equity	54285	52551	50826	49094	47355	45612	43868	42137	40446	38829	37111	35394	33676	31959	3024
ROE	0.1175	0.1175	0.1175	0.1175	0.1175	0.1175	0.1175	0.1175	0.1175	0.1175	0.1175	0.1175	0.1175	0.1175	0.117
Equity Return	6379	6175	5972	5769	5564	5359	5155	4951	4752	4562	4361	4159	3957	3755	355
Depreciation	1717	1734	1725	1732	1739	1743	1744	1732	1691	1618	1717	1717	1717	1717	171

- 75-87% of the equity recovered via the present value of the cash flows
- Little risk facing the equity holders
- Gaz Metro controls the risk of Intragaz, since it is the sole customer and 60% owner

Conclusion (P 22)

- Intragaz is a mature depleted natural gas storage facility
- No obvious operating problems
- No hub-based services
- Simple peak shaving and seasonal balancing for Gaz Metro
- Important assets for Quebec
- Gannet-Fleming confirmed a 40-year useful life
- S&P rates storage as less risky than generating assets (coal)

Financial Parameters

- Cost of service and long term contract for Intragaz similar to transportation by others charge (TBO).
- TQM's tolls are currently TBOed into the TransCanada Mainline's tolls.
- ATCO Pipe's tolls are TBOed into Nova Gas Transmission Ltd.
- I would recommend Gaz Metro's 46% *total* equity as Intragaz *common* equity (slightly higher than Gaz Metro).

