BUSINESS RISK AND CAPITAL STUCTURE FOR ENBRIDGE GAS DISTRIBUTION INC (EGDI)

EB-2011-0354

Evidence of

Laurence D. Booth

Before the

Ontario Energy Board

August 2012

EXECUTIVE SUMMARY

- The Applicant, Enbridge Gas Distribution Inc. ("EGDI" or the "Company"), is an Ontario corporation with its head office in the City of Toronto. It carries on the business of selling, distributing, transmitting and storing natural gas within Ontario. EGDI has applied in the within proceeding to the Ontario Energy Board (the "Board"), pursuant to section 36 of the *Ontario Energy Board Act, 1998* as amended (the "Act"),for an Order or Orders approving or fixing just and reasonable rates for the sale, distribution, transmission, and storage of gas commencing January 1, 2013. Included in the application is a request for Board approval of the Company's proposed increase in the level of Deemed Common Equity, from 36% to 42% of rate base.

- The Canadian Manufacturers & Exporters (CME), the Consumers Council of Canada (CCC), the School Energy Coalition (SEC), and the Vulnerable Energy Consumers Coalition (VECC), hereinafter "CME et al." have asked me to provide an opinion on EGDI's proposal to change its capital structure, and to recommend fair and reasonable financial parameters. I was asked to provide my opinion having regard to the Board's approach to setting capital structure in accordance with the Report of the Board on the Cost of Capital for Ontario's Regulated Utilities (December 11, 2009

- Capital structure is mainly determined by two factors: the business risk of the utility and the general state of the capital markets. EGDI's short term business risk is very low as it continues to over-earn its allowed ROE. Further, there is no indication that the impact of the five year settlement period has exposed EGDI's shareholder to any increase in risk - in fact while under settlement, EGDI's tendency to over-earn has increased. EGDI's long term risk has demonstrably decreased since natural gas prices have collapsed, so the risk of long term recovery of EGDI's rate base has diminished relative to 2006, when EGDI last filed business risk testimony. In my judgment, the business risk of EGDI has marginally decreased relative to 2006, when EGDI requested a 38% common equity ratio, and the Board granted 36%. On business risk grounds, there is no justification for increasing EGDI's common equity ratio from 36% to 42%.

- Financial market conditions are more unsettled than in 2006 due to external factors; mainly the Euro sovereign debt crisis, and the endemic problems in the United States. However, the Board dealt with the impact of capital market issues in 2009 by rebasing the formula ROE, and changing the allowed ROE in line with credit market developments[1] Should the Board allow EGDI its formula ROE then there are no grounds for adjusting the common equity ratio for these same changes, since that would

[1] EB-2009-0084 Report of the Board on the Cost of Capital for Ontario's Regulated Utilities

amount to double counting their effect. Further, the Board-approved ROE materially exceeds the allowed ROEs recently awarded in other Canadian jurisdictions.[2]

- On August 8, 2012, the Governor of the Bank of Canada noted that the Canadian financial system is now "firing on all cylinders", and unlike the situation in other countries, notably the US, there will soon be interest rate increases. Capital market conditions are thus clearly much better than in 2009. Further, EGDI has recently raised debt financing for an approximate 40 year term at an incredibly low yield of just 4.70%. With an "A" bond rating and stable financial metrics, the ability to issue 40 year debt indicates the enormous financial flexibility available to EGDI as a very low risk Canadian utility.

- In its Decision EB-2009-0084, the Board stated (page 50):

  "The Board's draft guidelines assume that the base capital structure will remain relatively constant over time and that a full reassessment of a gas utility's capital structure will only be undertaken in the event of significant changes in the company's business and/or financial risk."

  EGDI's business risk has marginally decreased since the last time the Board reviewed it in 2006, while the financial risk imposed by debt financing has declined markedly since 2009, when the Board last reviewed capital market changes. There are therefore no grounds for increasing EGDI's common equity ratio based on Board policy. Further, it is my understanding that changing Board policy was not an issue for this hearing.

- Overall, I would recommend that EGDI be allowed a 35% common equity ratio and the Board's formula ROE. I have not entered ROE testimony since the Board will review its formula in 2014, but I would comment that currently Board allowed ROEs are at the very top of, if not exceeding, the range of a fair and reasonable ROE for a premier low risk Canadian utility like EGDI.

- With a 35% common equity ratio and the Board allowed ROE, the financial metrics for EGDI will be better than during the term of the settlement.. During this time EGDI maintained a very strong A rating from DBRS, as well as excellent access to the commercial paper market with an R-1 (low) rating. EGDI's A- rating from S&P is largely a flow through of Enbridge Inc's S&P rating. S&P is much more cautious than DBRS in awarding stand-alone credit ratings to regulated utility subsidiaries within a holding company given the history in the US of public utility commissions not protecting utilities from actions by their parent. This is simply one aspect of the greater risk faced by investors in US public utilities, that is, there is greater regulatory protection in Canada.

---

[2] By Board letter November 10, 2011 the OEB allowed ROE for 2012 is 9.42%, by comparison the AUC allowed ROE for 2012 is 8.75% (Decision 2011-474, December 8, 2011).

1.0 INTRODUCTION

Q. PLEASE DESCRIBE YOUR QUALIFICATIONS AND EXPERIENCE.

A. Laurence Booth is a professor of finance, where he holds the CIT Chair in Structured Finance. Professor Booth, either alone or with the late Professor M. K. Berkowitz, has previously filed testimony with this Board in rate hearings involving Union Gas, Centra Gas Ontario, Ontario Hydro, Hydro One, Ontario Power Generation and EGDI, as well as in the generic hearing in 2003 to review the Board's ROE adjustment mechanism. He has also appeared before most utility regulators in Canada, as well as the Ontario Securities Commission. He has also filed expert witness testimony in a variety of civil cases and assisted the Federal Department of Finance and large Canadian pension funds. A detailed resume is filed as Appendix A and copies of recent publications and working papers can be downloaded from his web site.[3]

Q. PLEASE DISCUSS HOW YOUR TESTIMONY IS ORGANISED AND THE ISSUES THAT YOU DEAL WITH.

A. The Canadian Manufacturers & Exporters (CME), the Consumers Council of Canada (CCC) and the Schools Energy Coalition (SEC), and the Vulnerable Energy Consumers Coalition (VECC), hereinafter "CME et al." have asked me to provide an opinion on EGDI's proposal to change its capital structure, and to recommend fair and reasonable financial parameters. I was asked to provide my opinion having regard to the Board's approach to setting capital structure in accordance with the *Report of the Board on the Cost of Capital for Ontario's Regulated Utilities* (December 11, 2009).

To do this, I have provided an independent assessment of the business risk of EGDI and its financial flexibility- that is, the ability to raise funds to provide service. I have organised my

[3] http://www.rotman.utoronto.ca/~booth.

testimony as follows. First, I will review my understanding of regulatory policy, and how it relates to the issues at hand. Second, I will discuss the business risk of EGDI from a capital markets perspective, since this is what is needed for determining a common equity ratio. Third, I will discuss capital market conditions and the financial flexibility of EGDI.

CME et al provided me with a copy of the Board's rules on evidence, and I note that under 13A-d of those rules, the specific information that I relied on is specified in footnotes throughout the report and the general research that I have undertaken, which is in my CV. However, in terms of 13A-e I would note that EGDI's pre-filed evidence does not include expert business risk testimony, similar to that provided by Dr. Carpenter in 2006. What comparisons I have made with EGDI's discussion is contained in my discussion of EGDI's business risk.

Q. WHAT IS NORMALLY FILED AS BUSINESS RISK TESTIMONY?

A. As I develop later, financial risk is layered on top of business risk, so that generally low business risk firms are financed with more debt. Conversely high business risk firms are generally financed with less debt. Consequently, when a utility proposes a change in capital structure, there is normally expert testimony as to its business risk. This is then tempered by a discussion of the state of the capital market. In its 2006 application (EB-2005-0034), for example, EGDI put forward testimony by Dr. Paul Carpenter of the Brattle group. On page 2 in response to the question what is the purpose of your testimony, Dr. Carpenter answered:

> " My evidence evaluates whether there has been a change in Enbridge Gas Distribution Inc.'s (the "Company's") business risk since 1993 that would warrant a change in the deemed equity thickness authorized by the Board for the company.

Dr. Carpenter went on to answer the question as to why 1993 and stated:

> "It is my understanding that 1993 corresponds to the last time the Board approved a change in the Company's equity thickness that involved an evaluation of the Company's business risk. In EBRO 479 for the 1993 test year, the Board considered the Company's business risk in deciding to leave its equity thickness unchanged at 35%. It is my understanding that the Board has not evaluated the Company's business risk since EBRO 479. In particular, in its most recent 2004 decision involving the Company's cost

of capital, the Board stated that it only evaluated changes in capital market conditions, and not business risk."

Dr. Carpenter then referenced the OEB decision that affirmed the validity of its then ROE adjustment formula.[4]

In this assessment, I agree with Dr. Carpenter, that the starting point for any change in the common equity ratio (capital structure) is an assessment of a utility's business risk, and what has changed, if anything, since the time the Board last reviewed it. Further, just like 2006, the Board reviewed capital market conditions in 2009 when it reviewed its automatic ROE adjustment formula.

On March 16, 2009, the Board initiated a consultation process that culminated in its decision EB-2009-0084. This consultation was prompted by the then current economic and financial market conditions as a result of the financial crisis, which was at its worst between October 2008 and April 2009, with the stock market hitting its lows on March 9, 2009. At that time, the Board noted that its existing ROE formula generated an ROE of 8.01%, which was only 0.39% more than the cost of long term debt. As a result of the consultation process, the Board revised its ROE adjustment formula.

In its November 10, 2011 letter to interested parties, the OEB set the allowed ROE for 2012 at 9.42%, which was based on a forecast long term Canada (LTC) bond yield of 3.402% or a utility risk premium of over 6%: a premium that exceeds the long run ***market*** risk premium earned in either the US or Canada since 1926. Further, the Board estimated utility cost of debt was forecast to be 5.01% or a premium of 4.41%; or over 4.0% more than the premium the Board noted as justification for the consultative process to review its ROE formula in 2009. I would judge the current OEB ROE formula as generating allowed ROEs at the very top of, if not exceeding a reasonable ROE range, since I do not regard the typical Ontario utility as normally requiring a risk premium greater than the average earned on the stock market as a

[4] RP-2002-0158, January 16, 2004, paragraph 114.

whole. However, Board policy is not to review the formula ROE for another two years unless interested parties request and provide justification for its examination. At this point I will simply note that the ROE is at least fair and reasonable and was set based on capital market conditions 3 years ago.

In its decision EB-2009-0084, the Board stated its capital structure policy as follows (page 50):

> "For electricity transmitters, generators and gas utilities, the deemed capital structure is determined on a case by case basis. The Board's draft guidelines assume that the base capital structure will remain relatively constant over time and that a full reassessment of a gas utility's capital structure will only be undertaken in the event of significant changes in the company's business and/or financial risk."

This Board policy indicates that EGDI's capital structure (equity thickness) should be examined based on changes in its business risk since 2006 when the board increased its common equity ratio to 36%, and whether capital market conditions have deteriorated since 2009, causing EGDI to have problems in accessing debt capital. I state ***debt*** capital since I regard the allowed ROE to be generous, and judge EGDI to have no problems raising equity capital at its current allowed ROE - otherwise EGDI would have requested a review of the Board's formula.

My expert opinion is therefore structured as follows: in Section II I discuss the regulatory tools that Boards have to manage the risk faced by a utility; in Section III I discuss EGDI's business risk; in Section IV current capital market conditions and how they have developed particularly since 2009, and I conclude in Section V by discussing comparables.

I have already provided testimony in EB-2011-0210 before this Board in which Union Gas also proposed an increase to its common equity component. As a result of the similarities between the Union Gas and EGDI proposals, my testimony will reiterate many of the components of my evidence in the EB 2011-0210.

2.0 REGULATORY TOOLS

Q WHAT RISKS DO INVESTORS FACE?

A. Investors are interested in the rate of return on the market value of their investment. This value can be represented by the standard discounted cash flow model:

$$P_0 = \frac{ROE * BVPS * (1 - b)}{(K - g)} \qquad (1)$$

where P_0 is the stock price, *ROE* the return on equity, *BVPS* the book value per share, b the retention rate (how much of the firm's earnings are ploughed back in investment). The product of the *ROE, BVPS* and payout rate determine the dividend per share, which is then assumed to grow at the rate g, which determines the future cash flow stream. This is then discounted back at the investor's cost of equity, or required rate of return, *K*.

The simple discounted cash flow (DCF) model is useful for thinking of the sources of risk to the investor and the tools that the Board has available to it in managing that risk. Some of these risks stem from the firm's operations and financing, while others stem from the capital market's perception of the firm as well as general capital market conditions. For rate of return regulated utilities we add another dimension to risk, which is the impact of *regulatory* risk. In terms of the DCF equation, the actual earned return on equity **(ROE)** captures the business, financial and regulatory risk, and together I term these ***income*** risk, whereas all the other factors are reflected in ***investment*** risk, which is the way in which investors react to this income risk and other factors such as the firm's growth prospects and exposure to interest rates.

It is important to realise that the Board can directly control income risk by its policies towards the regulated firm. However, investment risk is beyond its direct control, even though the Board can influence it; it can not control it. Think for example, about a Government of Canada long term bond denominated in Canadian dollars. Such bonds are referred to as being default free, since the government has complete control over the currency. As a result, Government of Canada bonds have no income risk. However, they do have investment risk. For example, interest rates may increase causing the market value of the bonds to fall, or the rate of inflation

may be greater than expected so that the purchasing power of the bonds falls short of expectations. In both cases investors lose either in nominal or real terms. Regulatory boards have the same impact on the firms they regulate, like the Government of Canada they can take measures to minimise, if not remove income risk, but they cannot remove investment risk[5]

Q WHAT ARE THESE INCOME RISKS?

A. ***Business risk*** is the risk that originates from the firm's underlying "real" operations. These risks are the typical risks stemming from uncertainty in the demand for the firm's product resulting, for example, from changes in the economy, the actions of competitors, and the possibility of product obsolescence. This demand uncertainty is compounded by the method of production used by the firm, and the uncertainty in the firm's cost structure, caused, for example, by uncertain input costs, like those for labour, or critical raw or semi-manufactured materials. Business risk, to a greater or lesser degree, is borne by all the investors in the firm. In terms of the firm's income statement, business risk is the risk involved in the firm's earnings before interest and taxes (EBIT). It is the EBIT, which is available to pay the claims that arise from all the invested capital of the firm, that is, the preferred and common equity, the long term debt, and any short term debt, such as debt currently due, bank debt and commercial paper.

If the firm has no debt or preferred shares, the common stock holders "own" the EBIT, after payment of corporate taxes, which is the firm's net income. This amount divided by the funds committed by the equity holders (shareholder's equity) is defined to be the firm's return on invested capital or ROI, and reflects the firm's operating performance, independent of financing effects. For 100% equity financed firms, this ROI is also their return on equity (ROE), since by definition the entire invested capital has been provided by the equity holders. The uncertainty attached to the ROI therefore reflects all the risks prior to the effects of the firm's financing and is commonly used to measure the ***business risk*** of the firm.

---

[5] Sometimes provincial bonds have poorer bond ratings and sell on higher credit spreads than regulated utilities in the same province.

As the firm reduces the amount of equity financing and replaces it with debt or preferred shares, two effects are at work: first the earnings to the common stock holder are reduced as interest and preferred dividends are deducted from EBIT and, second the reduced earnings are spread over a smaller investment. The result of these two effects is called financial leverage. The basic equation is as follows:

$$ROE = ROI + [ROI - R_d(1-T)]\frac{D}{S} \qquad (2)$$

where D, and S are the book values of debt and equity respectively, T is the corporate tax rate and R_d is the embedded debt cost. If the firm has no debt financing (D/S =0), the return to the common stockholders (ROE) is the same as the return on investment (ROI). In this case, the equity holders are only exposed to business risk. As the debt equity ratio increases, the spread between what the firm earns and its borrowing costs is magnified. This magnification is called financial leverage and measures the ***financial risk*** of the firm.

The common stockholders, in valuing the firm, are concerned about the total "income" risk they have to bear, which is the variability in the ROE. This reflects both the underlying business risk as well as the added financial risk. If the firm operates in a highly risky business, the normal advice is to primarily finance with equity. Otherwise, the imposition of fixed financial charges by the firm on top of the uncertainty in the firm's EBIT might force the firm into serious financial problems. Conversely, if there is very little business risk, the firm can afford to carry large amounts of debt financing, since there is very little risk to magnify in the first place.

In this fundamental sense, business risk and financial risk work in opposite directions. Firms in industries with very high business risk tend to finance primarily with equity, while firms with

very low business risk tend to finance with more debt. The best examples of the latter are the banks and regulated utilities.[6]

These comments mean that any regulatory authority has a variety of tools to manage the regulated firm's income risk. The ***first*** is it can manage the different components of business risk. The basic way that a regulatory authority can do this is by establishing deferral accounts. The essence of deferral accounts is simply to capture major forecasting errors. Instead of having the utility's stockholders "eat" any cost over-runs in terms of a lower earned rate of return, the regulator can simply pass the extra costs to a balance sheet deferral account. The value of the deferral account is then charged to the ratepayers over some future time period. In this way "ratepayers" always pay the full cost of service, and stockholder risk is lowered.

A **second** tool is for the regulator to alter the amount of debt financing. If the regulator feels that the firm's business risk has increased (decreased), it can reduce (increase) the amount of debt financing so that the total risk to the common stockholder is the same. Both of Canada's national regulators, the National Energy Board (NEB) and the Canadian Radio-Television Telecommunications Commission (CRTC), have recognized this. When the CRTC opened up Canada's telecommunications market to long distance competition, it specifically increased the allowed common equity component of the Telcos to 55% to offset their increased business risk. Similarly, when the NEB decided to go to a formula based approach for the return on equity in 1994, it reviewed all the capital structure ratios for the major oil and gas pipelines and set the oil pipelines at 45% common equity, Westcoast at 35%, and the remaining mainline gas transmission companies at 30%. In each case, the different equity ratio adjusted for differences in perceived business risks.[7]

---

[6] These ideas are standard, for example, DBRS discusses them on page 19 of its Methodology paper on North American energy utilities, May 2011.

[7] Westcoast was allowed a higher common equity ratio because of the greater share of non-mainline assets in its rate base. The mainline tolls were based on a 30% deemed common equity.

The **third** tool available for the regulator is to directly alter the allowed rate of return, so that the shareholder only earns a rate of return commensurate with the risks undertaken. The CRTC, for example, has historically allowed Northwestel 0.75% more than the other Telcos primarily due to the "ruggedness" of its operating region. The BC Utilities Commission has allowed Pacific Northern Gas a premium over its low risk utility (Terasen Gas) and this Board has allowed Union Gas 0.15% more than EGDI.

In my judgment, it makes sense that any significant forecasting risks that are largely beyond the control of the firm should be managed by the use of deferral accounts. The reason for this is simply that they do not affect the efficiency of the utility, and there are diversification gains by spreading the variability over a large number of customers. As a result, deferral accounts are a "win-win" solution, as they reduce the operating risk faced by the company, thereby allowing a higher debt ratio, and they lower the overall cost of capital thereby benefiting customers. For this reason, I have long argued that companies should have deferral accounts for the cost of short term debt, for example, since no-one can predict short term interest rates, and otherwise there may be a tendency to over-estimate them.

With a choice between capital structure versus an ROE adjustment, my preference is to adjust for business risk in the capital structure for two main reasons. First, the market seems to consider any changes in the allowed capital structure to be a more permanent change, while it expects the ROE to change with capital market conditions. Since business risk is the primary determinant of capital structure, it is to be expected that a regulator will change an allowed capital structure relatively infrequently in response to significant changes in business risk. Second, allowing firms to choose their capital structure, and then adjusting the ROE to a fair return runs the risk that the overall utility income, and thus rates, are too high; thus the rates are unfair and unreasonable. These problems are compounded when the utility is part of a holding company.

Q. WHY ARE THERE SPECIAL PROBLEMS WHEN UTILITIES ARE PART OF HOLDING COMPANIES?

A. EGDI is owned indirectly by Enbridge Inc., which is the holding company for a variety of utility like operating companies including Enbridge's mainline oil pipeline. In its March 23, 2011 research update Standard & Poors (S&P) stated:

> "We are revising our outlook on Enbridge Inc. (EI), Enbridge Pipelines Inc., and Enbridge Gas Distribution Inc., to negative from stable."

S&P changed this assessment in its December 15, 2011 report. However, the important point is that all three companies- both the two main operating subsidiaries EGDI and EP, as well as the holding company- were put on credit watch. There was no differentiation between the three companies. Further, while S&P confirmed the A- rating, S&P also stated:

> "The proposed competitive tolling settlement will increase the business risk of the Enbridge System which accounts for approximately one-third of EI's adjusted earnings."

S&P noted that the CTS on the pipeline exposes the parent company (as well as the pipeline operating company) to volume risk and variability in operating costs and:

> "Given the intercorporate links to the parent, the outlook on EGD also reflects that on EI."

What this means is that S&P views the consolidated enterprise as the important entity. As a result, where the debt is located is largely unimportant for S&P. This has important implications for who gets the value of the tax shields from debt financing.

As I will discuss later, there are tax and other advantages to a company using debt - that is, other people's money. For non-regulated firms these advantages flow through to the shareholder. However, for ROE-regulated utilities, the tax advantage flows through to rate payers in terms of a lower tax charge in the revenue requirement. However, for utilities owned within a holding company (UHCs), this situation is worse, since the parent has an incentive to finance the utility with as much equity as possible, so that the tax advantages to debt are shifted to the parent. In this way, it is the UHC's shareholders that get the tax advantages, instead of the utility ratepayers. This is often called the "double leverage" problem, where the utility assets support debt at both the utility level and then again at the parent level.

As indicated above, S&P rates debt based on the credit rating of the parent. The principle here is that if the parent gets into trouble it will raid the subsidiary unless it is "ring fenced" or insulated from the parent. Without this ring fencing the subsidiary is as risky as the parent ***regardless*** of its debt ratio - that is, even if the utility subsidiary is almost 100% equity financed, S&P will still rate it the same as its risky parent. Consequently, double leverage cannot just transfer the tax advantages to the parent's shareholders, but it also may result in lower bond ratings and a higher debt cost for the utility. As a result, utility rate-payers lose part of the debt tax shield, and to add insult to injury may also pay for a higher cost of debt, thus getting hit twice.

In its 2011 Annual Report Enbridge Inc. (EI) reports the following information about its equity and debt:

		$Million
Bank Indebtedness:	102	
Short term borrowings:	548	
Current maturity of long term debt:[8]	374	
Long term debt:		15,208
Preference shares:		1,056
Common equity:[9]		8,631

Ignoring accounting liabilities due to accrual accounting, EI's common equity ratio is therefore 8,631 divided by the sum of the invested liabilities, or 33%. This is marginally below EGDI's current regulated 36%, indicating that the serious double leverage problem that existed with Union when it was directly owned by Westcoast as a publicly traded entity is not evident.

However, in its most recent investor presentation EI provided an update on its major projects which are as follows:

	$ Billion

[8] Includes non-recourse debt.

[9] Includes non-controlling interests

Woodline Pipeline	0.3
Wood Buffalo:	0.4
Edmonton Terminal:	0.3
Montana –Alberta Tie line:	0.4
Lac Alfred Wind Farm:	0.3
Waupisco Pipeline expansion:	0.4
Cushing terminal expansion:	0.2
Bakken Expansion:	0.6
Line 68 Expansion:	0.3
Ajax processing Plant:	0.2
Berthold rail:	0.1
Norealis Pipeline:	0.5
Athabasca Pipeline expansion:	0.4
Eastern Access/mainline expansion:	3.2
Total:	***7.6***

EI provided investors with an update of $7.6 billion in major projects. It also indicated its year to date financing which include the following:

	$ Million
Noverco secondary share sale:	317
Primary common equity offering:	400
Primary preferred share offering:	1,900
Medium term note financing:	600
Credit facility additions:	2,925
Total:	6,142

Faced with financing $7.6 billion of major projects, Enbridge is selling $317 million of the shares it owns in Noverco (secondary offering), issuing $400 million of common and $1,900 of preferred shares, issuing $600 million of unsecured medium term notes and drawing down $2,925 on tis credit facilities. Incrementally, only 6.5% of the incremental funds will have been raised from new equity financing. Clearly, the size of EI's major projects and attendant financing and increase in business risk may strain EI's credit ratings. Increasing EGDI's common equity ratio to 40-42% will increase the stable equity flows from EGDI, and allow EI more flexibility in financing its predominantly pipeline expansions at the parent level. This will give EI more flexibility, as well as shift the tax shields to EI's shareholders, and away from rate payers.

S&P revised its opinion on EGDI in its December 15, 2011 report, where the A- rating was changed to stable, and S&P specifically stated that the A- rating would also be EGDI's stand-alone rating. However, S&P again reiterated the implications of the "material intercorporate lending arrangement between the parent and subsidiary" which links their credit profile and would likely lead to a downgrade for EGDI is EI were downgraded.

In contrast to S&P, DBRS does not rate an operating subsidiary the same as its parent. It is interesting therefore to compare S&P and DBRS' ratings for EI, EGDI and Enbridge Pipelines (EP) below:

	DBRS	S&P
EI	A(low) Stable	A- Stable[10]
EP	A Stable	A- Stable
EGDI	A Stable	A- Stable

Note that S&P and DBRS both rate EI as A (low) or A- (same thing). However, whereas S&P assigns the same rating to EP and EGDI, DBRS instead rates both of them at A, or one notch higher.

I draw three implications from this:

1) EGDI's rating is affected by its ownership by EI and could be higher but for this;

2) Both S&P and DBRS recognise the higher debt level and business risk of EI and assign it a lower credit rating;

3) Even with the higher debt ratio EI is still very good investment grade and has no financial access problems.

---

[10] The ratings are from EI's web page http://www.enbridge.com/InvestorRelations/FinancialInformation/CreditRatings.aspx where EI reports a stable, not negative watch on tis ratings.

In my judgment, the above indicates that a stand-alone EGDI, or a ring fenced EGDI, would probably have a better bond rating than currently, even from S&P, ceteris paribus. Further, even were the common equity ratio to drop to below 35%, it would still probably have at least an A (low) rating, and excellent capital market access. In short, there is no reason to increase EGDI's common equity ratio to 40-42% to maintain its financial integrity, as it currently has excellent capital market access, and any increase in its common equity ratio would mainly flow through to the benefit of its parent.

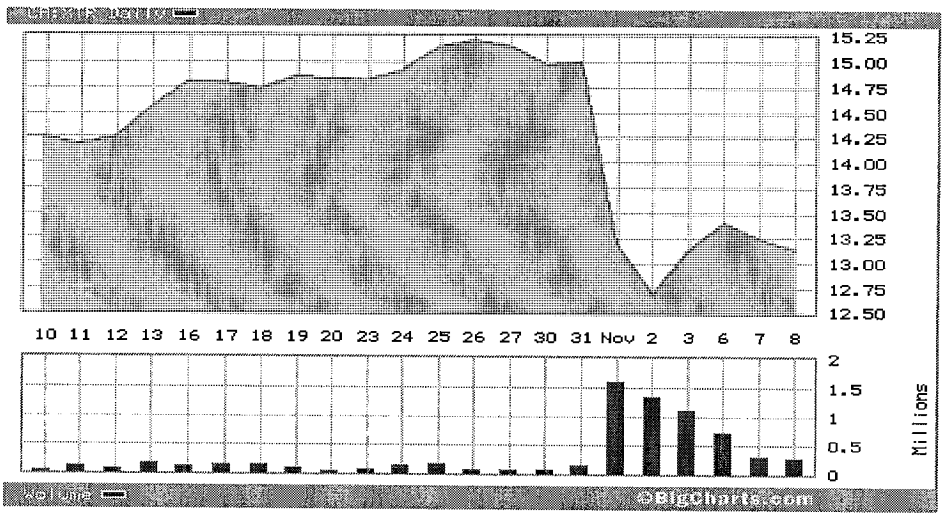
Q. WHY IS THE COMMON EQUITY RATIO SO IMPORTANT?

A. A firm's capital structure has a direct impact on the overall cost of capital as conventionally defined in finance, since equity costs are paid out of after-tax income, whereas debt costs are tax deductible. Hence, for example, if long term debt costs are about 4.0% as they are now and equity costs are 9.42% as allowed by the OEB ROE formula for 2012, then at a 25% tax rate (for simplicity), the pre-tax costs are actually 12.56% for the equity (.0942/(1-.75)) compared to 4.0% for the debt or a spread of 8.46%. In terms of the revenue requirement this means that every dollar shifted from debt into equity costs the rate payers 8.46%. Moving the common equity ratio form 36% to 62% therefore has a dramatic impact on the revenue requirement.

Taxes are critically important in corporate finance since a huge amount of corporate financing activity is tax motivated. A recent example is the announcement by the Government of Canada to change the tax status of income trusts and publicly traded limited partnerships. Income trusts had been popular in Canada, since the effective removal of the corporate income tax allowed more income to flow through to investors. On October 31, 2006 after the markets closed the Federal Minister of Finance, Mr. Jim Flaherty, announced that all new trusts would be subject to a 31.5% distribution tax to put them on the same tax status as corporations, and that existing trusts would pay this tax in five year's time.

The importance of the income tax changes can be understood from the following graph that tracks the price of the exchange traded income trust fund, XTR. Before the Minister of

Finance's decision the income trust ETF was at $15 and the day after it had dropped to $13.25 and then on November 2 even further to $12.75 before rebounding slightly. Most analysts predicted that the tax changes would cause income trusts to drop in value by 20-25%, but the effect varies across different trusts depending on the proportion of Canadian to foreign income and the type of income - that is, how much is return of capital and how much newly taxable income. As well, the existing trusts would only be taxed in five years.



The price drop vividly demonstrates that the corporate income tax has a huge impact on the valuation of shares. Another way of saying this is that removing the corporate income tax by financing with debt adds of the order of 15-20% to the market value of the firm. We can see this from the fact that the exchange traded fund would sell for $15 without the corporate tax and about $13 with the tax levied in ***five years*** time. The impact of the time until the tax is levied means that the true value of removing the corporate income tax is much greater than these price changes indicates.

This basic discussion is relevant since publicly traded firms are constantly re-assessing their capital structures ("improving their balance sheets") in light of changing market conditions and the changing risk of financial distress. It also explains why capital structures differ from one firm to another, since both the nature of their assets and expected cash flows are different as well as their forecast of where we are in the business cycle. One firm with mainly hard tangible

assets will use large amounts of debt, since these types of assets are easy to borrow against. Another firm that spends significant amounts on advertising will have relatively little debt, since it is harder to borrow against brand names and "goodwill." Another firm will use very little debt, since it is not in a tax paying position and cannot use the tax shields from debt financing. Another firm may use very little debt simply because it believes that its equity is cheap, because its stock price is so high. Finally, yet another firm may use more debt because it is more optimistic about the state of the economy. In each case, the firm will solve its own capital structure problem based on its own unique factors.

This discussion puts the utility capital structure in perspective, since utilities have the lowest business risk of just about any sector in the Canadian economy. Consequently, they should have the highest debt ratios. There are several reasons for this:

> **First**, the costs and revenues from utility operations are very stable so that the underlying uncertainty in operating income is very low. As such financial leverage is essentially magnifying almost non-existent business risk, and zero times anything is still zero!
>
> **Second**, in the event of unanticipated risks, regulated utilities are the **only** group that can go back to their regulator and ask for "after the fact" rate relief. As effective monopolies their rates can be increased in the event of financial problems, while demand is typically insensitive to these rate increases. In contrast, if unregulated corporations face serious financial problems they usually compound one another. This is because unregulated firms encounter difficulties raising capital, and frequently suppliers and customers switch to alternates in the face of this uncertainty, creating severe financial distress.
>
> **Third**, the major offset to the tax advantages of debt is the risk of bankruptcy. In liquidation there are significant external costs that go to neither the equity nor the debt holders. These costs include "knock down" asset sales, the loss of tax loss carry forwards, and the reorganisation costs paid to bankruptcy trustees, lawyers etc. This causes non-regulated firms to be wary of taking on too much debt, since value seeps out of the firm as a whole. In contrast, it is impossible to conceive of most utilities ripping up their assets to sell them for scrap.
>
> **Finally**, most private companies have an asset base that consists largely of intangible assets. For example, the major value of Nortel was its growth opportunities; of Coca Cola, its brand name; of Merck. its R&D team. It is extremely difficult for non-regulated firms to borrow against these assets.

> Growth opportunities have a habit of being competed away; brand names can waste away, while R&D teams have a habit of moving to a competitor. Regulated utilities in contrast largely produce un-branded services and derive most of their value from tangible assets. Unlike intangible assets, tangible assets are useful for collateral, for example in first mortgage bonds, and are easy to borrow against.

Consequently, utilities have very low business risk; have reserve borrowing power by being able to return to the regulator, minuscule bankruptcy/distress costs and hard tangible assets that are easy to borrow against. In fact, utilities are almost unique in terms of their financing possibilities,[11] and are prime candidates for using large amounts of debt to utilise their very significant tax advantages.

The above ideas are standard in finance. A popular finance textbook is Fundamentals of Corporate Finance, McGraw Hill Irwin (3rd edition) by Brealey, Myers and Marcus). In chapter 15 the text discusses capital structure and notes the following:

- (Page 434) "Debt financing has one important advantage. The interest that the company pays is a tax deductible expense, but equity income is subject to corporate tax."
- (page 434 and 435) The interest tax shield is a valuable asset. Let's see how much it could be worth.....If the tax shield is perpetual, we use the perpetuity formula to calculate its present value:

$$\textbf{PV tax shields} = \frac{annualtaxsheild}{r_{debt}} = T_c D$$

- (page 435, 436) How interest tax shields contribute to the value of stockholder's equity....

Value of levered firm = value of all-equity firm + $T_C D$

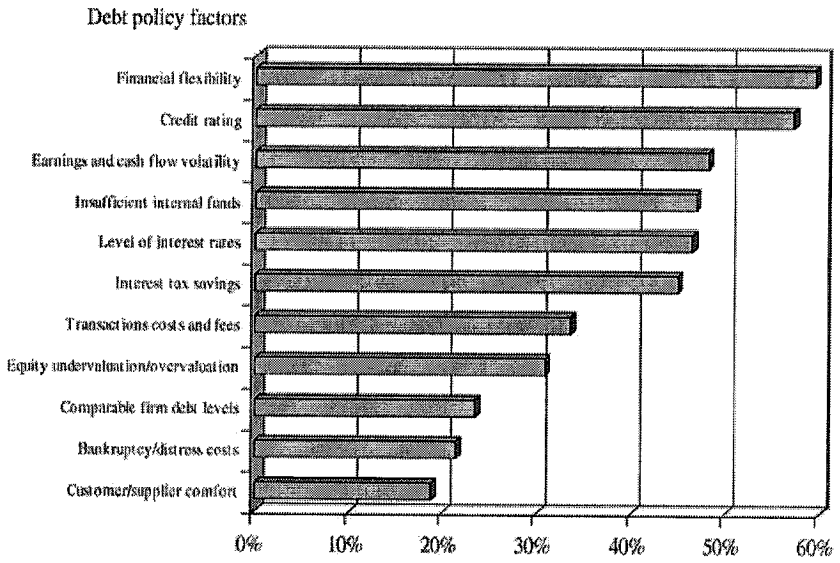
- (Page 444) For example, high-tech growth companies, whose assets are risky and mainly intangible, normally use relatively little debt. Utilities or retailers can and do borrow heavily because their assets are tangible and relatively safe.

---

[11] When we analyse corporate financial decisions we normally include a number of explanatory variables and then add a "dummy" variable for whether or not the industry is regulated, since the mere fact of regulation is frequently the most significant feature of a firm's operations.

These four particular comments are taken from the discussion of what is commonly referred to as the static trade-off model, where the tax advantages of debt financing are traded off against the costs of financial distress and loss of financial flexibility. They are referenced simply because there is little disagreement amongst academics that debt is valuable to the firm due to the tax shields it generates.

These ideas are also common in financial practise. Two prominent finance researchers at Duke University in the US[12] surveyed a large number of CEOs and produced the following table of factors mentioned in capital structure decisions.



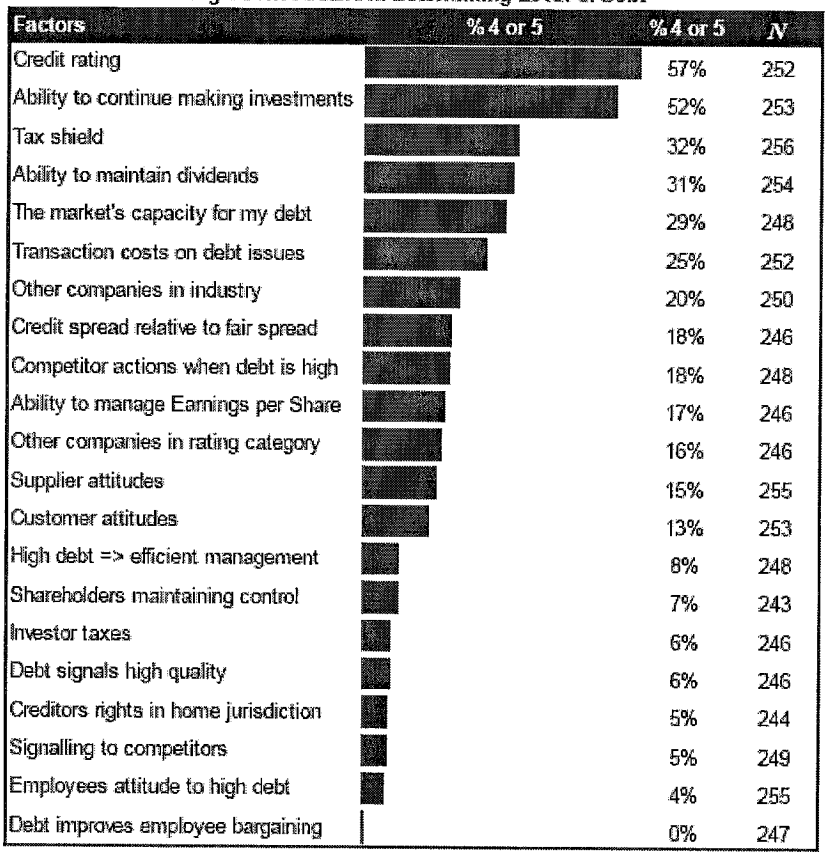
The most important factor was financial flexibility, which is loosely whether the use of debt inhibits the firm from undertaking its corporate mission, and is essentially the risk of financial distress. The second factor is simply the credit rating, while the third is the firm's business risk. The fourth factor is the firm's need for funds and the fifth the cost of debt. The sixth factor is the tax shield savings from using debt. After this the importance of the reasons drops off, but

[12] John Graham and Campbell Harvey, "Theory and practice of Corporate Finance: Evidence from the field," Journal of Financial Economics-60, 2001, pp 187-243.

broadly these criteria amount to: need for funds, business risk, tax savings, financial distress and market access (through credit ratings), which are the factors discussed above.

In 2006 Deutsche Bank published a study Corporate Capital Structure, January 2006 with a review of the basic principles for determining corporate use of debt and the results of their survey of chief financial officers with the following relevant results on page 42.

Figure 21: Factors in Determining Level of Debt

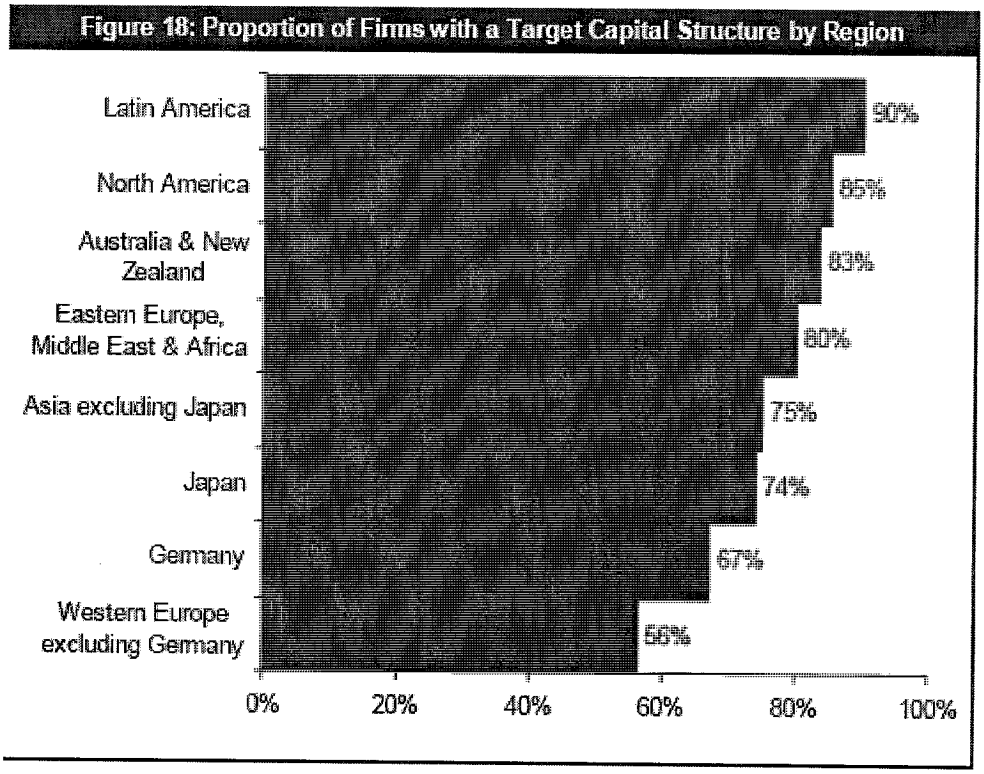


Q3.2: "How important are the following factors in determining the appropriate level of debt for your company?" Scale is Not Important (0) to Very Important (5).

The questions that Deutsche Bank asked are different from those of Graham and Harvey, but the ideas are the same. Again, we see the importance of credit ratings (market access), ability to continue to make investments (financial flexibility and fear of distress), tax shields etc. Overall both these surveys reinforce the basic "static trade-off" model that firms balance the tax

advantages of debt against the restrictions it imposes on their activities and the fear of financial distress. As a result they have an optimal or target capital structure.

On page 37 of their report Deutsche bank had the following table



Fully 85% of North American firms reported that they had a target capital structure, second only to firms in South America. Why this is important is that this target capital structure represents the trade-off of the factors discussed above and reinforces the academic literature that has modelled this trade off.[13]

Q. CAN THE BOARD TAKE GUIDANCE FROM OTHER REGULATORY BOARD FINDINGS?

[13] Note that as discussed above, this does not mean that this target is constant.

A. Yes. In its RH-2-94 decision that established the ROE adjustment formula the National Energy Board stated (Decision page 24)

> "The Board is of the view that the determination of a pipeline's capital structure starts with an analysis of its business risk. This approach takes root in financial theory and has been supported by the expert witnesses in this hearing. Other factors such as financing requirements, the pipeline's size and its ability to access various financial markets are also given some weight in order to portray, as accurately as possible, a complete picture of the risks facing a pipeline "

It then set the common equity ratio of the mainline gas pipelines at 30% and the oil pipelines at 45%.

In 2004, the Alberta generic hearing established not just an adjustment formula to set the allowed ROE, but also the allowed common equity ratios for eleven distinct regulated entities in a range of ROE regulated businesses including ATCO Gas. The EUB stated (Decision 2004-052, pages 35-6)

> "To determine the appropriate equity ratio for each Applicant, the Board will consider the evidence and, where applicable, the experts' views and rationales in each of the following topic areas:
>
> 1. The business risk of each utility sector and Applicant;
> 2. The Board's last-approved equity ratio for each Applicant (where applicable);
> 3. Comparable awards by regulators in other jurisdictions;
> 4. Interest coverage ratio analysis; and
> 5. Bond rating analysis."

This approach of the Alberta EUB seems to be substantially the same as the traditional approach used by this Board and the NEB.

Q. IS BUSINESS RISK THE ONLY FACTOR IN SETTING CAPITAL STRUCTURES?

A. No. Ultimately the litmus test of whether a board has "got it right" is whether the regulated company can access capital on reasonable terms. If, for example, a common equity ratio is inadequate, then the stock market will take note of the increased financial risk and make

it difficult for the regulated firm to access capital on reasonable terms. In *Federal Power Commission et al v. Hope Natural Gas Co.* [320 US 591, 1944], the United States Supreme Court decided that a fair return

> "should be sufficient to assure confidence in the financial integrity of the enterprise so as to maintain its credit and to attract capital."[14]

Although the Hope "financial integrity" criteria flows from considering a fair return it applies equally to the deemed common equity ratio. In my judgment, an appropriate common equity ratio is one which, in conjunction with the allowed return, allows a regulated company to maintain its credit and attract capital.

The Hope criterion would therefore support the view that after examining business risk, the Board consider factors such as size, financing requirements and market access, since all of these are important for financial integrity. However, note that "maintaining credit" is not the same as maintaining a particular credit rating. Credit standards constantly change as does the market's appetite for certain types of credits. This means that there is no need to target a particular credit rating. What is important is that a utility can access the capital markets on reasonable terms to raise capital and provide service.

Q. HOW DO YOU ASSESS BUSINESS RISK?

A. Traditionally, I have judged utility risk on a short run versus long run basis. Loosely speaking short run risk is the return ***on*** capital, whereas long run risk is the return ***of*** capital. In terms of short turn risk the major factors are caused by cost and revenue uncertainty:

- On the cost side, since regulated utilities are capital intensive most of their costs are fixed. The major risks are in *operations and maintenance* expenditures. However, over runs are usually under the control of the regulated firm and can be time shifted between different test years.
- On the revenue side, the risks largely stem from rate design, critical features are:

[14] At page 320

- Who is the customer and what *credit risk* is involved. For example, electricity transmission operators who recover their revenue requirement in fixed monthly payments from a provincially appointed TA, have less exposure than local gas and electricity distributors who recover their revenue requirement from a more varied customer mix involving industrial, commercial and retail customers.

- Is there a *commodity charge* involved? The basic distribution function is very similar to transmission, except when the distributor buys the gas or electricity wholesale, and then also retails the commodity. The distributor is then exposed to weather and price fluctuations depending on rate design.

- Even if there is no commodity charge, how much of the revenue is recovered in a *fixed versus a variable usage* charge? Utilities that recover their revenue in a fixed demand charge face less risk than those where the revenues have a variable component based on usage.

II: The medium and long term risks are mainly as follows:

- *Bypass risk.* The economics of regulated industries are as natural monopolists involved in "transportation" of one kind or another. However, one utility may not own all the transportation system so that it may be economically feasible to bypass one part of the system. This happens for local gas distributors, when a customer can access the main gas transmission line directly, rather than through the LDC, or when a large customer may be able to bypass part of the transmission system. This is often a rate design issue: a postage stamp toll clearly leads to uneconomic tolls and potential bypass problems, whereas distance or usage sensitive tolls will discourage it. Similarly, rolled-in tolling will encourage predatory pricing by potential regulated competitors.

- *Capital recovery* risk. Since most utilities are transportation utilities, the critical question is the underlying supply and demand of the commodity. If supply or demand does not materialise then tolls may have to rise and the utility may not be able to recover the cost of its capital assets. Depreciation rates are set to mitigate this risk to ensure that the future revenues are matched with the future costs of the system.

A common thread running through the above brief discussion is rate design and regulatory protection. There can be significant differences in underlying business risk that are moderated by the regulator in response to those differences. The lowest risk utility is then one with the strongest underlying fundamentals, and the least need to resort to regulatory protection. In contrast, another utility may have similar short-term income risk, but only because of its need

to resort to more extensive regulatory protection, so that it faces more problematic longer term risks.