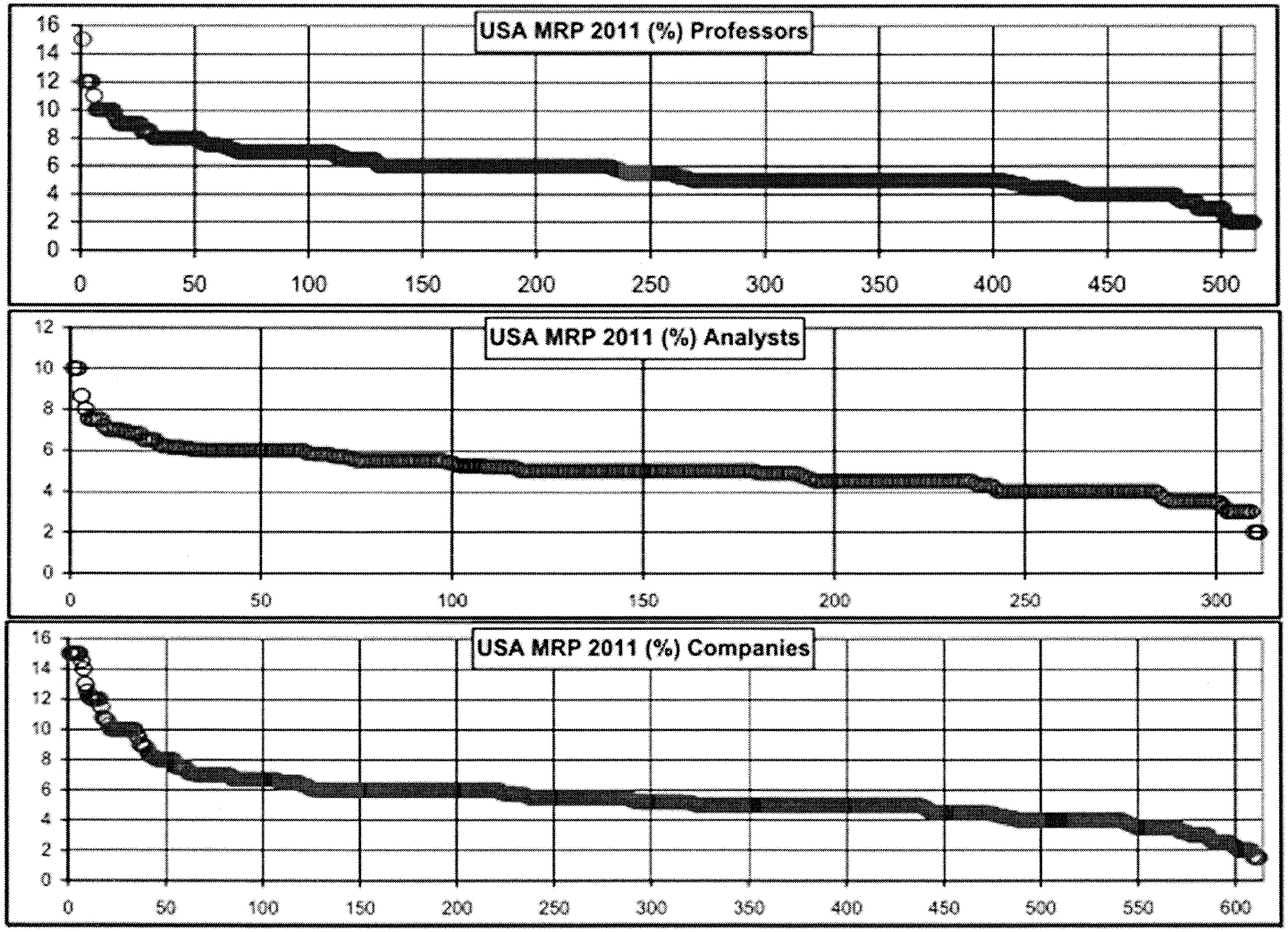
ROE

- DCF
  - Implies the discount rate in valuing future cash flows
  - Used for bonds, where cash flows are fixed
  - Extended to equities, but forecasting cash flows is difficult
- Risk premium
  - Normative: time value of money, risk value of money and tax value of money
- My textbook has several chapters on both as they are core

Risk Premium Methodology

Annual Rate of Return Estimates 1926-2011						
	U.S.			**CANADA**		
	S&P Equities	Long US Treasury	Excess Return	TSE Equities	Long Canadas	Excess Return
AM	11.77	6.06	5.70	11.22	6.67	4.55
GM	9.89	5.74	4.15	9.65	6.39	3.26
OLS	11.02	5.23	5.79	10.38	5.92	4.46
Volatility[1]	20.29	9.38		18.89	8.94	

Fernandez Surveys (average 5-6%)