3.0 BUSINESS RISK

Q. HOW DO YOU VIEW THE BUSINESS RISK OF EGDI?

A. Companies are required to divulge their risk factors in filings with securities commissions. However, these filings usually contain all sorts of "boiler plate risks" that are not material and yet protect the company from potential law suits. For example, in its 2011 Annual Information Form the reader is pointed to the management discussion and analysis (MD&A) in the annual report. Here EGDI lists the following:

- *Regulatory risk*
- *Volume risk*:
- *Market price risk*
  - *Interest rate*
  - *Foreign exchange*
  - *Natural gas price*
- *Credit risk:*
- *Financing risk*:
- *Liquidity risk*:
- *General business risk*
  - *Operational risks*
  - *Environmental, health and safety*
  - *Reputation risk*

These risks are commonly identified by EGDI in its annual reports. However, most of them are not material.

DBRS in its assessment of EGDI (June 28, 2012) pointed out that there are three "challenges" to EGDI, as well as three strengths. The obvious strengths of EGDI are 1) its low business risk, and stable regulatory framework, 2) its strong franchise and large customer base, and 3) its reasonable balance sheet and credit metrics. All of these strengths have not changed significantly for some time, since EGDI is at the heart of traditionally Canada's richest and most diversified province. In terms of challenges DBRS lists:

1) Volume risk associated with weather where DBRS states "weather risk remains the most significant risk as forecast volumes- based on normalized weather- are built into the Company's rates."

2) Limited rate base growth and low ROE during the IR periods.

3) Free cash flow deficits, where the FCF deficit almost doubled in 2011. However, here DBRS rather strangely deducts dividends when calculating FCF.

S&P in its December 15, 2011 assessment of EGDI lists three strengths, and only one weakness. The strengths are variations on the same theme: low risk regulated cash flows; monopoly gas network business; and no commodity risk. The only weakness noted by S&P is exposure to weather induced demand and cash flow. This assessment is consistent with S&P judging EGDI's business risk profile as "excellent."

I will discuss these risks or challenges in turn but the major one as noted above is weather risk.

Weather risk does induce earnings and cash flow volatility. However, whether it should affect a utility's financial metrics is questionable. In the 2006 proceeding, in VECC 48, EGDI was asked whether it had ever requested a comprehensive deferral account that removes the effects of not just price fluctuations, but also their impact on demand. This is because other Canadian gas utilities such as Terasen Gas and Gaz Metro have such accounts. In answer EGDI stated

> Enbridge Gas Distribution has considered requesting a weather deferral account in the past but did not believe that there was sufficient need or support to bring forward such a request to the Board.

Given the extensive array of deferral accounts that EGDI does have, and the fact that both S&P and DBRS point out it is EGDI's major risk, the fact that EGDI has not requested a comprehensive weather deferral account, and feels there is "not sufficient need" is telling: clearly there are benefits to EGDI in not having a full weather account.

More important is whether earnings or cash flow fluctuations due to weather are economically important for equity as distinct from bond investors. Here, EGDI's expert witness in 2006, Dr. Paul Carpenter was unequivocal when he stated (evidence page 4)

> **Q8. What kinds of risks matter the most in evaluating a company's business risk from a cost of capital perspective?**
>
> A8. The risks that matter the most from an equity investor's perspective are those that cannot be diversified away through the holding of a broad portfolio of securities. Risks that are hard to diversify are those that are generally correlated with the level of (and changes in) general economic activity. Such risks are referred to as "systematic." Broadly speaking, systematic risks associated with the gas distribution business include uncertainties in the demand for, and supply of, distribution services that are affected by changes in economic activity, including incomes and prices.

Dr. Carpenter goes on to discuss corporate versus investor diversification, but it is clear that, in either case, that annual fluctuations in profits caused by weather are a completely diversifiable phenomena since weather differs geographically, and very few firms are actually exposed to weather.

In testimony I filed before the Board in 2007 (EB-2007-0606/0615), I explicitly answered questions raised in terms of how weather "risk" should be dealt with. At the time, this seemed to be the result of EGDI's inability to issue medium term notes as it could not satisfy the 2.0 interest coverage restriction (ICR) in its bond covenant. The critical passage from EGDI's testimony (EB-2006-0034, Exhibit E2, Tab 1, Schedule 3, page 3) is the following:

> The Company believes that it is critical to have reasonable access to long term debt capital to manage the financial affairs of the Company. The fact that the Company is denied access to this market due to a year in which weather is warmer than normal by an amount in line with the long term average is inconsistent with the capital attraction standard necessary for a utility and clearly indicates that immediate meaningful action is necessary. Failure to do so will lead to material adverse changes in the utility's credit profile and credit ratings and increased costs for gas distribution customers. The Company's requested equity thickness of 38.0% is the minimum change that the Company believes is possible to maintain its financial integrity and generally have adequate access to capital markets in view of the Company's business and financial risk profile.

Clearly, at the time EGDI felt that the impact of warmer weather in shutting the company out of the MTN market was serious. I have seldom seen a company claim that its financial integrity was at stake, and that ***immediate*** meaningful action is necessary due to a warm winter. If EGDI's evidence in 2006 is taken at face value, then weather risk is a serious risk.

However, as I pointed out in EB-2006-0034 the effects of weather fluctuation and declining interest rates[15] are both temporary phenomena. In the case of weather, unless the normalisation is inaccurate, the utility can finance its operations with short term debt until the warmer weather passes and we are back to normal - that is warmer weather should be as likely to be followed by colder weather and vice versa. Moreover, the utility can always come before the Board and request a recalibration of its "normal" weather. It is also striking that in EB-2006-0034, the EGDI evidence was not supported by independent expert financial opinion, simply evidence by the company. Further DBRS did not accept the implications of EGDI's evidence, as the following passage from its bond report in 2007 indicates,[16]

[15] Declining interest rates also squeeze the ICR due to the slow rollover of embedded debt costs.
[16] DBRS bond rating, July 2007.

RATING UPDATE

DBRS has confirmed the ratings of Enbridge Gas Distribution Inc. (EGD or the Company), as listed above, all with Stable trends. The confirmation reflects EGD's reasonable financial profile and a continually constructive regulatory environment that underpins the ratings.

The Company's credit metrics have weakened gradually over the past few years as a result of lower approved return on equity (ROE), warmer than normal weather, high dividend payouts and increased debt levels. However, EGD's financial metrics still remain reasonable and consistent with the current rating category. The Company's financial results and liquidity are exposed to changes in weather conditions. EGD's liquidity requirement is mainly managed through a $1 billion commercial paper program and internal cash flows. DBRS notes that EGD was not in compliance of an interest coverage test at December 2006 for additional debt issuance as specified in the Trust Indenture, largely due to warmer weather. However, this did not cause a credit issue due to EGD's financial flexibility. The Company was in compliance as of March 31, 2007.

Free cash flow deficits are expected to continue as a result of EGD's large capital expenditure program for ongoing system maintenance and an accelerated plan to replace the existing aged cast iron mains over the medium term. DBRS believes that cash flow deficits could further pressure the Company's credit ratios. The rating confirmation is based on the assumption that EGD will manage its external financings and dividends prudently in order to prevent further erosion of its credit metrics. (Continued on page 2)

It is clear that, as far as the bond rater is concerned, EGDI's financial "metrics" remained consistent with its "A" rating, despite the impact of warmer weather, and that the technical issue of market access did not affect the credit worthiness, or the financial integrity of EGDI. Further, the MTN market access problem, evident at the time of EB-2006-0034 in December 2006, disappeared by March 2007.

I would therefore regard weather risk as a minimal risk for EGDI, particularly now that its interest coverage ratio is in the region of 2.4, and far above any level that is likely to prevent it from accessing the MTN market. Finally, it is difficult to understand how the major risk factor affecting EGDI has changed in any material way since either 2006 or 1993. In fact, as EGDI admits the new LRAM deferral account has reduced the volumetric risk that EGDI is exposed to, so, if anything, whatever risk weather imposes on EGDI it is now reduced.

The only other factors are those mentioned by DBRS: ***limited rate base growth and free cash flow deficits***. However, these are actually inconsistent. By definition, limited rate base growth means that a utility is not required to reinvest in its rate base, so that free cash flow should be positive. The problem is that DBRS subtracts dividends paid to EGDI's parent from free cash

flow generating fictitious free cash flow deficits, or at least, ones that are determined by EGDI's parent.

In EB-2011-0354, Exhibit 1, Issue E2, Schedule 21.3 page 6, EGDI provided the following data:

$ Millions	2006	2007	2008	2009	2010	2011
Cash Flow from Operations	410.0	514.3	304.3	517.9	524.7	390.3
Capital expenditures	364.6	354.9	366.0	349.1	337.6	399.2
Free Cash Flow:	45.4	159.4	-61.7	168.6	187.1	-8.9
Dividends to parent[17]	175	70	163	185	210	220

Over the whole six year period EGDI's free cash flow was $490.1 million. This is the amount that is generated from EGDI's operations, and after EGDI makes its capital expenditures. It is called free cash flow, since this is the amount that the shareholders are free to allocate elsewhere. As a stable utility with limited rate base growth, the incremental capital expenditures over and above the depreciation included in EGDI's income statement can be met from its net income.

As EGDI explains very clearly in the same reference:

> "Firms generating positive free cash flow can readily demonstrate the ability to service financing obligations, whereas firms with negative free cash flow cannot. As a result, investors will likely perceive the firm with negative free cash flow as being more risky..... Regardless of the mitigants, on average, a firm generating positive free cash flow would likely have deeper and broader access to financing than would a firm with negative free cash flow"

I would completely agree with this assessment. However, when DBRS deducts the dividends paid to EI, the positive $490.1 million turns into -$532.9 million as $1,023 million has been paid out to EI.[18] However, how much is paid out in dividends is entirely under the control of EI

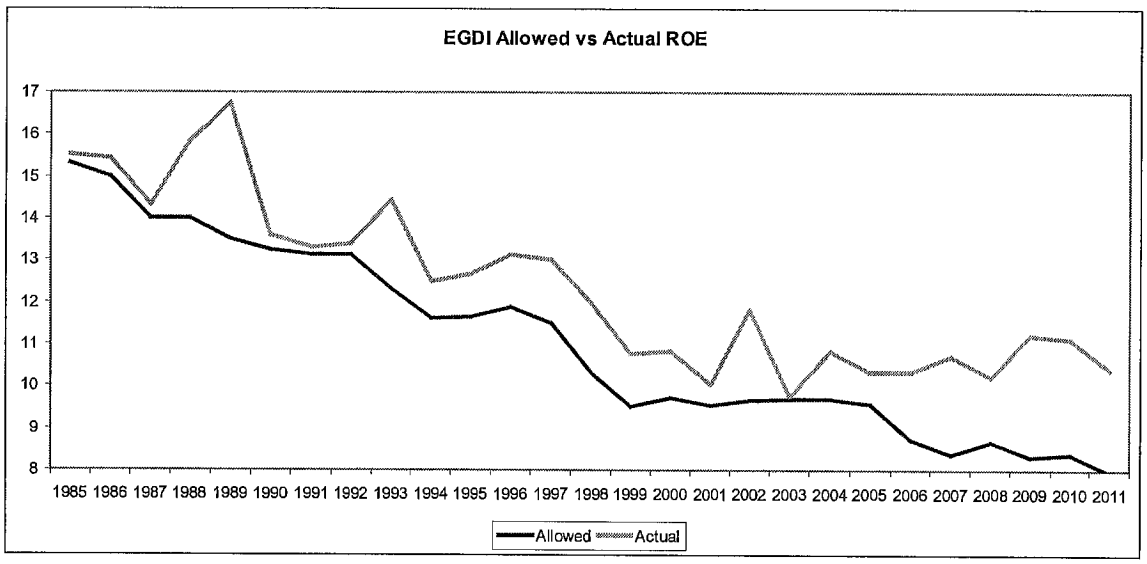
---

[17] From DBRS June 28, 2012 and April 25, 2011. I am unable to reconcile the operating cash flow and Capex numbers.

[18] There are also working capital changes that seem to cause the difference between EGDI's numbers and DBRS.

and increasing this dividend cannot be interpreted as increasing cash flow problems for EGDI, since it is self-imposed. The point is simply that as the largest gas utility in Canada, EGDI is bound to grow with its franchise area, and as a slow growing utility EGDI is largely generating cash, and is relatively low risk. This is explicitly recognised by DBRS as one of the strengths of EGDI, that is, EGDI's strong franchise and large customer base.

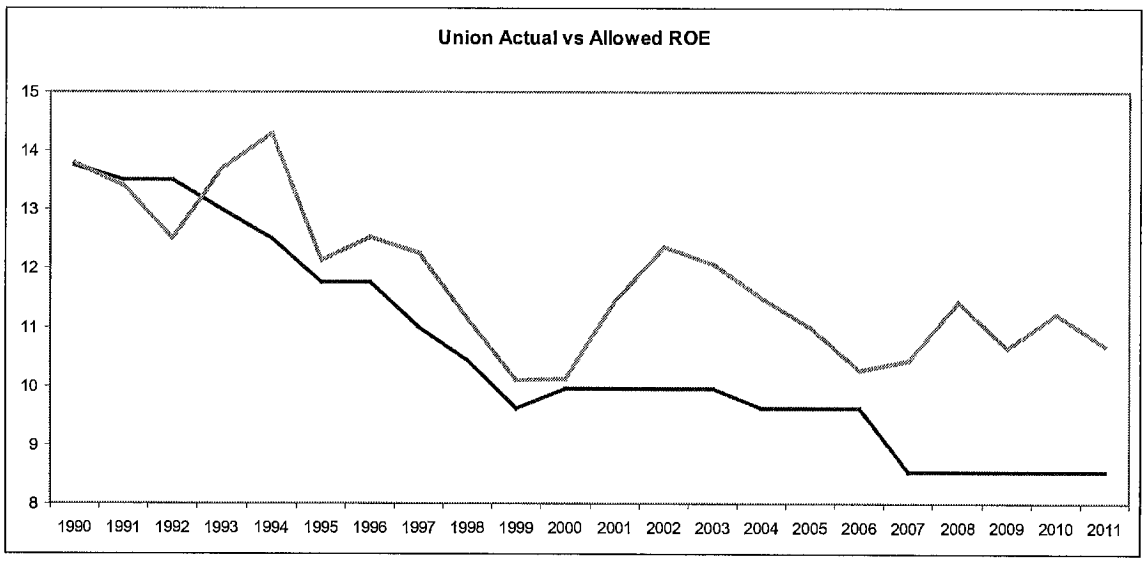
However, there is a more obvious way to assess risk, since the dictionary defines risk as the probability of incurring harm-which, in financial terms, means to lose money. For utilities this means the ability to earn the allowed ROE. In EB-2011-0354, Exhibit 1, Issue E2, Schedule 21.1, page 2 EGDI provided this date back to 1990 and in EB-2006-0034, Exhibit I, Tab 24, Schedule 45, page 2, they provided data for 1985-1989. The graph below shows this data for the weather normalised ROE and the allowed ROE.



In not one year since 1985 has EGDI failed to earn its allowed ROE on a weather normalised basis. Consistent with the assessment of DBRS and S&P the only fluctuation from the allowed ROE has been caused by random weather fluctuation. On a factual basis, EGDI has yet to record ***any*** risk that has harmed its shareholders in the last 27 years, despite expert testimony and company evidence that has alleged "increased risks" in various hearings.

Over the entire period since 1985 EGDI has over-earned its allowed ROE by an average of 1.32%. However, since 2006 and the last business risk hearing into EGDI, this over-earning has increased to 2.39%. If failing to earn the allowed ROE indicates risk, the significant increase in over-earning indicates the opposite: a significant reduction in risk. This over-earning has largely come about as a result of operating under settlement, where EGDI keeps the first 1% of over-earning before sharing the rest on a 50% basis with ratepayers. Clearly, settlements have been good for EGDI.

This experience is not unusual for Canadian utilities. The following graphs the experience of Union Gas.



Union has testified that it has always earned its weather normalised return, but it appears that there were two years of minor under-earning in 1991 and 1992. Regardless, the average over-earning since 1990 for Union has been 1.22%- or almost the same as EGDI. Moreover, similar to EGDI, since Union has been under settlement, this over-earning has increased. In fact, since 2000 Union has become more adept at over-earning its allowed ROE, since the average over-earning has been almost 2.0%. This reached its peak in 2008 after Union entered incentive regulation, when it over-earned by 2.89%. With the existing incentive regulation for Union any

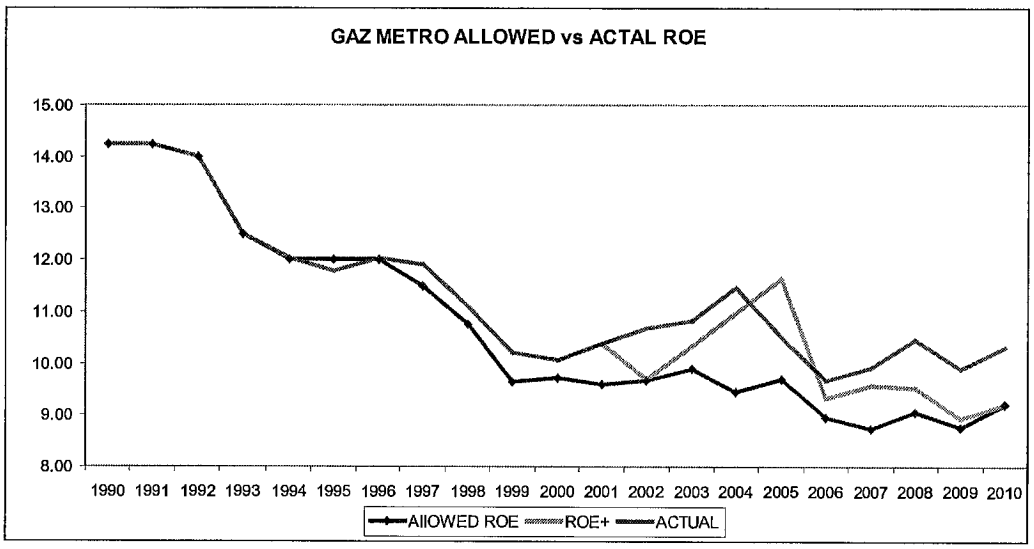
earnings over 2.0% of the allowed ROE are shared 50:50 with rate payers, while earnings over 3.0% are shared 90:10 with rate payers.

Q. DOES INCENTIVE REGULATION INCREASE THE UTILITY'S RISK?

A. No. Witnesses on behalf of utilities sometimes claim that performance based regulation (PBR) makes the utility riskier, and therefore they should have a higher allowed ROE. There is no evidence for such a recommendation, since all they can do is earn more, not less. The reason is that as a largely fixed cost producer, many of the costs for both Union and EGDI are not relevant for a particular period, nor needed to immediately deliver volumes. Consequently, in the short run, the utility can squeeze its expenses such as operations and maintenance, and then hope to rebalance, that is, increase them, in a future hearing and start the process all over again. Alternatively, it shows that when given an incentive, EGDI and Union can operate much more efficiently than when under simple cost of service (COS) regulation. The assumption that managers operate efficiently under COS is not borne out by the facts. Instead, consistent with the Averch-Johnson effect, they gold plate the utility, since the costs are being borne by the rate payers, and, by definition, there is no product market competition to discipline the managers to be efficient. The result is that I have never seen a utility hurt by PBR in Canada.[19]

A good example is Gaz Metro, the Quebec gas distributor, which has been on PBR longer than most utilities in Canada, and which I often use as a comparable for Union Gas and EGDI. The following is Gaz Metro's history of over-earning, where allowed is the actual allowed ROE and ROE+ reflects the additional incentive ROE allowed Gaz Metro by the Regie starting in 2000.

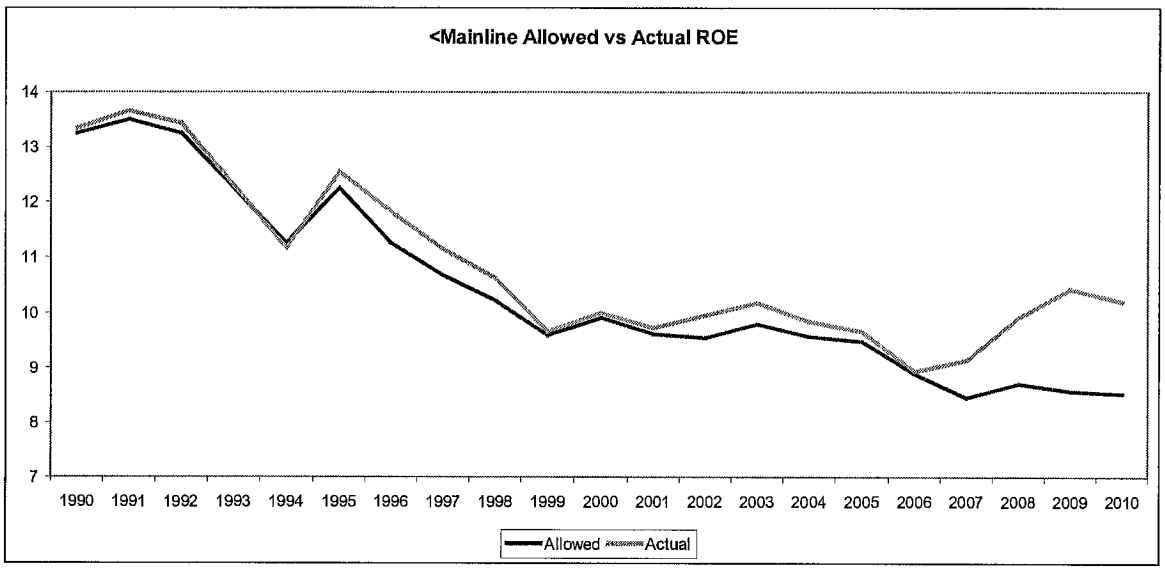
[19] Noticeably DBRS does not list PBR or a settlement as a "challenge" to either Union or EGDI's credit rating.



The chart indicates three things of critical importance. First, Gaz Metro has always exceeded its allowed ROE, except for one instance in 1995 when it under-earned by 0.22%. Second, it has always earned some of its incentives allowed by the Regie. Third, over the period of PBR regulation, Gaz Metro has "over-earned" the allowed ROE by an average of 0.60%. This marginally exceeds the typical over-earning of forward test year utilities in Canada, for example, those in the TransCanada system.

However, as one would expect the longer a utility is on an incentive mechanism, the harder it becomes to earn the incentive, simply because the "low hanging fruit" in terms of efficiencies have already been realised. My intuition would indicate that, while on PBR, the utility minimises O&M expenditures to generate cost "efficiencies", and then when it comes in for a rebalancing hearing, it inflates these same expenditures to offset the impact of under-spending in earlier years.

Finally, the TransCanada group also usually over-earn the ROE allowed by the National Energy Board. The following is the Mainline's allowed versus actual ROE since 1990.



Over this entire 21 year period, the Mainline over-earned an average of 0.43% more than the allowed ROE. In 2007, the Mainline entered a five year settlement agreement with its shippers and its over–earning increased to 0.67% and then jumped to 1.2% in 2008; 1.85% in 2009 and 1.68% in 2010. Despite the use of the NEB's ROE formula for determining the ROE, which leads to allowed ROEs in the 8's in both 2009 and 2010, the Mainline earned over 10% similar to Union Gas and EGDI indicating the extensive historic "padding" in the operations of all three companies.

Q. DOES THIS PATTERN OF OVER-EARNING MEAN THE ABSENCE OF BUSINESS RISK?

A. Not always, since some utilities continue to over-earn their allowed ROE, but simply because the regulator has allowed the utility to "dip into" some of its reserve market power. This is the case for example of Gaz Metro, where the Regie regards it as an above average risk utility. Further, for some utilities, the long run risk of capital recovery is greater. So that while for most utilities, the ability to earn the allowed ROE is indicative of risk, for others it is not. The NEB seems to have a similar view. In RH-4-2001 the NEB stated (page 24)

> To date, TransCanada's earnings have not been affected by the excess capacity or increased pipe-on-pipe competition since the Mainline has been allowed to increase its tolls with the result that it has earned its full Revenue Requirement. Nonetheless, there is some uncertainty over the Mainline's future ability to attract sufficient gas volumes, which could have an impact on its earnings. Specifically, the Mainline's ability to recover its full cost of service would be put in jeopardy if its throughput declined to a point where the resulting tolls exceeded what the market could bear. While there is no indication that such an outcome is to be expected, the possibility that it may happen appears to have increased since 1994. Accordingly, the Board is of the view that there has been an increase in pipe-on-pipe competition since 1994, which acts to increase the Mainline's prospective business risk.

The NEB's view in RH-4-2001 is consistent with an increase in the capital recovery risk, that is, the return ***of*** capital, whereas the ability to earn the allowed ROE reflects the return ***on*** capital. The former represents *short run* risk, whereas the latter represents *long run* risk.

However, before examining this distinction further it should be pointed out that long term risks eventually become short term risks. Consequently, any long term risks must eventually be thought of as leading to a situation where a utility has difficulty earning its allowed ROE. Of importance is that we have objective evidence from the previous allowed vs. actual ROE graphs for Union Gas, Gaz Metro and the TransCanada Mainline that ***none*** of the longer term risks put forward by experts on behalf of the utilities in various hearings have actually materialised as short term risks so far.

Why I have discussed the TransCanada Mainline is that the historic evidence is one of its consistent over-earning its allowed ROE, while constantly "crying wolf" in terms of increased business risk. Mainline shows a pattern of very significant over-earning when put on a settlement and given "free range" to reduce costs, largely to its own benefit. However, currently, there is some justification to the Mainline's claim of increased business risk as the tolls have become so high that the Mainline is becoming uneconomic due to the combination of both low cost of gas and high tolls, resulting in reduced throughput and further toll increases.

However, regulation is not a static exercise; it is dynamic. In RH-4-2004 before the NEB, I stated (Booth testimony page 27)

"If problems occur, then firms bring these problems to the regulator and frequently "compromises" are worked out. This is part of the regulatory bargain and only regulated firms have this capability. For example if a competitive firm suffers a supply shock then the stockholders are directly affected, but in contrast a regulated firm can have losses put in a deferral account and allocated to future customers or apply to the regulator for other means of protecting the stockholders from loss. Consequently it is unreasonable to expect no action on the part of the regulator to the increased risk after year 11 in the above example.

The increased risk after year 11 that I was referring to at that time was the present value of the cash flows beyond year 10, which I arbitrarily referred to as long run risk. This regulatory dynamic has been acknowledged by the NEB. In its decision in RH-4-2004 (page 45) the NEB stated

> In response to TransCanada's contention that the Mainline has been denied tools to compete, the Board notes that previous decisions are based on the specific circumstances pertaining to those proceedings. The Board also notes that most of the examples cited by TransCanada, such as term differentiated rates and changes to contract renewal policies, predate increased competition. An examination of Board Decisions since the level of competition has increased, in fact, shows that the Board has been responsive in making changes when circumstances warrant and in approving tools to compete. Examples of this include the increase in the Mainline's depreciation rate, the increase in the interruptible transportation floor price, the approval of the Southwest Zone, and the approval of the North Bay Junction receipt and delivery point.

I would submit that these remarks set out the typical reaction of a board in Canada - as circumstances change, it is willing to change its policies to allow the utility to adapt and thus shelter it from risks that it would otherwise be exposed to with "static" regulation.

The TransCanada Mainline and the response of the NEB again seem to be perfect examples of this. Faced with lower throughput and problems with earning its ROE, the Mainline has approached the NEB requesting a number of changes to its rate design. These include a redesign such that customers of NGTL pay higher receipt tolls through an extension of the Alberta System; a reallocation of accumulated depreciation from its Northern Ontario Line segment to both the Eastern Triangle and Prairies segments; and finally a number of toll

changes such as shifting from zonal to distance tolls and being allowed more flexibility to shift interruptible shippers to firm service.

A recent example of dynamic regulation before this Board was the potential liability to EGDI caused by the Supreme Court of Canada with respect to late payment penalties and the July 20, 2006 settlement. On page 3 of the October 31, 2006 MD&A, EGDI simply stated:

> "The company intends to apply to the OEB for recovery of the proposed payments resulting from the settlement of this action."

Interveners did not prevent the recovery of these costs from ratepayers. The major inference is that this was a "risk" not born by the company or its shareholders, but was in fact transferred to the ratepayers.

A further example for EGDI stems from the fact that I noted earlier that its S&P credit rating is largely a flow through from that of its parent EI. In EB-2011-0354, Exhibit I, Issue E2, Schedule 21.2, EGDI was asked to confirm that it would ***not*** ask for any higher debt cost to be passed on to EGDI's Ontario ratepayers if S&P downgraded EGDI due to the introduction of CTS on the Enbridge System, that is, problems caused by Enbridge Pipeline and not EGDI. Surprisingly, EGDI stated:

> "Not confirmed. If EGD's credit rating is downgraded, EGD will seek relief at the earliest possible opportunity."

Apart from the fact that EGDI is boldly admitting that they would be asking for Ontario ratepayers to pay higher costs unrelated to the cost of service, the important point is the phrase "EGD will seek relief at the earliest possible opportunity." This is consistent with the above remarks that regulation is dynamic, and invariably when costs arise, utilities approach the regulator to have ratepayers, and not the shareholders, bear these costs. However, as the NEB indicated for the Mainline, there are some long run risks that the Board cannot shield the utility from.

Q. CAN YOU DISCUSS THE LONG RUN RISKS FACING EGDI?

A. Yes, but in my judgment they are minimal and have decreased since 2006. As indicated earlier long run risks are the result of a possible by-pass of the system and stranded assets, that is, the utility's underlying assets are no longer needed to provide service and the costs can no longer be reallocated to existing customers. We have been sensitized to this risk since the throughput on the TransCanada Mainline has dropped and there has been a significant increase in the Mainline tolls, which makes the situation worse for the remaining shippers.

In 2006, Dr. Carpenter felt that EGDI's business risk had increased since 1993 due to the following four factors:

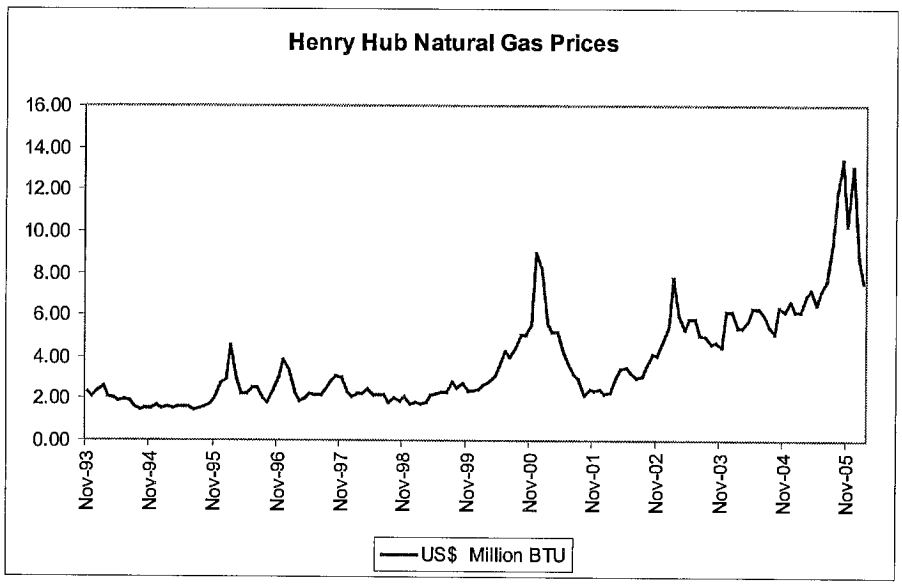
- Changes in the commodity market for natural gas as EGDI's customers are "now facing extremely high and volatile prices that are beginning to be reflected in declining usage per customer"
- "The Company's distribution assets are now at increased risk of by-pass by competitive suppliers." This was Dr. Carpenter's reaction to the Board's approval of GEC's application to build a by-pass pipeline in Union Gas' franchise area.
- "The market risks associated with new gas fired generation demand." At the time, Dr. Carpenter felt there was uncertainty surrounding how much infrastructure would be needed and who would build it to connect new gas fired generation.
- "Significant uncertainty as to the future rate regulation framework that will be applied to the Company's distribution system."

There is no significant discussion of these risks in EGDI's current application, but the company feels they are still relevant. However, I disagree and would judge none of them to be material, which would also be the judgment of DBRS and S&P who never mention them.

In terms of the ***first*** risk of the competitiveness of natural gas, there has been a sea change since 2006. At that time I produced the following graph of US Henry Hub prices for natural gas.[20] There was no question that natural gas prices spiked over the period 2001-2005 and peaked at

[20] Dr. Carpenter has a similar graph on page 11 of his evidence.

$13.42 in October 2005, which was close in time to the preparation of Dr. Carpenter's evidence in April 2006. However, the spike was associated with hurricane damage in the US and the temporary suspension of supply, so that prices had fallen to $7.54 at the start of February. At that level the price of natural gas was not too dissimilar to the winter of 2000/2001 when natural gas prices peaked at $8.95.



However, the critical element was not the price of natural gas in isolation, but relative to competing fuels. What was relevant was that even in 2005 DBRS noted (June 22, 2005) that

> "Natural gas is the most economical fuel source for home heating and is more environmentally friendly than oil. In addition, the new regulated price regime in Ontario that came into effect in April 1, 2005 raising electricity prices in the province for residential, low volume and designated consumers, ensures that natural gas remains a very competitive option."

At the current point in time, DBRS does not even discuss the cost of using natural gas relative to alternative fuels since now there is "no competition", so that appeals to the environmentally "friendliness" of natural gas are no longer deciding factors as natural gas is simply much cheaper.

In tis 2006 AIF EGDI stated:

Price Advantage of Natural Gas
Natural gas is the predominant fuel of choice in the residential heating market throughout the Company's franchise area. The primary competition for natural gas remains domestic fuel oil and electricity. Natural gas has continued to provide both environmental and price advantages, and this is expected to continue. During 2005, natural gas in the residential market experienced, on average, a price advantage on an equivalent annual volume basis of 40% (2004 – 38%) against electricity and 32% (2004 – 23%) against domestic fuel oil.

Although natural gas commodity prices remained historically high over the year, the concurrent run-up in oil prices and high electricity prices have kept natural gas prices competitive with alternative energy sources. Natural Gas prices have risen mainly due to steady increases in demand and tight short-term supply. Over the longer term, supply is expected to expand with a greater North American Liquefied Natural Gas infrastructure and Arctic gas contributions, which bodes well for future price competitiveness.

In contrast in its 2011 AIF EGDI notes:

> PRICE ADVANTAGE OF NATURAL GAS
> Natural gas is the predominant fuel of choice in the residential heating market throughout the Company's franchise area. The primary competition for natural gas remains domestic fuel oil and electricity. Natural gas has continued to provide both environmental and price advantages, and this is expected to continue. During 2011, natural gas in the residential market experienced, on average, a price advantage on an equivalent volume basis of 66% (2010-60%) against electricity and 69% (2010-58%) against domestic fuel oil.

Apart from the fact that the opening sentences are identical, as is typical in these types of boiler-plate discussions, the key point is that in 2005 the price advantage of natural gas was 40% and 32% over electricity and fuel oil, whereas by 2011 these had increased to 66% and 69% respectively.

The actual direct cost comparisons between natural gas and competing fuels were provided in EB-2011-0354, Exhibit I, Issue E2, Schedule 21.3 page 7 and are as follows where the rates are in cents per m^3:

	2006	2011
Residential		
Natural gas (rate 1)	52.84	32.72
Residential Electricity	85.91	94.99
Home Heating Oil	74.89	105.02
Commercial		
Natural Gas (rate 6)	47.87	27.46
Commercial Electricity	64.54	84.36

Light Fuel Oil	57.73	80.41
Industrial		
Natural Gas (rate 110)	41.46	19.41
Industrial Electricity	56.63	76.56
Light Fuel Oil	57.73	80.41
Heavy Fuel Oil	33.06	57.74

What is readily apparent from the cost comparisons is that both electricity and fuel oil, whether for residential, commercial or industrial customers, has significantly increased in cost since 2006; natural gas has significantly decreased in cost. The Toronto Star reported on April 2, 2012 that:

> "Natural gas futures in New York dropped below $2 US per million BTU for the first time in a decade on a growing supply glut caused by mild weather and record production."

If there ever was any support for Dr. Carpenter's claim of increased competitive risks to natural gas, such risks have now clearly evaporated.

In terms of the ***second*** risk of increased by-pass, in 2006 I looked at EGDI's management discussion and analysis (MD&A) to its 2005 Annual Report of February 2, 2006. EGDI had the following discussion (page 9),

> "To date, the Company has operated with the understanding that it will be the only provider of distribution service to all natural gas end users within its franchise area. Peer companies such as Union Gas Limited (UGL) have operated with the same understanding. On January 6, 2006, the OEB granted Greenfield Energy Corporation, a potential power-plant customer of UGL, the right to physically bypass UGL's distribution network within UGL's franchise area, in order to serve its own power-plant. The OEB's decision to allow a party other than the local distribution utility to self serve is unprecedented. However, the OEB characterized this decision as transitional and specific to the particular circumstances of this case. The OEB indicated that the Natural Gas Electricity Interface Review (NGEIR) in 2006 will address utility offerings that could be more robust against bypass. NGEIR is a rates proceeding that will assess the service requirements of gas fired power generation in the province of Ontario and review natural gas utility rate and service offerings for gas fired power generators. Until the completion of the NGEIR proceeding, any possible future financial implications cannot be predicted."

The implications of the GEC decision were not wide ranging. In fact, in the current application, I could not find any substantive discussion of by-pass risk, nor is there anything material in EGDI's annual report or AIF. In my judgment, the NGEIR proceedings have caused this risk to evaporate. Further, even if gas co-generation plants were allowed to by-pass a distributor's

system, this does not represent an increase in risk distribution; it simply means a loss of growth opportunities. If the ROE is fair, the utility should be indifferent between growth or non-growth. Finally, the potential amount of lost revenues at risk to by-pass are modest compared to those of more risky gas LDCs like PNG, which lost almost 70% of its load when several major industrial users closed down.

The ***third*** risk is directly related to new gas-fired generation. Here, I would note that several gas generators have subsequently located in Union Gas' franchise area, where Union admits that growth has been driven by the province's "off coal" policy. The three new plants in Union's area are at St Clair, East Windsor and Halton Hills. Further, the Province's long term energy plan identifies four more gas fired generation plants in Union's franchise area: the conversion of Thunder Bay, Nanticoke and Lambton from coal, and a peaking facility in Waterloo-Cambridge. There is no information on equivalent plants in EGDI's franchise area but clearly they are subject to the same rules so I would judge Dr. Carpenter's fears in this area to have been ill founded.

In terms of the final risk of the uncertainty of future rate regulation, I would simply note that the Board approved the settlement the five year settlement for EGDI, and it has significantly over-earned its allowed ROE during this period. So any uncertainty has been resolved to the gain of EGDI's shareholder.

Q. WHAT ARE YOUR CONCLUSIONS ON EGDI'S BUSINESS RISK?

A. The objective evidence is that EGDI has never failed to earn its allowed ROE on a weather normalised basis since 1985 and probably before then. If risk is the probability of incurring harm then EGDI has not so far been subject to any business risk. The only substantive risk faced by EGDI, consistently referenced by the rating agencies, is the impact of weather. However, even EGDI's expert witness in 2006, Dr. Carpenter, recognised that the only relevant consideration is whether any risk is diversifiable and weather obviously is. Therefore, I do not think that weather risk is material and it certainly has not changed in any

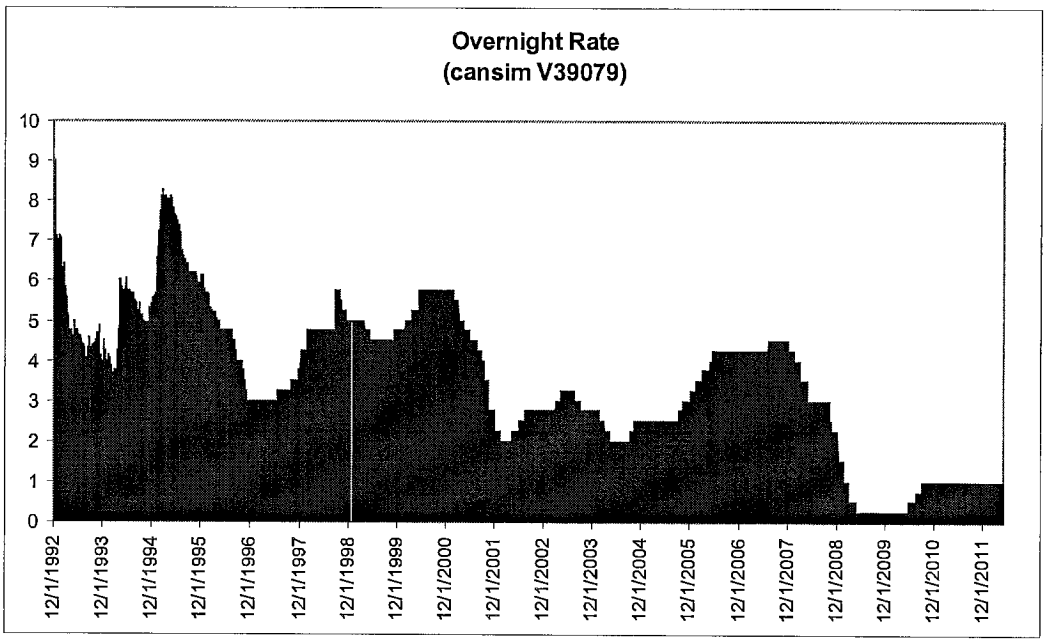
meaningful way either since 2006 or 1993, when the Board last looked at EGDI's business risk. Other than weather risk, EGDI is Canada's largest gas utility, operates in traditionally the richest most diversified area in Canada with predominantly residential load and is a stable cash generating utility. All of this means it is low risk. Further the collapse in natural gas prices due to the emergence of shale gas is a "game changer" in terms of the competitiveness of natural gas is obvious in comparing the cost of using natural gas versus its competitive fuels. Unlike other utilities such as Gaz Metro, which faces entrenched electricity use for residential space heating, in Ontario, natural gas is the fuel of choice. With over a 100 year supply and increased production from the WCSB, let alone the Marcellus basin in the US, there is no stranded asset risk, and the clarification of the regulation of gas cogenerating plants has reduced what minor regulatory uncertainty might possibly have existed 6 years ago. In sum, I would judge the business risk of EGDI to have marginally decreased from 2006 when the Board allowed EGDI 36% common equity. In my judgment, on business risk grounds alone, EGDI should be allowed no more than 35% common equity.

4.0 FINANCIAL AND ECONOMIC OULOOK

Q. WHAT ARE CAPITAL MARKET CONDITIONS AT PRESENT?

A. Basic macroeconomic data since 1987 is provided as background in Schedule 1. Into 2008, we had good economic growth, and, for a time, the unemployment rate was actually below the natural or non-accelerating inflation rate of unemployment (NAIRU) of 6.0%. Consumer spending was strong as low interest rates supported the purchase of consumer durables, and new housing as starts exceeded 200,000 for the sixth year in a row. The strong investment position in Canada was partly due to a dramatic improvement in Canada's terms of trade as commodity prices increased. This created a perception that Canada was again a "petro," or at least a "raw materials" based, economy as commodity prices reached record highs in summer 2008. This perception allied to the continuing strength of the current account surplus running at 1.0% of GDP, resulted in a strengthening Canadian dollar and incipient inflationary pressures. The result was that, starting in September 2005, the Bank of Canada increased its overnight rate from 2.5% to reduce the stimulus being injected into the economy.

The following graph shows the impact of this tighter monetary policy, just before the first signs of the financial crisis appeared. Throughout 2006 and up until December 2007, the Bank of Canada set the target rate to try and slow down the economy and reduce inflationary pressures. Of importance is that, consistent with a 2% inflation target, the overnight rate should be at least 3.0%- so 4.5% up until December 2007 was restrictive. The Bank pays interest on deposits that the chartered banks keep with it at 0.25% less than the overnight rate, and the banks can borrow at 0.25% more than the overnight rate- a rate that is called the Bank Rate. Bank Prime is then about 2.0% more than the overnight rate. Consequently up until December 2007 the Bank was actively trying to increase borrowing costs to slow interest-sensitive demand. This policy stance was reversed due to the impact of the sub-prime mortgage mess coming out of the United States.



The above graph shows that the Bank conservatively lowered the overnight rate to 3.0% in May 2008, where it kept it throughout the summer. It was then forced to dramatically cut the overnight rate to 0.25% in response to the financial crisis triggered by the failure of Lehman Brothers. The rate 0.25% is defacto the lowest rate that the Bank can set the overnight rate, since otherwise it would mean negative deposit rates for the settlement balances the chartered banks keep with it.

The Bank of Canada started increasing the overnight rate in June 2010 as there were obvious signs of recovery in the Canadian economy. The Bank of Canada increased the overnight rate on three separate occasions each time by 0.25% to bring it to 1.0%, and with it Prime to 3.0%. Expectations in 2011 were that the Bank would resume increasing the overnight rate as the economy continued to strengthen, since it was still at least 2.0% below the "equilibrium" rate.

In particular, the Bank of Canada and the Federal Government were increasingly worried that at 1.0% the overnight rate would encourage too much personal borrowing and lead to levels of indebtedness which might have negative implications when rates returned to their normal level.

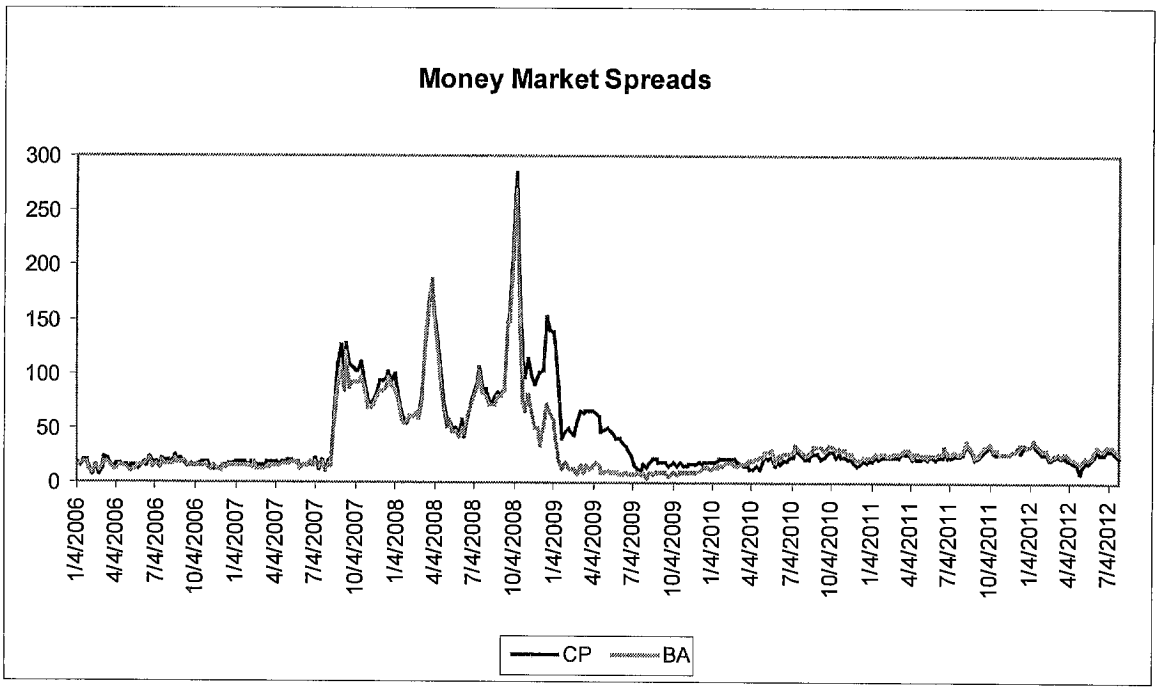
They were, and still are, very worried about a housing bubble in Toronto and Vancouver[21] where house prices increased strongly in response to both lower interest rates and a stronger economy. In response to these concerns, on July 8, 2012, the Federal Government announced a third round of tightening in the mortgage market by restricting amortisation periods to 25 years, reducing the maximum amount that can be borrowed to 80% of appraised value for home equity lines of credit, capping household debt ratios and limiting CMHC insurance to homes with a purchase price less than $1 million. Currently, they have also moved responsibility for Canadian Mortgage and Housing Corporation (CMHC) to the Department of Finance, as it will now be subject to OSFI supervision. The problem is that such is the level of mortgage demand in Canada that CMHC is bumping up against its $600 billion insurance limit.