Relative Risk

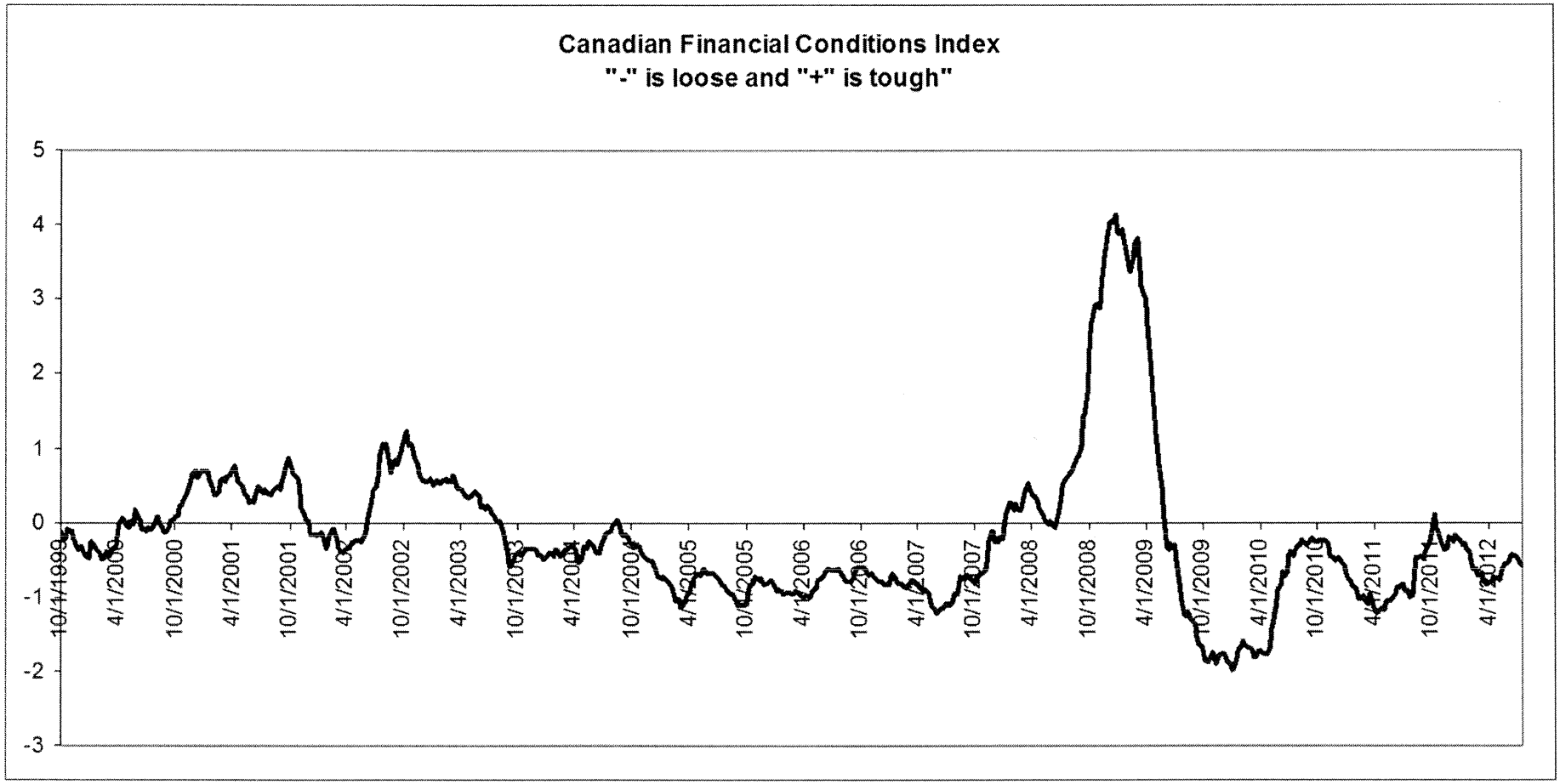
		BETAS				
	Ticker	RBC	Booth	GOOGLI	PRICE	MKT CAI
ENBRIDGE	ENB	0.24	0.32	0.14	39.14	31.3
TRANSCANADA	TRP	0.33	0.36	0.25	44.25	31.2
CANADIAN UTILITIES	CU	-0.01	0.03	0	65.85	8.47
TRANSALTA	TA	0.62	0.76	0.38	15.22	3.61
EMERA	EMA	0.21	0.21	0.22	34.87	4.33
FORTIS	FTS	0.14	0.14	0.07	33.29	6.34
VALENER	VNR	0.37	0.36	0.22	16.14	0.6
VERESEN	VSN	0.39	0.36	0.28	12.94	2.6
AVERAGE BETA		0.29	0.32	0.20		12.26
MEDIAN BETA		0.285	0.34	0.22		5.34