The conundrum faced by the Federal Government is that while it wants to stimulate the economy by maintaining lower interest rates, it does not want a US style debt-fuelled housing bubble. This problem arises at a time when the levels of personal indebtedness in Canada now exceed those in both the United States and the United Kingdom. The additional problem is that the Canadian economy is not an island and increasingly the Bank of Canada is concerned about the transfer of events from the Eurozone and the US into Canada. On January 26, 2012 the Federal Reserve announced that it would keep the US equivalent of the overnight rate, the Federal Funds rate, at 0.0-0.25% until at least the end of 2014, a promise renewed on August 1, 2012, that is, basically the next three years. The assumption is that in the face of rock bottom US interest rates the Bank of Canada will keep the overnight rate at 1.0%, otherwise the Canadian dollar will appreciate hurting manufacturing in central Canada. The following graph shows that it is external events triggering monetary policy in Canada. It depicts the spread between the yield on 91 day Treasury Bills (TB) and those on Bankers Acceptances (BA) and Commercial paper (CP).

---

[21] In April 2012 housing starts increased by 14.0% to an annualized pace of 244,900 indicating a very strong housing market in Canada.

Treasury Bill yields are close to the rate that the chartered banks get from their deposits at the Bank of Canada when they have excess cash. In contrast, the Bankers' Acceptance rate is the rate the market requires on short term investments in the main chartered banks, whereas the Commercial Paper rate is the rate that large Canadian companies with the best credit rating can get by issuing notes in the money market. As a result the spreads between these two private rates and that on Treasury Bills is indicative of the state of the short term lending market[22] and the willingness of large investors to lend to the banks and very low risk, stable, Canadian companies



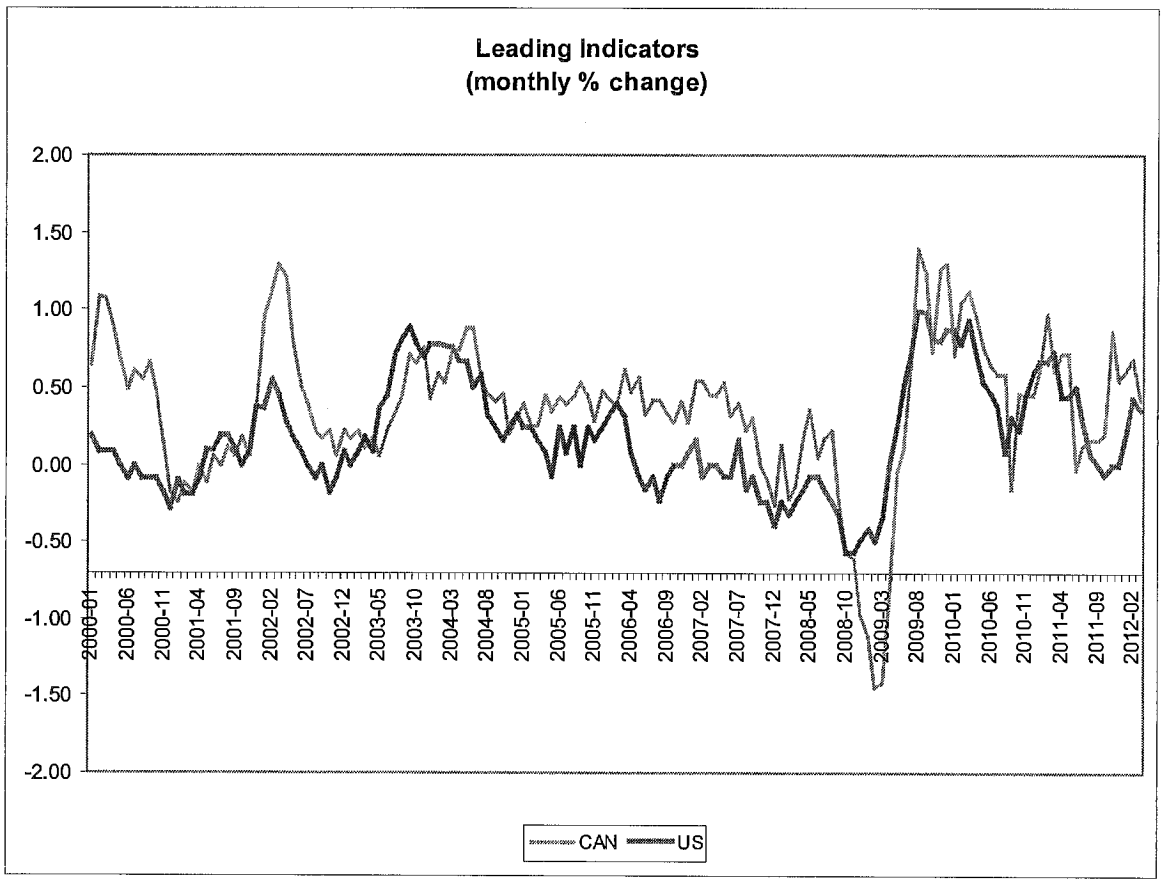
Before discussing these spreads, it is important to note that investors in the money market are mainly "parking" their money, rather than investing, since their main concern is security of principal. Consequently, with any hint of default, the market seizes up. This happens periodically in the CP market as seemingly low risk institutions default, and investors panic

[22] The main banks are generally rated R-1 (Mid) equivalent to an AA bond rating while CP is a mixture of R-1 (Mid) and R-1 (low), which means down to A.

and refuse to roll over CP for fear of further losses and an inability to distinguish between good and bad risks. For example, for the last 20 years, the money market has been very quiet with spreads at 10-20 basis points. This changed in July 2007 with the US sub-prime problems spilling over into Canada, where we can see the large spike, and again with the Bear Stearns bailout in March 2008. This got much worse in September 2008 as Lehman Brothers failed and contagion hit the world's financial markets and spreads in the Canadian money market went close to 3.0%.

However, of importance is the fact that the measures taken by central banks to stabilise the financial system worked. The BA and CP spreads had dropped to normal by 2009, and have remained at close to normal levels for the past two years. Currently, these spreads are about 20 bps as Treasury Bill yields have dropped over the last few months as expectations that the overnight rate will increase have dimmed. However, since T Bill yields are still exceptionally low at 0.92% actual CP funding costs for prime borrowers are still at very low levels at 1.16%. Overall, the money market reflects the direct impact of the policy stance of the Bank of Canada, and the spill over from the Federal Reserve, which currently indicates exceptionally low short term borrowing costs, probably continuing until the end of 2014.

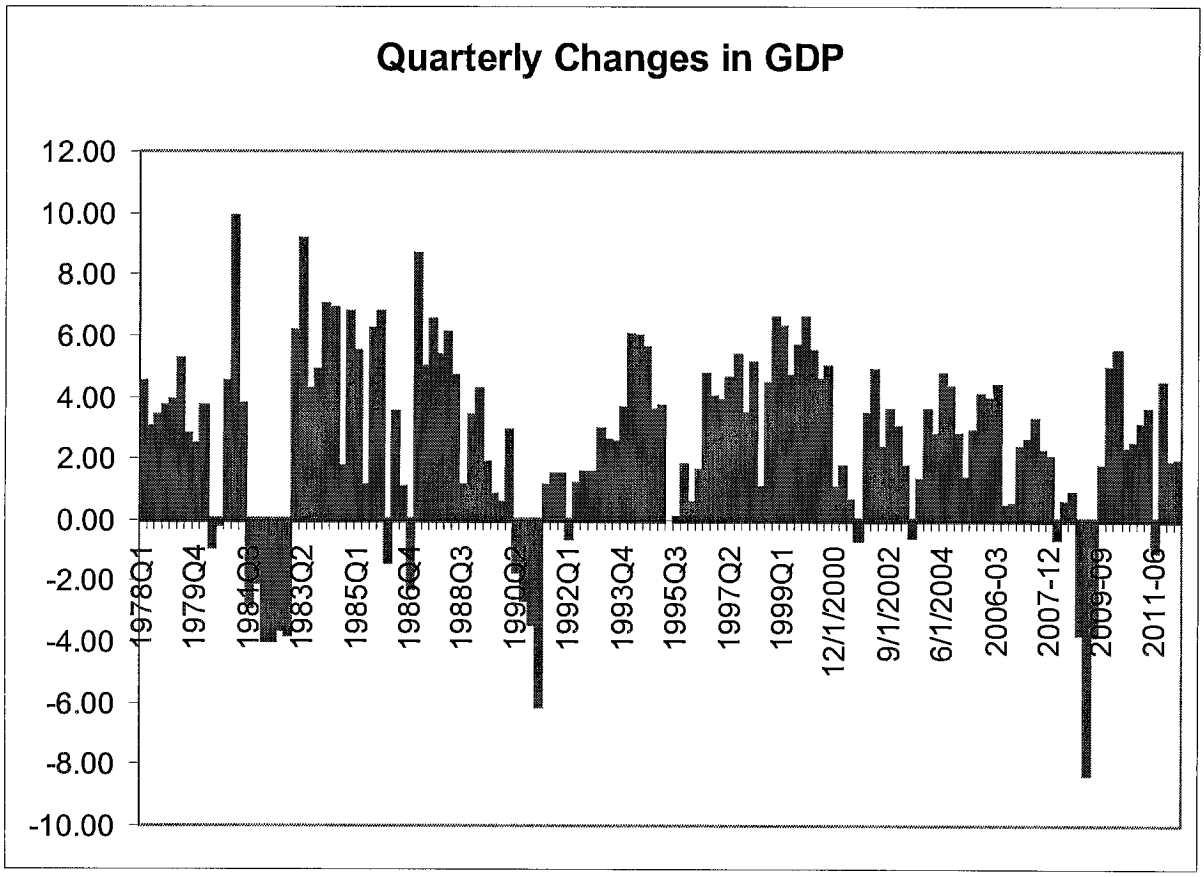
The improvement in the financial sector has impacted the real economy. The following chart is of the monthly % change in the Leading Indicators in both the US and Canada since 2000.



We can clearly see the drop in the leading indicators during the slow-down in 2001, and the rapid recovery in 2002 after which they stabilised throughout the period 2002-2007. However, starting in 2007, they start to weaken, particularly in the US, and then there were severe declines in the last quarter of 2008 into 2009. Then, as normal, there is a rapid recovery out of recession, and a movement towards stabilisation. Recently, for both the US and Canada, the absolute values of the leading indicators have been trending down slightly from their previous lofty levels, but they are still showing economic recovery.

Q. HOW DOES THIS COMPARE TO GDP?

A. The following graph has the quarterly change in real GDP since the start of 1978.

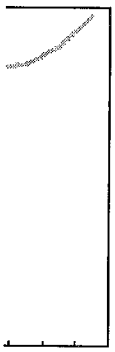


The start date reflects the need to capture the previous recessions to gauge the impact of the severity of the recent recession. These annualised quarterly changes are quite volatile ranging from a minimum of -7.3% to a maximum of 9.9% with a median change of about 3.00%. During the 1981 recession, GDP dropped by 3.92%, whereas in the severe restructuring recession of the early 1990s the drop was over several quarters with a maximum of 6.08%. Note that in the early 2000's after the internet bubble burst, Canada did not have a recession, unlike the United States. In contrast, while quarterly growth was basically flat into late 2008, it declined precipitously in 2008Q4; 2009Q1 was then very bad with the largest decline since 1961 of 7.29%,[23] before moderating in 2009Q2 with a sharp snap back 2009Q3 into 2010Q1.

[23] The current version of the GDP accounts start in 1961.

2010Q2 saw some weakness in economic growth as the quick gains dropped off, but then quarterly growth continued throughout 2010 and into 2011, despite weakness in 2011Q2 caused by supply disruptions from Japan. Real growth averaged 2.46% in 2011 and this growth has now continued into 2012, although 2012Q1 indicated a drop off in the real quarterly growth rate to 1.8% which is expected to have continued into 2012 Q2.

Given the volatility of quarterly changes in GDP, it is useful to look at the changes from the start of a recession, indexed at 100, to see how severe and how long the recession lasted. Statistics Canada did this in the following chart.[24]



Notably, the recession of the early 1990s was the longest, since Canada was adjusting to the Free Trade Agreement, as well as a normal cyclical downturn, but not as severe. In contrast the recession of 1981-2 was more severe, but ended more quickly than that in the early 1990s. By any comparison the recession of 2008-9 was both shorter and milder. The Statistics Canada analyst concluded

> "By most conventional measures – real GDP, employment or hours worked – the 2008-2009 recession was less severe than those starting in 1981 and 1990.

[24] Philip Cross "How did the 2008-2010 recession and recovery compare with previous cycles?" http://www.statcan.gc.ca/pub/11-010-x/2011001/part-partie3-eng.htm, chart 3.2

This holds true whether one is comparing the drop from peak to trough or the time needed to recoup the losses experienced during a recession."

It is also useful to contrast this with the experience in the US, where the following graph from DBRS provides a "jobs" analysis for the US and Canada.[25] Similar to the Statistics Canada graph, it shows that the Canadian economy had recovered and returned to creating employment. In stark contrast, the US economy was still "sputtering" and failing to replace the jobs lost during the recession, let alone creating the new jobs required for an expanding labour market. As DBRS notes the US unemployment rate will probably remain above the "normal" rate for the "foreseeable future."

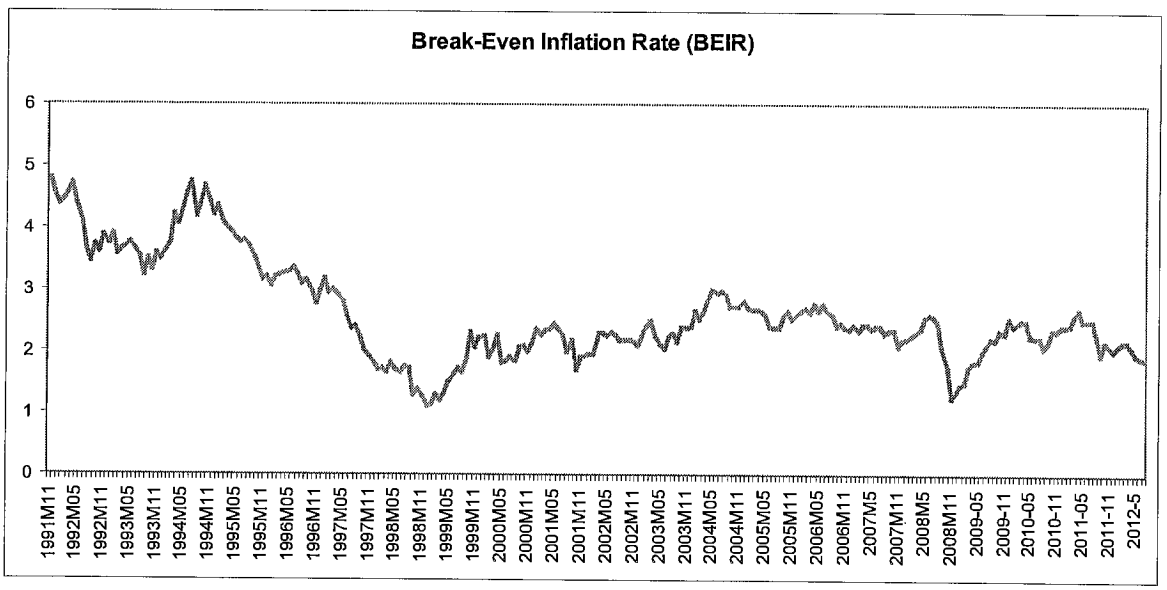
The above two graphs make it clear that what characterised the 2008-9 recession in Canada was not its severity, or length, but simply the speed with which events unfolded. Further the experience of the Canadian economy is in marked contrast to the serious problems in the United States.

Q. WHAT IS YOUR OUTLOOK FOR INFLATION?

[25] DBRS, Corporate 2010 Year in Review and 2011 Outlook, January 2011.

A. The Bank of Canada has had a 2.0% target rate of inflation since 1991 and this was recently renewed with the Government of Canada (Fall 2011). It increases the overnight rate when it judges the forecast core inflation rate to be above this target and likely to go to the top of its 1.0-3.0% operating band. Conversely, it drops the overnight rate when it fears that inflation will drop to the bottom of its range, and as a result it needs to stimulate the economy. The inflation rate data in Schedule 1 clearly shows the inflationary pressures in 2008 prior to the recession as well as the dramatic drop in 2009 and recovery in 2010.

Since 1991, the Federal Government has been issuing two types of bonds: a nominal bond where the interest rate is fixed, and a real return bond, which guarantees the investor protection from inflation. The difference between the nominal yield and the yield on the real-return bond is called the break-even inflation rate (BEIR), since if actual inflation is higher than this after the fact, you would have been better off in the real bond and vice versa. Consequently, the BEIR is often taken as one measure of the market's inflationary expectations. The following graphs the BEIR since 1991.



We can clearly see the collapse in inflationary expectations in the late 1990's as the market finally believed the Federal Government's intentions not to inflate its way out of its deficit

problems. Since then, the BEIR has been slightly above the middle of the Bank of Canada's operating range for inflation of 2.0%, but never above the 3.0% upper limit set by the Bank. We can also see the impact of the traumatic events of 2008Q3 when the BEIR dropped from its "normal" level of just above 2.0% to 1.26% in November 2008.[26] During this period, the fears of a deep recession and deflation were so strong that the BEIR essentially halved in the space of a few months. Since these deflationary fears have subsided and economic growth has got back on track, the BEIR has moved back to its normal level hovering around 2.0%, but currently sits just below that at 1.99% as the economy's real growth rate has marginally dropped off.

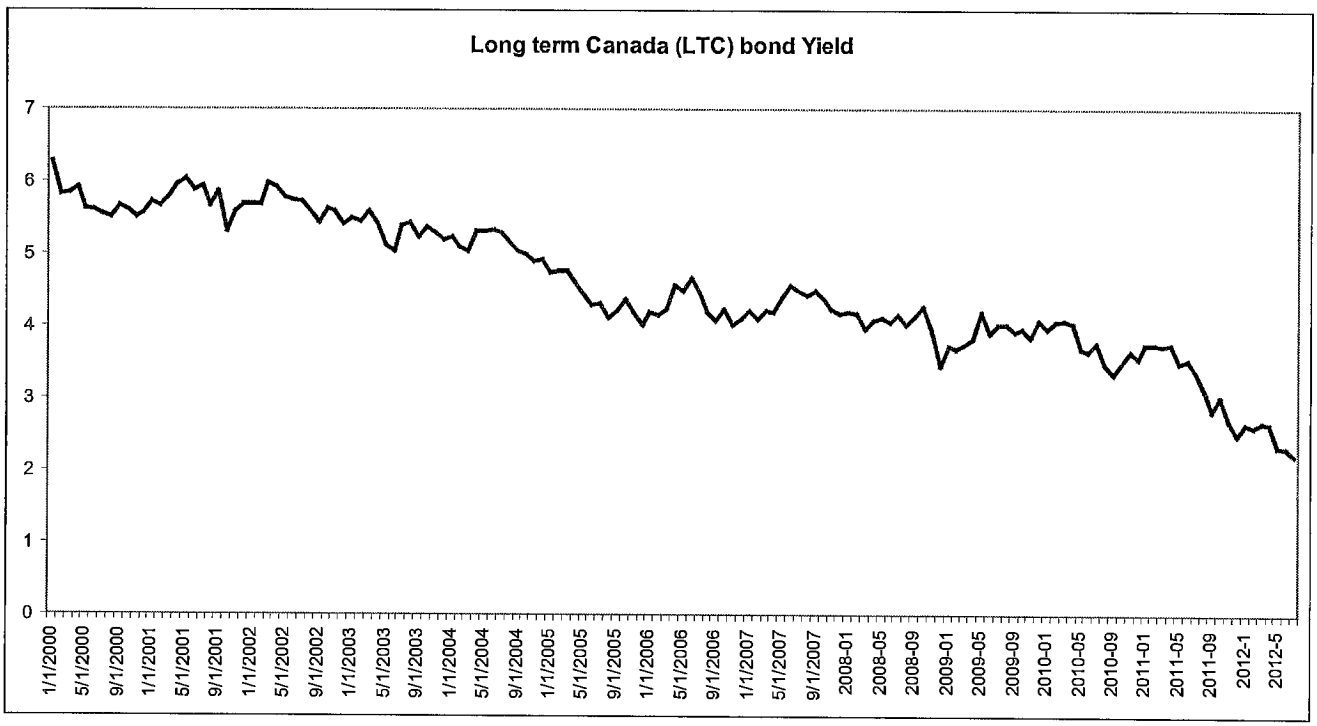
Q. WHAT HAS BEEN THE RECENT HISTORY OF THE LONG CANADA BOND YIELD?

Schedule 2 provides data on the full range of interest rates across the broad maturity spectrum as of the end of July 28, 2012. What is evident is that interest rates for long maturity instruments are higher than for short dated bonds. This is referred to as a 'normal' or positively sloped yield curve. Typically the maturity spread, or the yield difference between the long Canada bond and 91 day Treasury Bills, is about 1.25%, but currently it is very slightly higher. This spread has decreased recently since, although the Bank of Canada is still keeping short term interest rates low to enhance the recovery, long term rates have also come down due to the actions of the Federal Reserve in the US, which I will discuss later.

Normally yields on long term Canada (LTC) bonds are not as affected by current monetary policy, since monetary policy works on the overnight rate and its influence weakens as the maturity of the bond increases. However, the current experience is not normal. The following graph shows that the LTC yield stayed at about 4.5% from 2005 until December 2007, when the Bank of Canada started to cut interest rates after which it stayed at around 4.0% until November 2008 when it dropped by 0.50%, as the market began to understand the severity of

[26] The average BEIR since Canada returned to a budgetary surplus is 2.23%.

the recession and its implication for inflation. However, as these fears receded the LTC yield recovered to the 4.0% level that it was at immediately prior to the financial crisis and the expectation in 2009/10 was that long Canada bond yields would increase as the economy recovered. However, in 2010 Q3 long term interest rates started to fall, and this fall accelerated into Q4 2011 and has continued into 2012. Currently LTC yields are at 2.22% and barely compensate an investor for the purchasing power loss caused by 2% inflation let alone the tax bite on the nominal 2.22% interest. So for a taxable investor current LTC yields represent a negative real rate of return.



Starting in 2010Q2, the markets became increasingly concerned that the deficit financing by governments that spurred aggregate demand and prevented a global depression had, in turn, increased the debt levels of many developed countries to the point where some might not be able to repay their debts. These concerns were particularly acute for the PIIGS (Portugal, Ireland, Italy, Greece and Spain or more politely the GIIPS), who in adopting the Euro as a single currency lost the power to devalue their currency to stimulate demand.

The crisis started with Greece which had consistently fudged its budget numbers. This was of no great concern until the recession layered a normal cyclical deficit on top of the Greek structural deficit. The IMF and EU agreed to a 110 billion Euro rescue plan for Greece on May, 2, 2010 and followed this up with a general 750 billion Euro rescue plan to finance other EU countries with deficit problems that had adopted the Euro. After Greece was bailed out, concern switched to Ireland which had incurred a huge liability to guarantee the liabilities of all the Irish banks. Ireland faced increasing pressure until finally on November 28, 2010 Ireland agreed to an 85 billion Euro bailout, most of it allocated to restructure its banking system. After Ireland pressure switched to Portugal, when on April 18, 2011 the Portuguese government fell and announced it would seek support from the EU and IMF and reached a deal on May 4, 2011 for $111 billion in short term support. Since Portugal's rescue package was finalized, attention has shifted to Italy with the fall of Berlusconi's government on November 25, 2011 and the installation of a government of technocrats under Mario Monti and further austerity cuts.

In a move to end the cycle of contagion the Euro area countries agreed on an expansion of the European Financial Stability Fund (EFSF), increased "backdoor" funding of countries through the IMF, recapitalized the Euro area banking system with an increase in bank capital to 9% and agreed to a write off of 50% of the value of bank debt to Greece to try and keep Greece's debt to GDP figures within a feasible range. This was followed by a new Euro area fiscal pact signed by all countries except the UK on December 9, 2011 and ratified in March 2012 to impose more restrictions on deficit levels by member countries. However, the contagion fear from Europe, with a potential domino impact on the banking system world-wide, triggered a rush into "safe' government bonds starting in 2011 Q3, which triggered a precipitous drop in Government of Canada interest rates as Canada was perceived to be safe. In contrast, on January 13, 2012 Standard and Poors downgraded most of the countries in the Euro area and in particular France lost its AAA status. These events in Europe were magnified by events in the US.

Q. WHAT ARE THE PROBLEMS IN THE U.S.?

A. The US government's problems are part of the sovereign debt crisis. In 2007 prior to the emergence of financial problems, in aggregate, what the IMF describes as the advanced countries ran an average deficit of 1.3% of gross domestic product (GDP). Over the business cycle an average deficit of 1.3% is not a problem, since the economy on average grows by more than this, so that over time the burden of the debt drops. However, 2007 was at the top of the business cycle and not an average year and countries should have been building up reserves for the bottom of the cycle, like Canada and Spain which had the largest surpluses of 1.6-1.9%. When the financial crisis precipitated the recession, most countries initiated stimulus programs on top of the automatic stabilisers that kick in. These stabilisers are the drop in tax revenues, and the increase in welfare and unemployment payments that automatically cause deficits to increase during recessions. Consequently, the average deficit jumped to 9.0% of GDP and then marginally declined in 2010[27] and 2011 and is forecast to drop more in 2012. The following is a table derived from tables from the IMF.[28]

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

[27] Excluding Ireland the average deficit is 7.8% and Ireland's is skewed by the huge one-time cost it incurred in bailing out its banks.

[28] IMF, Fiscal Monitor May, November 2010, September 2011; 2011 and 2012 are forecasts.

The "worst" of the European debt crisis has passed in the sense that deficits are declining and countries are cutting back spending and increasing taxes. However, many are very close to the limit on their "credit card" so that Italy, with a relatively minor deficit, is perceived to be a problem, mainly since it already has a significant amount of debt and the problem is getting investors to roll over that debt, regardless of what the deficit or debt to GDP ratio indicates. Further, the austerity measures needed to bring down the deficits are now feeding back into a drop in GDP forcing even greater cuts to meet the EU targets.

In the US on August 5, 2011 S&P downgraded the bond rating of the United States from AAA to AA+ due to the lack of will on the part of President Obama and Congress in dealing with the US government's soaring debt problems and the wrangling over increasing the US government's borrowing cap. What is important is that the US deficit in 2011 at 9.6% of GDP is much higher than that of either Portugal or Greece. Additionally, there is the problem that the US "counts" differently to Europe. In the US the official public debt number is only for the debt held by the public and ignores debt held both internally by, for example, social security, and the debt of the individual states. If the US used the European definition of public debt its official figure of 62% of GDP would jump to 92%, the same as that for Portugal. Similarly, if the US deficit were measured the same as that for European countries, its deficit would be 10.6% of GDP, basically twice that of Portugal! The upshot is that while Portugal is rated BBB- by S&P, and facing a crisis as non-residents will only roll over its external debt at exorbitant rates, the US has a larger deficit and the same amount of public debt and yet currently faces no refinancing problems.[29]

Eventually, Congress did increase the US government's borrowing limit, and a default was forestalled, but only at the cost of a commitment to set up a super committee to achieve deficit reduction targets with mandatory changes kicking in if there was no agreement. On November 21, 2011 the super committee abandoned further attempts to achieve a consensus indicating the deep ideological rifts in the US Congress. With Congress unable to achieve any fiscal

---

[29] See the Economist, "America's Pollyanna Principle", April 30, 2011 for a discussion

initiatives the "heavy lifting" has been left to the Federal Reserve, which on September 21, 2011 announced a new "Operation Twist." The objective of "Operation Twist" is simply to spend $400 billion buying US government long term bonds to drive interest rates down and help US mortgage refinancing, and thus kick-start the US housing market. Since the US has pledged to keep short term rates where they are at the moment, the effect is "quantitative easing" at the long end of the yield curve. On June 19, 2012 the Fed indicated it would continue Operation Twist beyond its original June 30 deadline, which has further prolonged the drop in long term interest rates.

The tsunami of falling US long term interest rates through "Operation Twist" and fear of Euro area sovereign debt failures combined with Canada's AAA bond rating has led to the dramatic collapse in Canadian long term interest rates, which are unlikely to reverse soon.

Q. WHAT IS YOUR FORECAST FOR THE LONG CANADA BOND YIELD FOR 2012?

A. In its Monetary Policy Report of July 2012, the Bank of Canada produced the following table.

Table 3: Summary of the base-case projection for Canada[a]

	2011	2012				2013				2014			
	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Real GDP (quarter-over-quarter percentage change at annual rates)	1.9 (1.8)	1.9 (2.5)	1.8 (2.5)	2.0 (2.4)	2.3 (2.5)	2.3 (2.5)	2.4 (2.2)	2.6 (2.3)	2.7 (2.2)	2.5 (2.2)	2.3 (2.2)	2.2 (2.2)	2.2 (2.2)
Real GDP (year-over-year percentage change)	2.2 (2.2)	1.8 (2.0)	2.5 (2.7)	1.9 (2.3)	2.0 (2.5)	2.1 (2.5)	2.3 (2.4)	2.4 (2.4)	2.5 (2.3)	2.6 (2.2)	2.5 (2.2)	2.4 (2.2)	2.3 (2.2)
Core inflation (year-over-year percentage change)	2.1 (2.1)	2.1 (2.1)	2.0 (1.9)	1.9 (1.8)	1.9 (1.8)	1.9 (1.8)	2.0 (2.1)	2.0 (2.1)	2.1 (2.1)	2.1 (2.1)	2.0 (2.0)	2.0 (2.0)	2.0 (2.0)
Total CPI (year-over-year percentage change)	2.6 (2.6)	2.4 (2.4)	1.7 (2.0)	1.2 (2.2)	1.6 (2.2)	1.5 (2.1)	1.5 (1.9)	2.0 (1.9)	2.0 (1.9)	2.0 (1.9)	2.0 (2.0)	2.0 (2.0)	2.0 (2.0)
Total CPI excluding the effect of the HST and changes in other indirect taxes (year-over-year percentage change)	2.5 (2.5)	2.2 (2.3)	1.6 (1.9)	1.1 (2.1)	1.5 (2.1)	1.5 (2.1)	1.6 (2.0)	2.1 (2.0)	2.1 (2.0)	2.1 (2.0)	2.0 (2.0)	2.0 (2.0)	2.0 (2.0)
WTI[b] (level)	94 (94)	103 (103)	93 (103)	86 (104)	87 (105)	88 (105)	89 (105)	89 (104)	89 (103)	88 (102)	86 (101)	87 (99)	87 (99)
Brent[b] (level)	109 (109)	116 (116)	109 (122)	100 (121)	99 (119)	98 (117)	98 (115)	98 (113)	97 (112)	96 (110)	96 (108)	95 (106)	94 (104)

a. Figures in parentheses are from the base-case projection in the April 2012 *Monetary Policy Report*.
b. Assumptions for the prices of West Texas Intermediate and Brent crude oil (US$ per barrel), based on an average of futures contracts over the two weeks ending 13 July 2012

The Bank forecasts real GDP growth at approximately 2.1% year over year for 2012, down from the 2.4% forecast in April as it recognises the slowdown in the economy. It then forecasts a pick up to 2.3% in 2013 and 2.4% in 2014, which is close to what the Bank of Canada regards as the economy's long run potential. This is similar to the Consensus Economics (July 2012) forecast of real growth of 2.1% for 2012 and 2.3% 2013. In contrast the Royal Bank of Canada is slightly more bullish forecasting 2.3% real growth for 2012 and 2.6% for 2013. Similarly the Bank of Canada forecasts that core inflation will stay at approximately the middle of its range of 2.0% for 2012/3 while total CPI inflation will be very slightly lower. The Consensus Economics inflation forecast for 2012 and 2013 is at 1.9% and 2.0% respectively. While the Bank of Canada does not forecast interest rates, I see no significant difference in the Bank's overall forecast for the economy versus that of the Consensus, or my own.

In terms of interest rates, we have seen a flattening of the yield curve as short term interest rates increase, and long term rates have dramatically fallen. Normally, we would expect to see higher longer term rates at this stage of the recovery, but external weakness is depressing longer term rates around the world and Canada is not immune to this. Noticeably the yield on the long term Canada bond was at 3.75% before the Portuguese bailout, and the S&P warning on the US government deficit. Last Summer RBC had the following interest rate forecast (Financial Markets Monthly June 3, 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											

RBC saw the 30 year LTC rate increasing to 4.55% by the end of 2012 so that the maturity spread between short term Treasury Bills and LTC yields would drop from the then current 2.52% to 1.55%. The RBC forecast last summer put Canada almost "back to normal" by the end of 2012.

However, the Euro Crisis and problems in the US have caused this "back to normal" scenario to be put off. The current RBC forecast (July 2012) is below

		Actuals						Forecast					
		11Q1	11Q2	11Q3	11Q4	12Q1	12Q2	12Q3	12Q4	13Q1	13Q2	13Q3	13Q4
Canada													
	Overnight	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.25	1.50	1.75	2.00
	Three-month	1.10	0.90	0.80	1.10	0.92	0.87	0.90	1.05	1.35	1.60	1.75	1.90
	Two-year	1.85	1.42	0.88	1.00	1.20	1.03	1.15	1.35	1.55	1.80	2.05	2.25
	Five-year	2.65	2.06	1.35	1.50	1.56	1.25	1.35	1.60	1.80	2.10	2.25	2.50
	10-year	3.25	2.91	2.15	2.30	2.11	1.74	1.90	2.10	2.25	2.45	2.60	2.75
	30-year	3.85	3.42	2.77	3.10	2.64	2.33	2.40	2.50	2.65	2.90	3.05	3.30
United States													
	Fed funds	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
	Three-month	0.15	0.08	0.02	0.05	0.07	0.09	0.05	0.05	0.05	0.05	0.05	0.05
	Two-year	0.70	0.41	0.25	0.30	0.34	0.33	0.25	0.25	0.40	0.50	0.55	0.75
	Five-year	2.10	1.45	0.96	1.10	1.04	0.72	0.80	0.95	1.10	1.25	1.50	1.65
	10-year	3.45	2.92	1.92	2.15	2.20	1.67	1.75	2.00	2.15	2.35	2.65	2.75
	30-year	4.50	4.27	2.92	3.20	3.32	2.76	2.90	3.25	3.50	3.70	3.95	4.00

Unlike last year where RBC saw the Bank of Canada increasing the overnight rate to 3.0% by the end of 2012, RBC sees the over-night rate only increasing to 2.0% by the end of 2013, while the 30 year LTC rate instead of increasing to 4.55% by the end of 2012 will only reach 2.5%, before gradually increasing to 3.30% by the end of 2013. In essence the RBC forecast puts off the return of the Canadian bond market to normal until after 2014, instead of 2012.This RBC forecast is broadly consistent with that of the Consensus that puts the ten year Canada bond yield at 2.4% twelve months out, so adding the current 0.59% spread for the 30 year bond implies a similar 3.00% long term Canada bond yield mid-way between RBC's 2012 and 2013 forecasts.

Overall I would recommend a long Canada bond yield for 2013 and 2014 of 3.0% and 4.0% respectively. The 3.0% forecast for 2013 is consistent with the consensus, whereas the 2014 forecast reflects a continuing improvement in capital market conditions as growth continues. However, it also recognises that the Federal Funds rate will not change until after 2014,

consistent with the policy statements of the US Federal Reserve Board, so that RBC's forecast of last year (4.55%) is probably more likely for 2015.

Q. WHAT ABOUT THE U.S.?

A. What is clear from the above discussion is that the US, Europe and Canada are all on different trajectories. The European countries are retrenching to lower both their debt and deficits relative to GDP and, as a result, face probably two years of slower growth as this fiscal stimulus is removed from their economies. In contrast, the US is still pursuing a highly stimulative policy of deficit financing with very low interest rates. However, this cannot go on indefinitely; eventually the US has to get to grips with its financial problems. Until it does, the US is highly dependent on the impact of Operation Twist and a further bout of quantitative easing by the Federal Reserve is imminent. The markets fell on August 2, 2012 when the Federal Reserve failed to initiate QE3, but most analysts expect this to happen at the next Fed meeting in September.

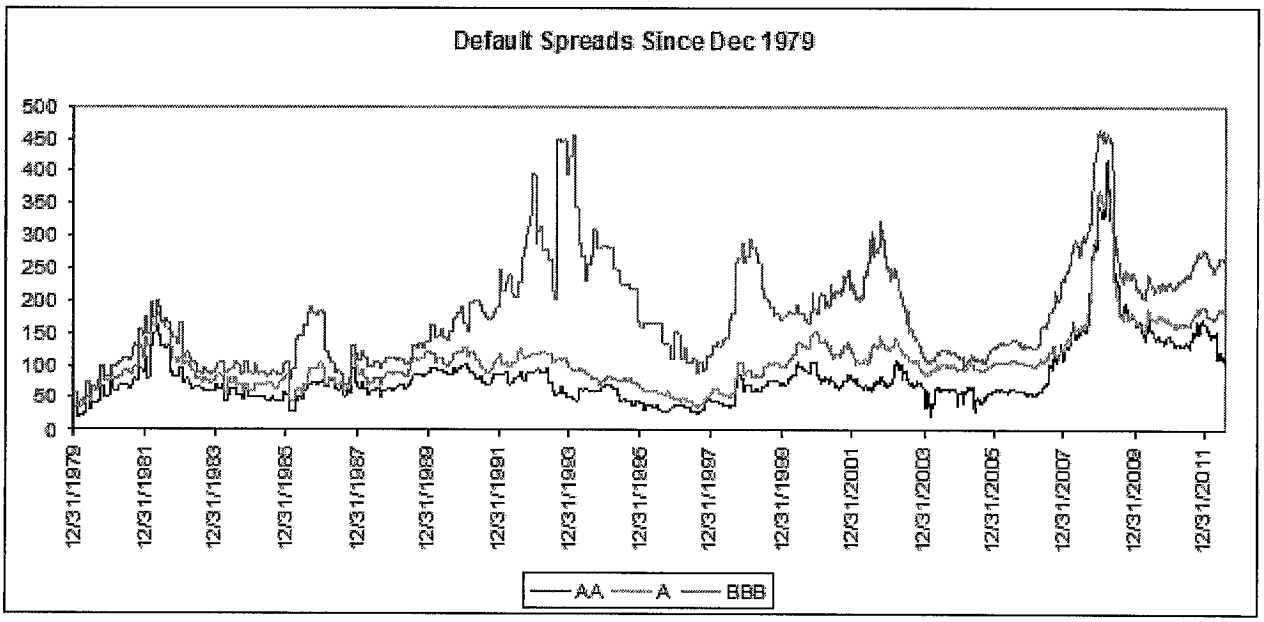
Of importance is that currently long term US government interest rates (Treasuries) are yielding 0.43% more than equivalent maturity long Canada bonds, despite the impact of Operation Twist. Further RBC is forecasting that this gap will not narrow appreciably over the next two years, so that at the end of 2014 the gap will still be 0.70%.

Q. WHAT HAS BEEN THE STATE OF THE CORPORATE BOND MARKET?

A. The following graphs the generic yield or default, spreads between corporate and government bonds of the same maturity using the AA, A, and BBB indexes maintained originally by Scotia Capital markets.[30]

---

[30] The most recent data is from Datastream, which updates original data from Scotia Capital's Handbook of Debt Market Indices.

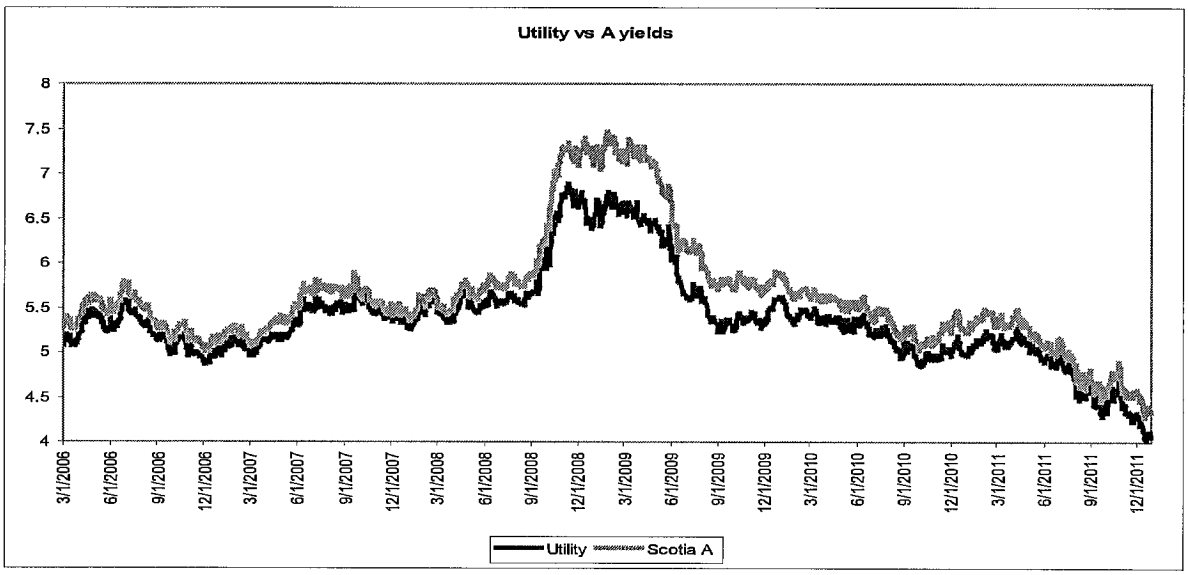


Corporate bonds have default risk since companies can run into financial difficulty whereas governments borrowing in their own currency like Canada cannot.[31] These yield spreads usually behave in a predictable manner. In a recession as the risk of bankruptcy increases investors sell off default-risky corporate debt and their liquidity drops. As a result, their bond prices fall and their yields increase relative to the long Canada bond yield causing a wider spread. Conversely as the economy recovers and this risk recedes, the spread narrows. We can see this clearly in the high spreads during the long recession of the early 1990s, the panic of the Asian crisis and the bursting of the Internet Bubble and in particular the financial crisis of 2008-9. Note also that usually the spread increases most for the BBB bond which is the riskiest. The exception to this general rule was during the last financial crisis when the spreads for even

[31] This assumes they simply print more money to pay off their debts. The US can do this, but it was the behaviour of Tea Party members in Congress arguing that the US should default that so frightened global investors in 2011.

A and AA bonds widened dramatically as liquidity in the market dried up as many banks ceased making a market in corporate bonds except on an agency basis.[32]

It is also important to distinguish between generic "A" and utility spreads. In the Ontario Energy Board report on the cost of capital[33] the OEB decided to re-set the ROE based on changes in both the long Canada bond yield and the utility bond yield using a series maintained by Bloomberg (C29530Y). The following graphs the corporate credit spread based on the yields from the Scotia Capital "A" bond index and the Bloomberg utility series.



What is important to note is that utility yields were consistently lower than the generic A yields as the financial crisis started to emerge and remained so until the recent collapse in bond yields. This behaviour of yield spreads is not unusual. In fact, in previous testimony I have noted that during the prolonged recession in 1992-1994 the same phenomenon was observed using the CBRS utility and non-utility spreads.[34] This behaviour points to the fact that the market does

[32] Agency trades do not require capital, whereas normally banks hold an inventory and trade out of inventory for clients.
[33] EB-2009-0084

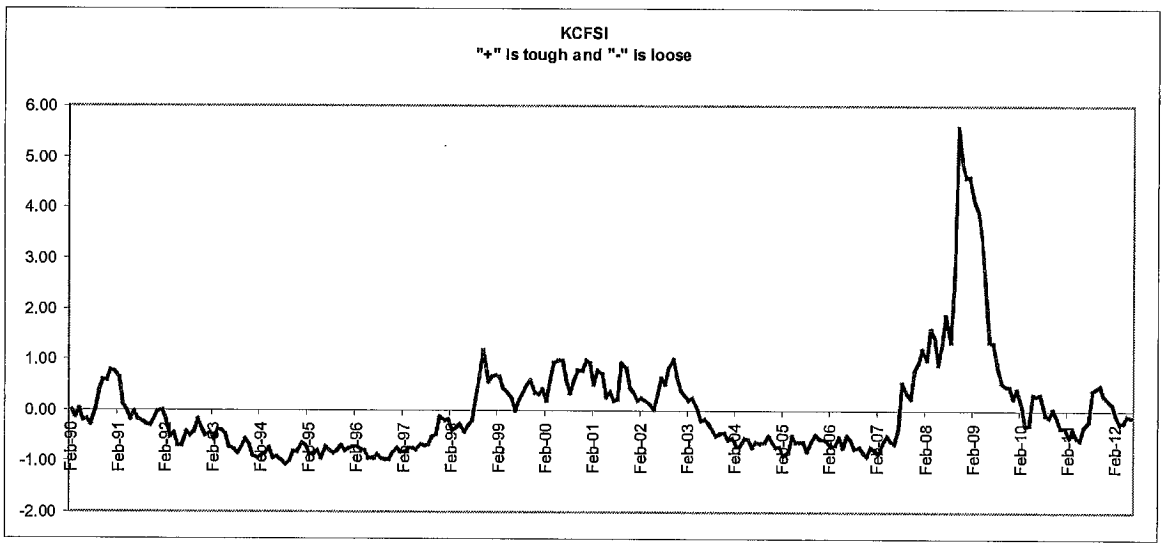
[34] CBRS was the Canadian Bond Rating Service which was taken over by S&P.

recognise that utilities are lower risk than equivalently rated bonds when the "going gets tough", that is, that utility bonds are really lower risk than their actual ratings indicate.

Q. WHAT HAS BEEN THE STATE OF CAPITAL MARKETS GENERALLY?

A. Since the financial crisis, several boards have suspended their automatic ROE adjustment mechanisms due to the extreme conditions experienced during the crisis; most referenced conditions in the credit market or credit spreads similar to those I have just discussed. In response several more comprehensive indicators of financial stress have been developed.

In the US the Federal Reserve Bank of Kansas City has developed the Kansas City "Financial Stress" Index (KCFSI) which is graphed below.