Normal Utility Risk Premium

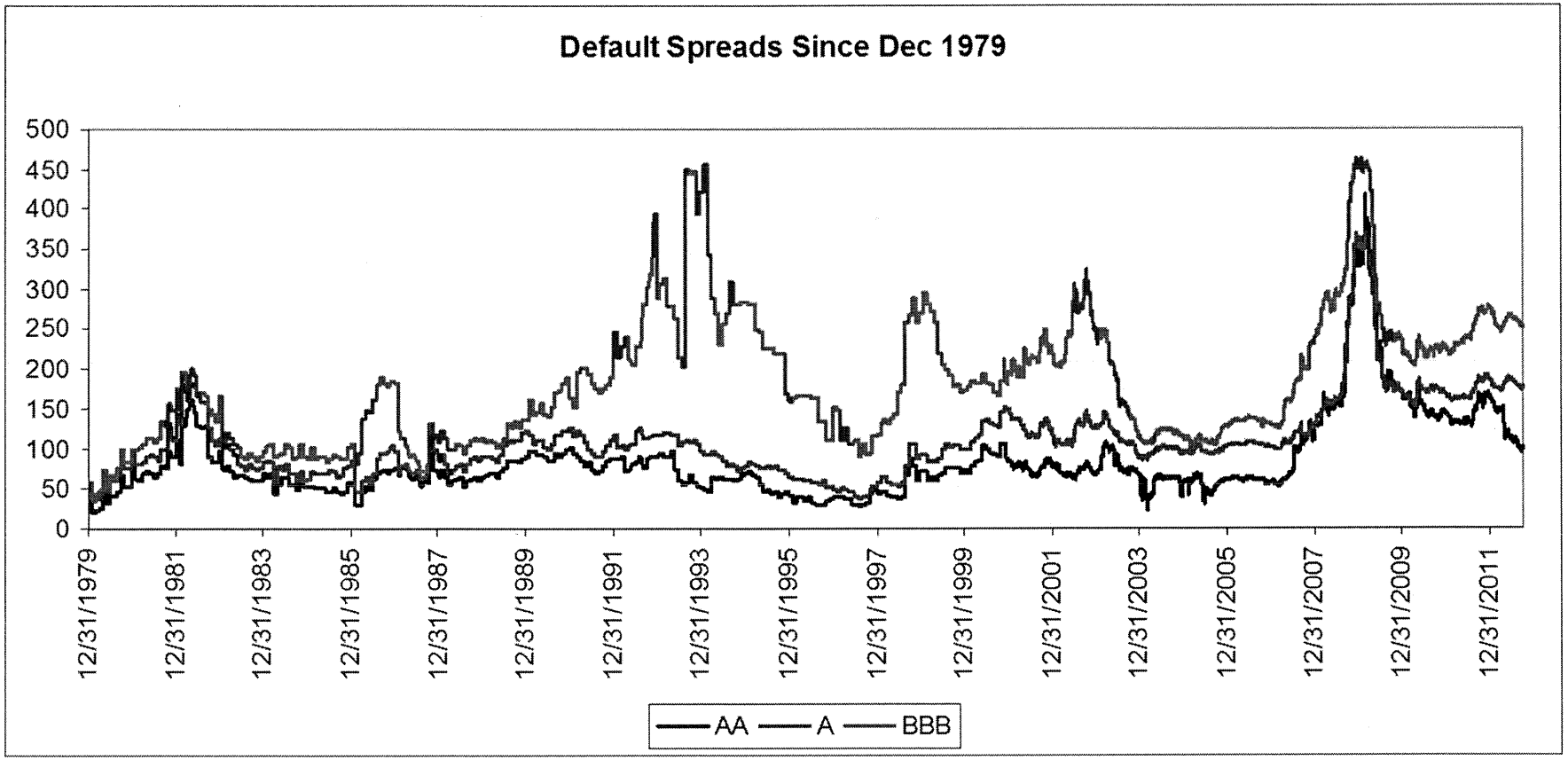
- Market Risk Premium: 5.0-6.0%
- Relative risk: 0.45-0.55
- Utility Risk Premium: 2.25-3.30%

- Normal means ***average***
- Risk Premiums vary with the economy so we ***condition*** it on the economy

Financial Market Conditions



Credit Spreads



Credit Spread Adjustment

- In 2009 most boards added a crisis premium of 40-50 bps
- Normal generic A credit spread about 100 bps
- Currently still about 170-180 bps
- Bank of Canada research indicates about 37% of this spread is related to pure default risk: OEB uses 50% adjustment
- Converts risk premium into a ***conditional risk premium,*** but still a CAPM
- Adopted by Regie in Gazifere 2010 and Gaz Metro (2011)