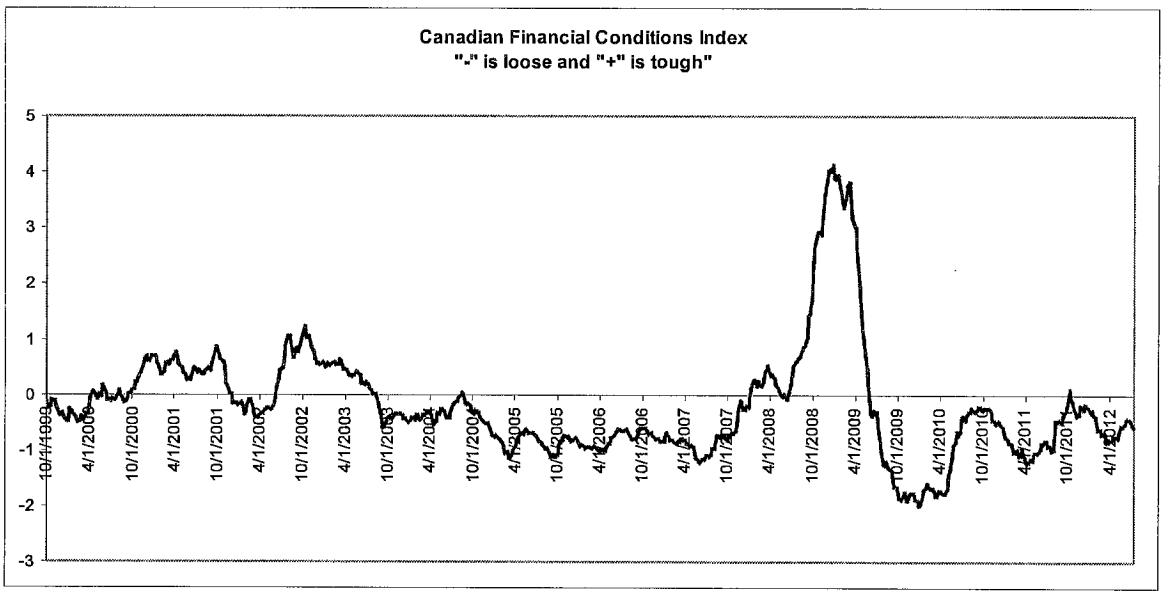


This index is designed to capture a variety of financial indicators in addition to the two which I have traditionally focussed on, which are the spreads between corporate and government yields, both the short term spreads in the money market and longer term spreads in the bond market. The additional indicators include the volatility index, the state of bank share prices, and the behaviour of stock and bond returns. When the KCFSI is above 0 it indicates that capital markets are under stress; similarly when it is below 0 it indicates relatively easy, "stress-free"

capital market conditions. The value of the KCFSI is simply that it captures in one number the impact of a variety of capital market indicators.[35]

The major insight of the KCFSI is that it emphasises the enormous pressures in the US financial system during the financial crisis. Unlike the internet bubble crash in 2001, the crisis in 2008/9 struck at the very core of the US financial system, which is the banking system, where liquidity, that is, the ability to trade securities at close to their true market value, dried up in many parts of the capital market, and the US government had to intervene on a massive scale. After consistently improving the KCFSI started to back up in 2010 and has recently been around 0, indicating neither stress nor easy financial market conditions.

The work by the Kansas City Fed follows pioneering work done by researchers at the Bank of Canada who developed a simpler financial conditions stress index,[36] which is graphed below.



[35] Technically it captures the common element in all these indicators by using principal components analysis.

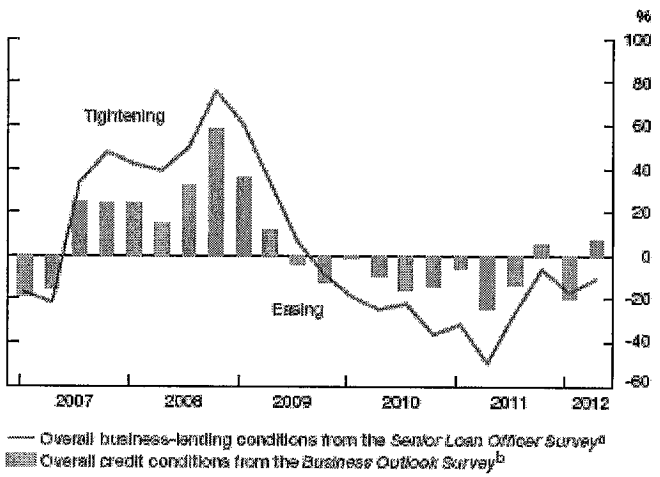
[36] The Bank of Canada index is actually the inverse of this, I multiplied it through by -1 to get the same interpretation as for the KCFSI

The Bank of Canada indicator similarly tracks the enormous stress in the financial markets during the financial crisis. However, unlike the KCFSI the index reflects marginally looser or easy recent financial market conditions.

The performance of the Canadian Financial Conditions index mirrors the assessment of the Bank of Canada in its Financial System Review (December 2011), where it indicated that credit conditions were little changed in Canada in Q3 2011. The graph below supports that assessment with recent data from the Monetary Policy Report (July 2012) showing that credit conditions for Canadian firms remain relative easy.

Chart 18: Survey results suggest that credit conditions for Canadian firms remain very stimulative

Balance of opinion



Overall it is undoubtedly true that even with relatively elevated corporate spreads; companies have easy access to financial markets. With A utility borrowing costs hovering around 4.0%, and BBB rated issuers only slightly higher, the capital market is very attractive for corporate issuers, while lending officers are no longer keeping their purses tightly shut.

Q. WHAT ABOUT THE EQUITY MARKETS DURING AND AFTER THE FINANCIAL CRISIS?

A. The Canadian equity market was severely impacted by events in the United States as were markets around the world. However, Canadian utility companies behaved exactly as you would expect: as low risk defensive investments they did not decline with the stock market as a whole. In Appendix C Schedules 5-7 are graphs of the prices for the six major publicly traded utilities against the TSX Composite index. What it demonstrates is that as utilities they exhibited their low risk stature by not being as responsive to general market risk. As of the end of 2011, relative to the previous five years, every utility was trading significantly above the TSX except for Valener, which is the old Gaz Metropolitain Limited Partnership units. The fact is that any investor would have loved to hold a diversified portfolio of Canadian utilities through the last five years rather than the TSX Composite!

Further, no utility in Canada was unable to raise capital on fair and reasonable terms during the financial crisis. Several of them raised shorter term debt financing, rather than long term financing, which is exactly what competitive non-regulated firms had to do, whose behavior they are regulated to mimic. On December 9, 2008 a story in the Calgary Herald[37] discussed the implications of the price of oil dropping from $144US to $50 and what it meant for oil and gas companies and pipelines. Hal Kvisle, CEO of TransCanada, noted that, although it was more difficult to raise money, TransCanada had just raised $1.16 billion in an issue that was over-subscribed. Kvisle indicated that it underscored the attractiveness of infrastructure investments in troubled times. The article also noted that Enbridge had increased its dividend by 12 per cent and upped its 2009 earnings guidance by about 20 per cent.

Enbridge Inc's CEO Pat Daniel said he's confident "the company can maintain 10 per cent earnings per share growth for at least the next five years, a testament to the ***low-risk business model*** (emphasis added) of pipelines in general." The article went on to state that "Enbridge has been one of the top performers on the TSX, losing only 1.7 per cent year-over-year compared to more than 41 per cent for the TSX main board and a whopping 56 per cent for the

---

[37] Shaun Polczer, "Pipeline companies weather darkest hour; Executives say crisis worst in oil patch history" Calgary Herald, December 9, 2008.

TSX's capped energy index since June." It further quoted Daniel as saying "I think that speaks to the low risk, steady predictable nature of our business, ...***People don't really realize it until you get into tough times like this.***" (emphasis added) The article went on to note that "Enbridge shares gained $1.32, or three per cent, on the Toronto Stock Exchange on Monday to finish at $39.50 while Trans-Canada added 60 cents to close at $33.90."

Although Pat Daniel stated that people don't realise how low risk Enbridge's business is, this is not true as the stock market clearly noticed. In my judgment, almost all the utilities demonstrated the low risk nature of their business throughout the financial crisis. This is not to say that they have no risk, the fact that they did move with the market indicates they do have market risk.

Q. WHAT ARE YOUR CONCLUSIONS ABOUT THE IMPACT OF CAPITAL MARKET CONDITIONS ON EGDI?

A. At the height of the financial crisis on November 12, 2008, EGDI issued $200 million of five year medium term notes at a yield to maturity of 5.576%. At the time, the benchmark 5 year Canada bond averaged a yield of 2.48% for November, so the spread was about 3.1%, which was huge. As my graph on default spreads indicates at the height of the financial crisis even "A" rated issuers like EGDI were treated in the same way as BBB as indeed were AA rated issuers, so I doubt that the cost would have differed materially even if EGDI had been an AA issuer like the Canadian banks.[38] However, the fact is that the yield to maturity was below EGDI's embedded debt cost, and EGDI was able to raise a very large amount of money at a very reasonable rate in very difficult circumstances. Further, EGDI did what any non-regulated firm would have done which is to issuer shorter term debt in the hope of rolling it over once the crisis passed.

---

[38] Note that the banks are rated AA and the Bankers Acceptance (BA) spread over Treasury Bill yields almost hit 3.0% during the crisis, so even if EGDI had say 50% common equity it would still have been unable to issue 30 year debt on "reasonable" terms during the worst of the crisis.

On September 1, 2011 EGDI returned to the MTN market. This time, EGDI raised $100 million in 40 year medium term notes at a yield of 4.702%. On September 1, 2011, long Canada bonds were yielding 2.982% so the spread was at most 1.72%. The Government of Canada does not issue 40 year benchmark bonds and if they did the yield would have been greater than 2.982%. The important point is that not only did the spread come down significantly, but EGDI issued much longer term bonds, where the cost generally increases with maturity. From this I conclude that EGDI has exceptionally good bond market access. Very few companies can issue unsecured "signature" loans for a fixed rate and a 40 year term.

In 2006 and earlier EGDI expressed concerns that its "financial integrity" was at stake because the 2.0X interest coverage ratio covenant restriction for its medium term note issues could prevent it from issuing long term debt. This argument was fallacious at the time, since as EGDI now admits there is no legal requirement that EGDI finance with unsecured MTNs. It is like ordinary borrowers going to the bank and asking for an unsecured signature loan to buy a house; only those with exceptional credit would not immediately be shown the door. Further as EGDI also now admits it still has the ability to issue first mortgage bonds, like many other Canadian utilities, where there is no 2.0X interest coverage restriction. However, what is important is that EGDI has been rolling over some maturing debt, so its embedded interest cost has come down and its interest coverage ratio has increased.

According to DBRS EGDI's interest coverage ratio was 1.7X in 2006, and it has subsequently increased to 2.2; 2.5; 2.6 and 2.4X. So, there is no need for EGDI to issue first mortgage bonds, or preference shares or swapped commercial paper. Further, when EGDI's ROE increases with the Board formula ROE, the interest coverage ratio will increase further. I therefore judge EGDI to have better financial market access now, than in either 2009 or 2006.

Finally, I would point out that my assessment is very similar to that of the Governor of the Bank of Canada. The Governor, Mark Carney, was interviewed by the BBC on August 8, 2012 and as reported

by Reuters[39] indicated that he had been swimming against the global current since April with his message that borrowing costs will soon have to rise in Canada. Policy makers in most other major economies were looking for ways to stimulate their economies further amid the European debt crisis, and disappointing growth in the United States and China. However, Reuters reported Governor Mark Carney as saying

> "We're in a very different place than the major crisis economies, such as the U.K.,"
>
> "Our economy's almost back at full capacity, the labor market's been growing, we're growing above -- we had been growing above trend, and the extent to which we continue to grow above trend, we may withdraw some of that monetary policy stimulus."
>
> "But we have a financial system that's firing on all cylinders and so we will have to adjust -- we will adjust if it's appropriate,"

Reuters went on to report Governor Carney as saying that the country's relatively strong economic fundamentals had helped push the Canadian dollar to parity with the U.S. dollar on Friday for the first time since May and that the currency's value reflected a "safe-haven premium". As Governor Carney said

> "There are relatively few places in the advanced world that investors can put their money with a degree of certainty that something catastrophic is not going to happen,"

It goes without saying that a financial system "firing on all cylinders" is hardly a justification for providing Canada's premier utility with even greater financial market access.

---

[39] Bank of Canada's Carney still leaning towards rate hike, Reuters, August 8, 2012.

4.0 COMPARABILITY

Q. SHOULDN'T EGDI'S COMMON EQUITY BE 40% - THE SAME AS THE ONTARIO ELECTRIC DISTRIBUTORS?

A. No. As the Board noted in its Decision for Natural Resource Gas Ltd (NRG, EB-2010 0018, page 26)

> "The Board has a cost of capital policy in place that is applicable to all electric utilities and NRG's size and profile is similar to a number of electric utilities ***as opposed to*** (bold italics added) the two large gas utilities (Enbridge and Union). The Board policy on the appropriate equity ratio is 40% and is not considerably different from the ratio sought by NRG."

The Board's NRG decision confirms that there are good reasons for the lower common equity ratio for Union and EGDI. Moreover, the Board in frequent decisions has confirmed its expectation that EGDI justify any request for a change in its common equity ratio.

Q. WHAT CONDITIONS COULD JUSTIFY A LOWER COMMON EQUITY RATIO AND HOW DOES EGDI COMPARE WITH OTHER CANADIAN UTILITIES?

A. The most common ones are lower business risk and greater capital market access. These largely flow from the dominant market position of the utility and the economies of scale in accessing financial markets. The fact is that small utilities are restricted to bank debt and the private placement market, and cannot use instruments like interest rate swaps to lower their risk and cost of funds, since this normally requires some form of an A bond rating.

S&P reports EGDI's equity at $1,756.9 million, so it cannot be meaningfully compared to NRG with common equity of $5.5 million, AltaGas Utilities $75.3 million or even Centra Gas Manitoba $161.9 million. As S&P notes, EGDI is the largest gas distribution utility in Canada and compares with Union Gas with $1,241.4 in equity, Gaz Metro with $1,195.4 million and Terasen Gas Inc. with $935.2 million. I would also compare EGDI with ATCO Gas.

Currently, Union has 36% common equity and an A DBRS rating. Gaz Metro has 38.5% common equity and a DBRS A rating, but is regarded as above average risk by the Regie. ATCO Gas has 39% common equity and an A (Low) rating but does not raise debt itself. In fact, ATCO Gas is not a separately incorporated company and the debt is simply the mirrored cost from Canadian Utilities. Terasen Gas has a 40% common equity ratio, and an A (low) rating. However, Terasen's common equity ratio has increased from 33% over the last few hearings, since the BCUC regards it as having increased business risk. This is mainly due to increased competition from electricity as new construction in the Lower Mainland is increasingly high rise condominiums.

Overall I would judge a 35% common equity ratio for EGDI as being consistent with its low business risk, significant size and greater capital market access than any other gas utility in Canada.

Q. DO US COMPARATORS JUSTIFY 40% COMMON EQUITY?

A. No. US financial markets exhibit more risk than Canadian markets. The fact that the recent financial crisis emanated (as did the 1929 Great Stock market crash and Great Depression) in the US supports this observation. As a result, for example, risk premia have been higher in the US, as has US stock market volatility. Second, although the principles of utility regulation are the same between the US and Canada, as is widely recognised the implementation is different.

Q. WHY DO YOU REGARD THE US AS RISKIER THAN CANADA?

A. Apart from the statistical evidence in terms of the volatility of equity returns since 1926, experts generally estimate the US market risk premium as higher than in Canada. Further the recent financial crisis highlights the on-going differences between the US and Canada. For example, the US decision to let Lehman Brothers go into bankruptcy on September 14, 2008 triggered the financial melt-down and global recession. This was a huge mistake. The result was frozen credit markets and a stock market collapse pushing the world into its first ever global crisis from which we have barely recovered even now over 3 years since it happened.

In all of this, Canada was largely a bystander wondering how such disastrous and elementary mistakes could be made in the US. As Prime Minister Stephen Harper said at the G-20 summit

> *"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."*

With stronger regulation of its financial system, Canada avoided the problems in the US. The Office for Superintendent of Financial Institutions (OSFI), for example requires 7% common equity and 10% total capital for the Canadian banks, whereas the Bank for International Settlements requirements are for a minimum of 4% and 8% respectively. Further, the Canadian banks significantly exceed these minimums with the Royal Bank of Canada, for example, recently at just under 10% for common equity and 13% for total capital.[40] OSFI has also enforced the latest Basel 2 standards that use more refined risk weights for different banking assets. In contrast, the US has yet to adopt Basel 2 for all its banks and generally its banks operated with far less capital, which is partly why they experienced such disastrous results,

The US allowed banks to fail, or took them over, at a significant cost to tax payers and is now trying to design a system where any future bailout costs are recouped from the banks and not tax payers by way of a systemically important financial institutions (SIFI) tax. In other words, it is a policy of allowing the banks to be "aggressive" but making sure the cost of any failures are paid through this quasi insurance fund. In contrast, Canada regulates its banks more closely, never had any banking problems during the financial crisis, and objects to paying a tax that is not needed given its more prudent regulatory policy. This is very similar to the attitude towards public utilities, where the US has allowed 6 public utilities to fail, a situation that is in sharp contrast to the significant regulatory protection in Canada.[41]

These philosophical differences are now compounded by significant differences in macroeconomic financial conditions. Whereas the size of the Canadian deficit and the strength

---

[40] I refer to tier 1 capital as common equity but it also included non-cumulative perpetual preferred shares.

[41] The efforts of the BCUC in protecting Pacific Northern Gas are a classic example.

of the Canadian economy are much better than anticipated just a short while ago, the US continues to have problems and the size of its deficit raises significant long run inflationary concerns. This is reflected in higher long term US Treasury bond yields than their equivalents in Canada, higher borrowing costs and a strong C$.

Q. HOW DO RATING AGENCIES COMPARE US AND CANADIAN UTILITIES?

A. Moody's is one of the two major US bond rating agencies and in a major review of its rating methodology[42] it cited three major factors that determined how it rated the supportiveness of regulation. These were (paraphrasing):

- Protecting the system to ensure reliable supply
- Protecting the consumer from monopoly over charging or sudden large rate increases;
- Attempting to achieve a balance between satisfying shareholders versus efficiency to hold down prices.

It then had a rating scale from 1-4 with 1 being the most supportive regulatory environment (SRE). Canada was rated 1 whereas the different US states were rated either 2 or 3. SRE1 was defined as "Regulatory framework is fully developed, has shown a long track record of being highly predictable and stable and there is a very high expectation of timely recovery of costs and investments." SRE2 and SRE3 indicate less assurance of cost recovery and greater unpredictability or inconsistency in regulation.

Moody's reviewed this report and issued a new one in August 2009.[43] The new Moody's report refines their assessment into four major areas where in the following table the % indicates the weights applied by Moody's,

- Regulatory framework: 25%
- Ability to recover costs and earn profits: 25%
- Diversification: 10%
- Financial strength and liquidity: 40%

[42] Rating methodology: global regulated electric utilities, Moody's March 2005.

[43] Infrastructure Finance; Regulated Electric and Gas Utilities, August 2009.

Moody's states very clearly "for a regulated utility the predictability and supportiveness of the regulatory framework in which it operates is a key credit consideration and the one that differentiates the industry from most other corporate sectors." A quick glance at Moody's weights indicates that fully 50% of the weighting is based on the first two criteria which both reflect the supportiveness of the regulatory environment.

It is this predictability generated by supportive regulation that differentiates Canadian from US utilities. In EB-2011-0354, Exhibit I, Issue E2, Schedule 21.6, page 2, EGDI provided the following financial metrics for the years 2006-2011:

	2006	2007	2008	2009	2010	2011
Interest Coverage	2.4	2.5	2.4	2.5	2.5	2.4
Debt/EBITDA	3.8	3.6	3.7	3.6	3.7	3.9
FFO/Interest	3.1	3.3	3.3	3.6	3.7	3.9
FFO/Avg Debt	15.2%	16.6%	16.0%	16.8%	17.3%	17.1%
Debt to capitalization	62.2%	61.2%	61.4%	61.4%	61.4%	61.5%

The above data illustrates the remarkable stability of EGDI's key financial metrics, which in turn reflects the protective nature of regulation in Canada.

Further in discussing the US and Canada Moody's states,

> "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."

I am not aware that Moody's has changed this report and similar statements about Canada's favourable regulatory environment continue to be made in current individual company

reports.[44] Moody's goes on to discuss how 4 of the 6 investor- owned bankruptcies in the US resulted from regulatory disputes culminating in insufficient or delayed rate relief for the recovery of costs and/or capital investment in utility plant. Moody's further states "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." I would emphasise here Moody's phrase "***as is characteristic of the US***" since this reflects a less protective regulatory environment than we have in Canada.

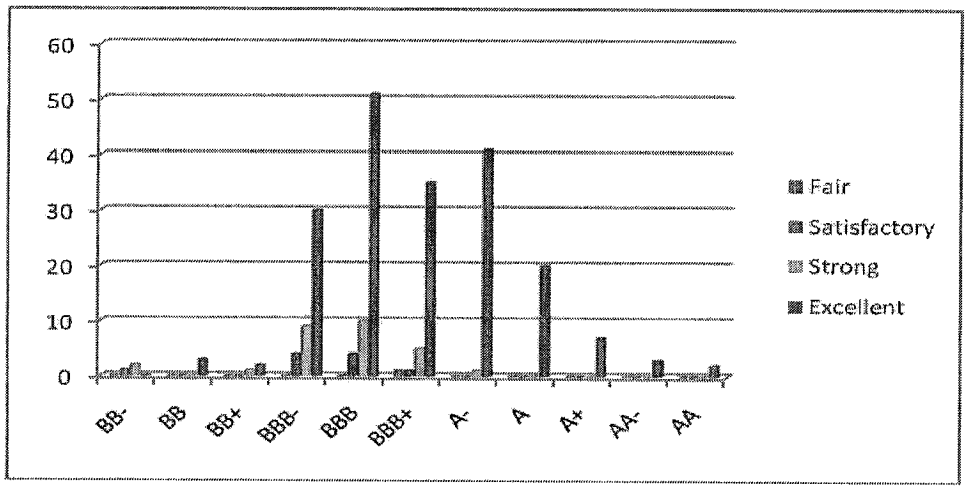
It is well recognized that the typical US utility has both a higher allowed ROE, and more common equity than their Canadian counterpart. All else constant with these better financial parameters, if they have the same business risk they would have better bond ratings. However, this is not the case. In answer to an information request in the 2010 Line 9 hearing before the NEB (IOL information request #197d) Ms. McShane provided the following histogram of US bond ratings and their respective business risk scores. The histogram provides the total number of US utilities in each rating class broken out according to their business risk ranking from Fair to Excellent.

Two observations are apparent. First, many of the lower rated companies are also rated "excellent" in terms of business risk (even some with junk bond ratings) so this is not a main determinant of their bond rating. Second and more important the typical (modal or median) bond rating in the US is "BBB", whereas for Canadian utilities where the mode and median is "A" and all would be A except for considerations of size and poorly rated parent holding companies.[45]

---

[44] See the Newfoundland Power report of July 2011 I discuss with reference to the comment of the Board of Commissioners of Newfoundland and Labrador.

[45] I use A and BBB generically without modifiers. S&P will not rate a sub higher than its parent unless it is ring fenced, that is, insulated from a raid by its poorly rated parent. Enron raided its subs to the tune of $2 billion when the parent ran into trouble.



What is clear is that despite their poorer financial ratios, Canadian utilities have higher bond ratings, which simply reflects the importance placed by the rating agencies on the differing regulatory approaches in the US and Canada.

S&P essentially agrees with this assessment in its December 19, 2011 report on Union Gas:

> "The OEB allows a 35% (sic) deemed equity component in the company's capital structure for rate making purposes, which is at the low end for North American regulated utilities. Furthermore, the company's ROE (which the OEB sets) is lower than that of most of its U.S. peers. However, offsetting these factors is cash flow stability, supported by strong national and regional regulatory compact with a long record of timely cost recovery.

The critical information is that high financial leverage and low allowed ROE (prior to the Board's formula) are offset by protective regulation. Although the comment applies to Union Gas, EGDI has the same regulator and the same formula determined ROE so the conclusions also apply to EGDI. S&P's description of the "strong national and regional regulatory compact" is also the same policy we pursue with our banks, which are now recognised as the safest and best regulated in the world with Mark Carney appointed to lead the Financial Stability Board of the BIS on November 4, 2011. It is difficult to imagine a US bank regulator being offered such a position.

Q. ARE THERE OTHER FACTORS DEPRESSING BOND RATINGS IN THE U.S.?

A. Yes. S&P has been concerned for sometime that US regulators have not protected US bond holders from corporate M&A activity and raids by poorly rated parent or holding companies. This was a feature of the late 1990s, when many local telephone companies either took over or were taken over by Internet companies and were subsequently downgraded. In response, S&P implemented a policy that the credit rating of a regulated telecom cannot be higher than the credit rating of its parent. For non-telecom utilities S&P states[46]

> "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."

In other words, there is a cross subsidy from the regulated to the unregulated entity *unless* the regulated entity is "ring fenced" so that any problems on the non-regulated side do not impact the regulated side. S&P refers to this as "structural insulation techniques" which may involve:

- separate incorporation of the sub
- independent directors
- minority ownership stakes
- regulatory oversight to insulate the subsidiary
- Restrictions on holding company cash management programs

S&P is very forthright in that the onus lies on the regulators. It states:

> "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."

My reading of these remarks is that having been "burned" with these US telecoms and the lack of reaction from US public service commission, S&P is now taking a tougher line on all utilities.