Status as of Summer 2011

	10Q2	10Q3	10Q4	11Q1	11Q2	11Q3	11Q4	12Q1	12Q2	12Q3	12Q4
Canada											
Overnight	0.50	1.00	1.00	1.00	1.00	1.25	1.75	2.25	2.50	2.75	3.00
Three-month	0.50	0.88	0.97	1.10	1.20	1.70	2.15	2.40	2.65	2.90	3.15
Two-year	1.39	1.40	1.71	1.85	1.75	2.15	2.40	2.80	3.00	3.35	3.75
Five-year	2.32	2.04	2.46	2.65	2.50	3.00	3.30	3.50	3.65	3.85	4.05
10-year	3.08	2.75	3.16	3.25	3.25	3.50	3.80	3.95	4.05	4.15	4.15
30-year	3.65	3.34	3.55	3.80	3.75	4.00	4.30	4.45	4.50	4.50	4.55
United States											
Fed funds	0 to 0.25	0 to 0.25	0 to 0.25	0 to 0.25	0 to 0.25	0 to 0.25	0 to 0.25	0 to 0.25	0.50	1.00	1.50
Three-month	0.18	0.16	0.12	0.15	0.20	0.20	0.25	0.35	0.65	1.25	1.70
Two-year	0.61	0.44	0.61	0.70	0.80	0.90	1.10	1.25	1.60	2.00	2.50
Five-year	1.79	1.27	2.01	2.10	2.00	2.30	2.60	2.80	3.05	3.40	3.75
10-year	2.97	2.48	3.30	3.45	3.25	3.65	4.00	4.15	4.25	4.45	4.50
30-year	3.91	3.67	4.34	4.50	4.55	4.60	4.85	4.90	4.95	5.00	5.05
United Kingdom											

Economy and markets expected to return to normal in 2011

Sovereign Risk Crisis

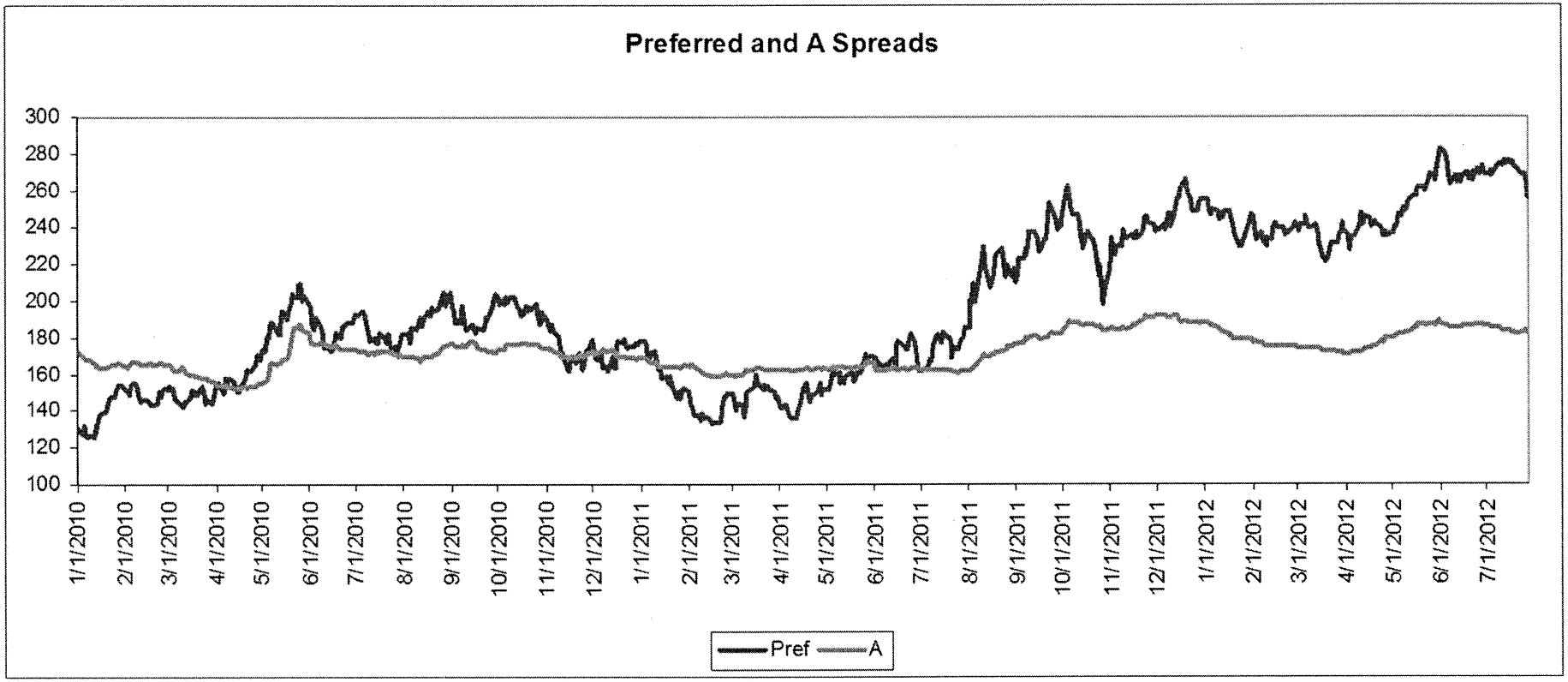
Government Deficits % of GDP

	2007	2009	2010	2011	2012
US	2.7	12.8	10.3	9.6	7.9
Canada	-1.6	4.9	5.6	4.3	3.2
UK	2.7	10.3	10.2	8.5	7
Germany	-0.02	3.1	3.3	1.7	1.1
France	2.7	7.6	7.1	5.9	4.6
Italy	1.5	5.3	4.5	4	2.4
Portugal	2.7	9.4	7.3	5.9	4.5
Spain	-1.9	11.1	9.2	6.1	5.2
Ireland	-0.01	11.4	31.9	10.3	8.6
Greece	3.7	13.6	7.9	8	6.9

Summer 2011 Changes

- Euro crisis flared up
- US lost its (S&P) AAA rating
- August 2011 Fed's Quantitative Easing
  - Purchase of bonds with cash
  - Renewed 3 times
  - $85 billion a month
  - Commitment to contnue easy money until US unemployment rate drops to 6.5%
- Significant drop in long term interest rates

Bonds vs Equity



Operation Twist Adjustment 0.80%

Fair ROE

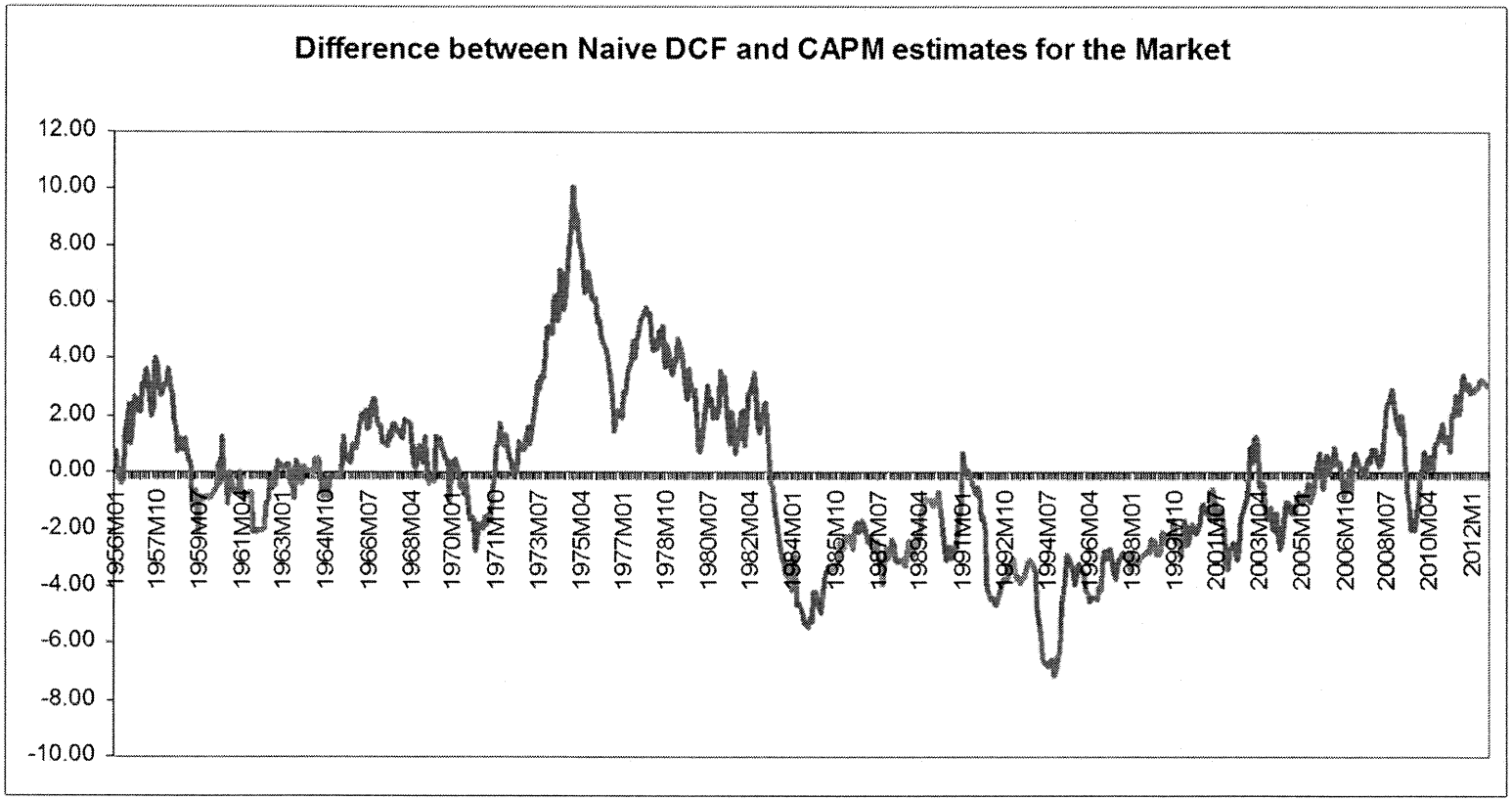
- Long term Canada yield forecast: 3.80%
- Market risk premium: 5.0-6.0
- Utility risk 0.45-0.55
- Average Utility Risk Premium: 2.25-3.3
- Financing Flexibility: 0.50
- Credit Spread 0.40
- Fair ROE 7.0-8.0%
- Mid-point ***7.50%***

- These are *still* CAPM or risk premium estimates;
- They simply adjust for changing market conditions

Other Issues

DCF Evidence on *Market*

$$CAPM - DCF = R_F - {}^{d_1}\!/_{P} = g - MRP$$



Naive estimates over long periods of time: constant MRP and real growth

DCF on *Market*

- Indicates that naive risk premium models indicate low fair ROEs
  - DCF *exceeds* Risk Premium when real yields are *low*
  - Risk premium *exceeds* DCF when real yields are *high*
- Supports
  - Credit spread adjustment to conditional CAPM
  - Operation Twist adjustment

- *Naive* Risk premium would indicate a market return of 3.5% over long Canada yields of 2.3% or 5.8%

Market Return

- DCF
  - Dividend yield +Long run growth: 9.30%
- TD Economics forecast

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	

Individual DCF Estimates

- Unreliable, particularly for Canadian companies
  - Not aware of any other utility witness using analyst growth forecasts as unadjusted growth rates for Canadian utilities
- Growth rates can *not* exceed long run economy growth rates, as growth is assumed to go on forever
- Most utility analysts use *two-stage* growth models to adjust for excessive short run growth by tapering to long run growth at GDP
- Analysts themselves are optimistic, nothing to do with conflict of interest and global settlement

Optimism Bias

We show that, on average, the difference between the estimate of the expected rate of return based on analysts' earnings forecasts and the estimate based on current earnings realizations is 2.84%. When estimates of the expected rate of return in the extant literature are adjusted to remove the effect of optimistic bias in analysts' forecasts, the equally weighted estimate of the equity risk premium appears to be close to zero. We show, however, when estimates are based on value-weighted analyses, the bias in the estimate of the expected rate of return is lower and the estimate of the expected equity premium is more reasonable, 4.43%.

"Effect of analyst's optimism on estimates of the expected rate of return implied by earnings forecasts, Journal of Accounting Research, 45-5, December 2007

US DCF Evidence

- BCUC (2009) adjusted US estimates *down* by 0.50-1.0% due to greater regulatory protection in Canada
- Booth
  - Lower long-term interest rates in Canada
  - Historically lower market risk premiums in Canada
  - Lower average (typical) utility risk in Canada
  - Higher regulatory protection in Canada (Moody's)