---

[46] S&P, Corporate Ratings Criteria, 2003, pages 44-45.

This policy was reinforced by the problems surrounding Enron, where FERC was less forthcoming than expected in reining in the financial policies of US pipelines. After Enron siphoned off $1.5 billion from its two natural gas pipelines, the FERC instituted a review of inter-affiliate transfers. Many expected FERC to impose minimum equity ratios of 30% and requirements such as maintaining an investment grade bond rating before the parent could manage the subsidiary's cash. However, when the FERC announcement was made in November 2003 it fell far short of S&P's expectations. As S&P noted

> "the degree of oversight by the FERC has traditionally been less than sufficient to justify insulation. That the FERC took almost two years to respond to the Enron pipeline situation indicates that timely intervention that would protect bondholder interests is not likely when a regulated utility's parent is experiencing financial problems. It seems clear to Standard and Poors that the new rule falls far short of providing the requisite insulation to justify any ratings separation for utilities regulated primarily by FERC"

It is clear from this comment from S&P, that the business risk of a utility is only one factor in the bond rating. Further, the combination of weak US regulatory oversight and ownership of a utility within a diversified holding company with a weak bond rating dooms the utility to also have a weak bond rating ***regardless*** how strong its common equity ratio and how high its allowed ROE.

The upshot is that even US utilities with an excellent business risk profile, similar to that of Canadian utilities, will have poorer financial market access unless they are in a regulatory jurisdiction that mimics the degree of protection Canadian utilities experience and are structurally insulated or "ring fenced" from their aggressive parents.

Q. HAVE CANADIAN REGULATORS COMMENTED ON THIS?

A. Yes. The Board of Commissioners of Newfoundland and Labrador commented on the use of US "comparables" and stated (decision page 17)

> The Board believes that, in this type of analysis, it is not enough that the chosen comparables are the best available. If this data is to be relied on it must be shown to be a reasonable proxy or that reasonable adjustments can be made to account for differences. The evidence showed significant differences in virtually all of the comparables including significant levels of non-regulated and non-utility business as well as riskier generation projects, earnings volatility, more competition and less regulatory support. While it was argued that, on balance, the U.S. comparables are reasonable proxies the Board notes the overwhelming evidence of a lack of balance as it was clear that on almost every measure Newfoundland Power would have to be considered less risky than the U.S. comparables. The Board heard evidence that the rating agencies consider U.S. companies to be peers for Newfoundland Power but the Board does not conclude from this that they are the same. Moody's comments acknowledge the differences in operations in the U.S. and Canada:
>
> > *"NPI's Baaa1 issuer rating reflects the fact that the company's operations are exclusively based in Canada, a jurisdiction where regulatory and business environments in general are relatively more supportive than those of other international jurisdictions such as the United States, in Moody's view."* (Application, 1st Revision, Exhibit 4 - Moody's Credit Opinion, August 3, 2009)

As the Newfoundland decision clearly states, it is not enough that US utilities be used simply because there are not enough Canadian ones available: comparables have to be the same to be used without any adjustment. And here the Board found "overwhelming" evidence that US utilities were riskier on almost every measure than Newfoundland Power, which it regarded as an average risk Canadian utility.

Notably Moody's continued with this opinion in its July 19, 2011 credit assessment on Newfoundland Power (NPI) where Moody's stated

> "All of NPI's operations are located in Canada whose regulatory and business environment we consider to be supportive relative to those in other jurisdictions. Furthermore, we consider the PUB to be one of the most supportive regulators in Canada. Notwithstanding that NPI's 2011 allowed ROE of 8.38% is currently one of the lowest in Canada in Canada, its 45% common equity is one of the highest in Canada and the PUB's decisions are timely and balanced."

This assessment directly supports moody's continued view of lower risk in Canada than other jurisdictions (without explictly stating the US this time) plus points out that the lower allowed ROE for Newfoundland Power is offset by NPI's higher common equity ratio. Given the much

higher allowed ROE for EGDI (9.42% vs 8.38% for 2012 at the time of Moody's remarks) this would imply a lower common equity raito and not the higher one requested by EGDI.

Also the BCUC (decision page 52) commented on the use of US comparables in 2009 and while they felt they were useful, where no Canadian data was available, they also stated

> The Commission Panel agrees with Dr Booth that "significant risk adjustments" to US utility data are required in this instance to recognize the fact that TGI possesses a full array of deferral mechanisms which give it more certainty that it will, in the short-term, earn its allowed return than the *Value Line* US natural gas LDCs enjoy. The Commission Panel notes Dr. Booth's suggestion that the risk premium required by US utilities is between 90 and 100 basis points more than utilities in Canada require may set an upper limit on the necessary adjustment. Accordingly, the Commission Panel will reduce its DCF estimate by between 50 and 100 basis points to a range of 9.0 percent to 10.0 percent, before any allowance for financing flexibility.

In its 2009 Gaz Metro decision the Regie concluded (paragraph 295) that

> "The evidence therefore does not make it possible to conclude that the regulatory, institutional, economic and financial contexts of the two countries and their impacts on the resulting opportunities for investors are comparable."

The decisions of the BCUC, the Board of Commissioners of Newfoundland and Labrador and the Regie confirm that a sample of US "comparables" can not be used as a benchmark for a Canadian utility without either significant evidence that the regulatory, institutional, economic and financial are the same or making significant adjustments.

There is no question that information from US financial markets and utilities is informative. However, this does not mean to say that data can simply be extrapolated and applied to Canada without adjustments, since it is a foreign country with different macroeconomic and financial risks and a different interpretation of the same general regulatory prinicples that we use in Canada. In this instance I would recommend that the Board focus on an objective analysis of EGDIs business risk, its financial market access and the rating reports of DBRS and S&P.

My conclusion is that EGDI has marginally less business risk now than it did in 2006 or 1993. This is due to several factors, but dominating them all is the impact of collapsing natural gas prices. The decline in interest rates and easier capital market conditions mean that EGDI's financial flexibilty has already increased significantly. The interest coverage ratio indicates this and such flexibility will only increase yet again as EGDI's allowed ROE increases with the Board's ROE formula. I would then recommend that EGDI's common equity ratio should revert to the 35% level at which it operated without any probemns prior to 2006.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes

Schedule 1

	Unemployment Rate	Real Growth	CPI Inflation	T Bill Yield	Canada Yield	FX Rate US$	Average ROE
1987	8.81	4.25	4.42	8.17	9.93	0.75	11.19
1988	7.77	4.97	3.94	9.42	10.23	0.81	9.7
1989	7.58	2.62	5.06	12.02	9.92	0.84	11.79
1990	8.16	0.19	4.81	12.81	10.81	0.86	7.48
1991	10.32	-2.09	5.61	8.83	9.81	0.87	3.53
1992	11.24	0.88	1.45	6.51	8.77	0.83	1.56
1993	11.42	2.34	1.90	4.93	7.88	0.78	3.69
1994	10.43	4.80	0.12	5.42	8.58	0.73	6.57
1995	9.54	2.81	2.22	6.98	8.35	0.73	9.55
1996	9.73	1.62	1.48	4.31	7.54	0.73	10.29
1997	9.16	4.23	1.69	3.21	6.47	0.72	10.86
1998	8.35	4.10	1.00	4.74	5.45	0.67	8.83
1999	7.58	5.53	1.75	4.70	5.68	0.67	9.82
2000	6.85	5.23	2.69	5.48	5.92	0.67	10.92
2001	7.23	1.78	2.52	3.85	5.79	0.67	7.41
2002	7.66	2.92	2.25	2.57	5.67	0.65	5.68
2003	7.61	1.88	2.80	2.87	5.29	0.72	9.64
2004	7.18	3.12	1.85	2.27	5.08	0.77	11.62
2005	6.77	2.85	2.21	2.71	4.41	0.83	12.7
2006	6.32	2.53	2.00	4.02	4.29	0.88	13.95
2007	6.03	2.50	2.14	4.17	4.32	0.94	12.86
2008	6.15	0.52	2.37	2.62	4.06	0.94	9.44
2009	8.23	-2.46	0.30	0.40	3.85	0.88	8.32
2010	7.99	3.05	1.78	0.50	3.71	0.97	10.75
2011	7.46	2.46	2.89	0.94	3.22	1.01	10.57
Cansim	V13682111	v1992067	v41690973	V122484	V122501	V37426	V634672/V634628

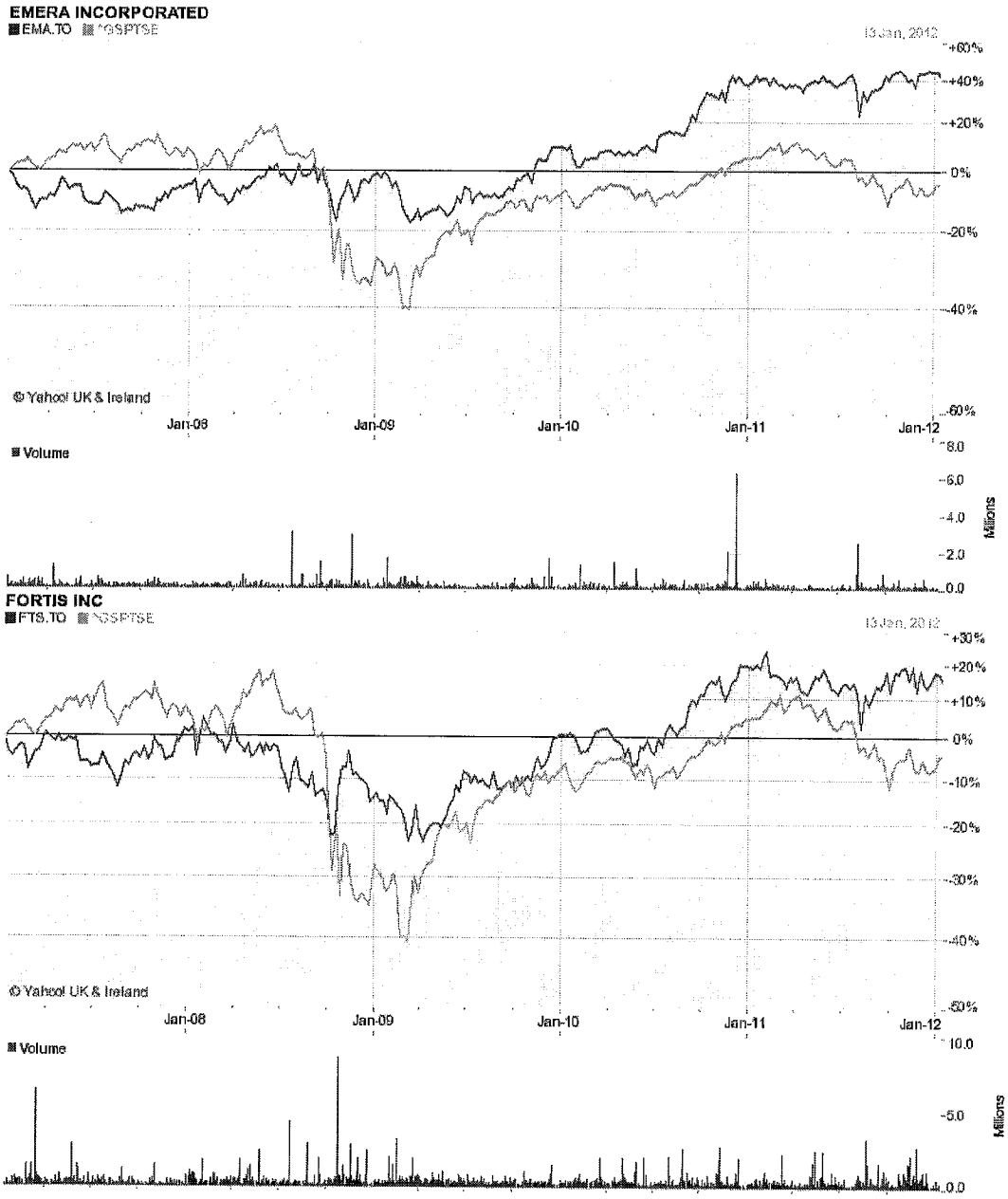
Schedule 2

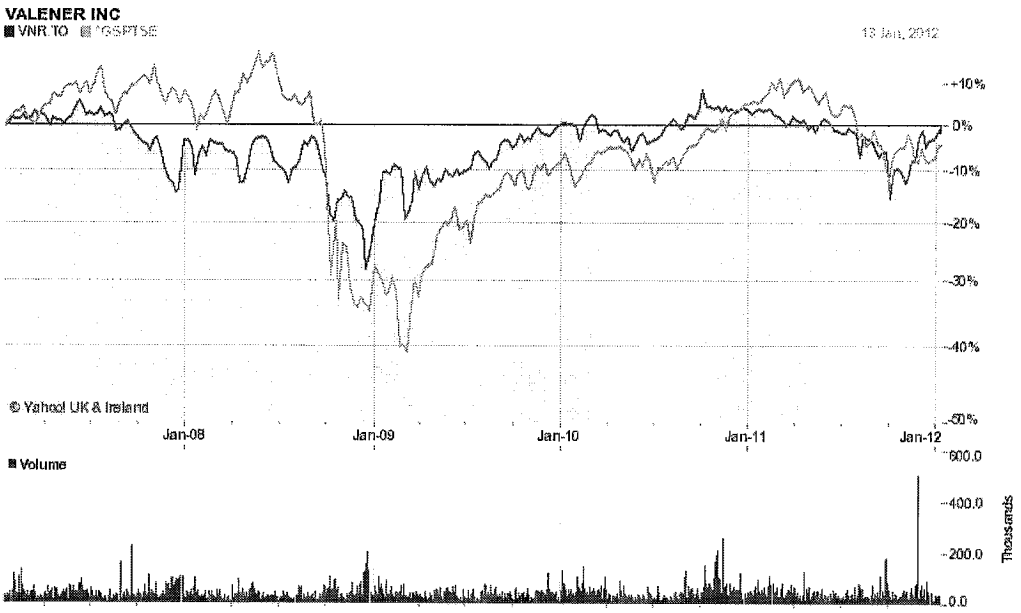
CANADA BOND YIELDS

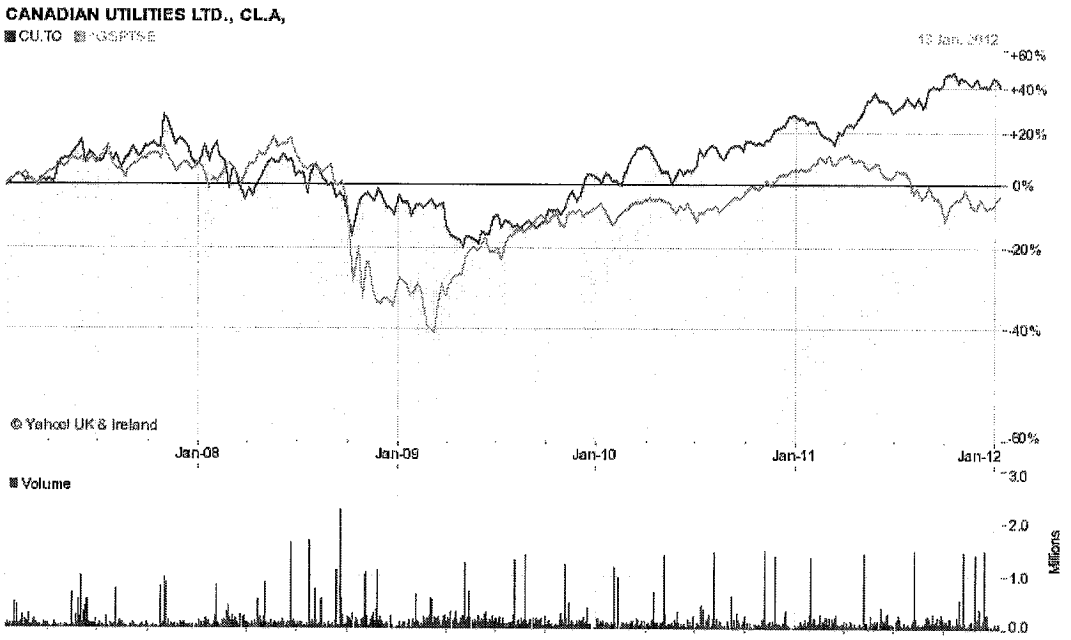
Overnight money market rates		1.00
Benchmark bonds		
Canada	91 day Treasury Bill yield	0.92
Canada	Six month Treasury Bills	0.94
Canada	One year Treasury Bills	0.97
Canada	Two year	1.01
Canada	Three year	1.06
Canada	Five year	1.21
Canada	Seven year	1.40
Canada	Ten year	1.64
Canada	Long term (30 year)	2.27
Canada	Real return bonds	0.36
Marketable Bond Average yields		
Canada	1-3 year	1.03
Canada	3-5 year	1.18
Canada	5-10	1.45
Canada	Over tens	2.18

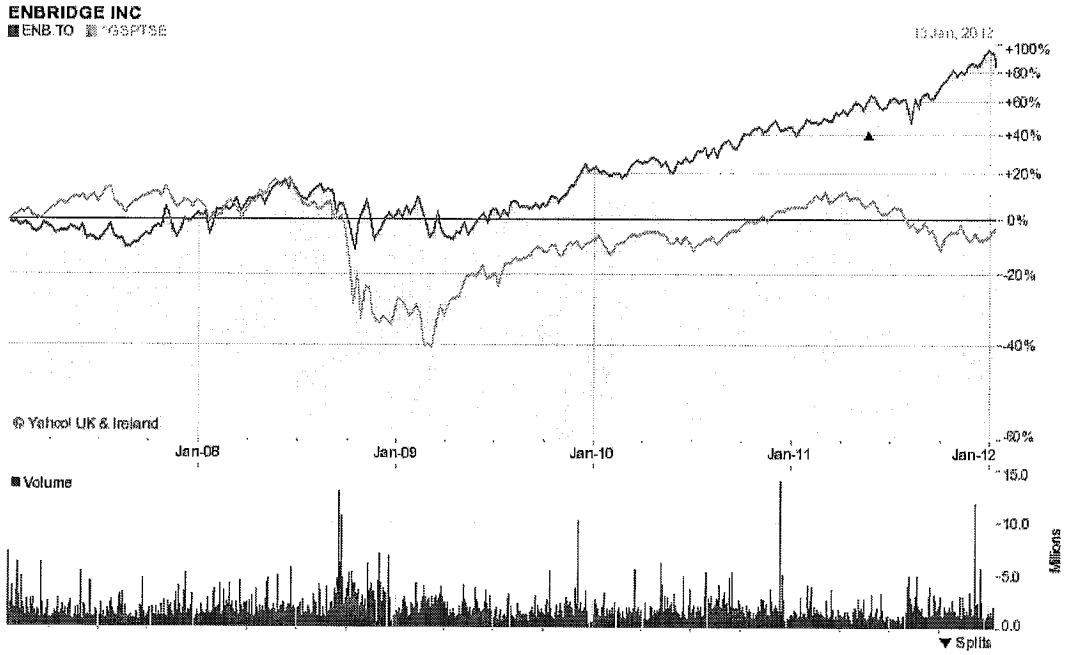
Source: Bank of Canada's web site at http://bankofcanada.ca/en/securities.htm, for July 28, 2012.

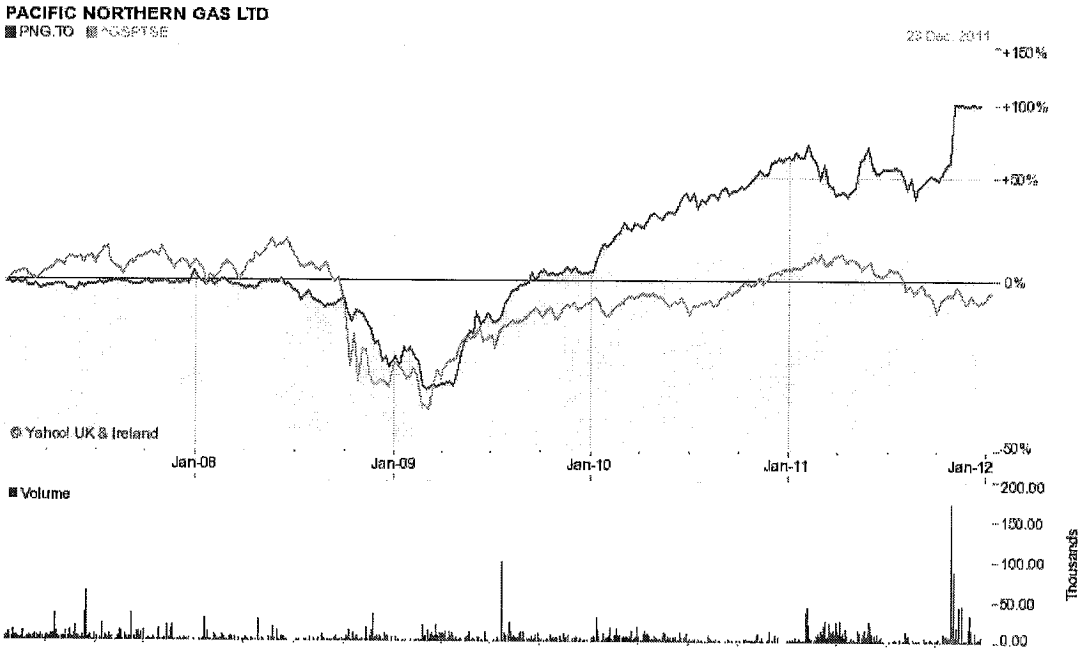
Schedule3


EMERA INCORPORATED
EMA.TO
^OSPTSE
13 Jan, 2012
+60%
+40%
+20%
0%
-20%
-40%
-60%
© Yahoo! UK & Ireland
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Volume
8.0
6.0
4.0
2.0
0.0
Millions
FORTIS INC
FTS.TO
^OSPTSE
13 Jan, 2012
+30%
+20%
+10%
0%
-10%
-20%
-30%
-40%
-50%
© Yahoo! UK & Ireland
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Volume
10.0
5.0
0.0
Millions


VALENER INC
VNR.TO ^GSPTSE
13 Jan, 2012
+10%
0%
-10%
-20%
-30%
-40%
-50%
© Yahoo! UK & Ireland
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Volume
600.0
400.0
200.0
0.0
Thousands


CANADIAN UTILITIES LTD., CL.A,
CU.TO ^GSPTSE
13 Jan, 2012
+60%
+40%
+20%
0%
-20%
-40%
-60%
© Yahoo! UK & Ireland
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Volume
3.0
2.0
1.0
0.0
Millions


ENBRIDGE INC
ENB.TO
^GSPTSE
13 Jan, 2012
+100%
+80%
+60%
+40%
+20%
0%
-20%
-40%
-60%
© Yahoo! UK & Ireland
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Volume
15.0
10.0
5.0
0.0
Millions
Splits


PACIFIC NORTHERN GAS LTD
PNG.TO
^GSPTSE
23 Dec, 2011
+150%
+100%
+50%
0%
-50%
© Yahoo! UK & Ireland
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Volume
200.00
150.00
100.00
50.00
0.00
Thousands

Appendix A

Joseph L. Rotman School of Management
University of Toronto

Professor Laurence Booth
CIT Chair in Structured Finance

Rotman

HOME ADDRESS
Suite 802, 900 Yonge Street,
Toronto, Ontario, M4W 3P5.
E-Mail Booth@rotman.utoronto.ca
(416) 978-6311

OFFICE ADDRESS
University of Toronto
105 St George Street,
Toronto, Ontario M5S 3E6
(416) 971-3048 (Fax)

TEACHING AND RESEARCH INTERESTS. Main interest is teaching domestic and international corporate finance. Research interests centre on the cost of capital, empirical corporate finance and capital market theory.

ACADEMIC BACKGROUND:

D.B.A.,	Indiana University, (finance major).
M.B.A.,	Indiana University, (finance major).
M.A.,	Indiana University, (Economics).
B. Sc.(Econ),	London School of Economics.

AWARDS & HONOURS

MBA Second Year Instructor of the Year Award, 1996, 1998 (joint) & 2000
Best paper in corporate finance, 1999 SFA meetings
ASAC Distinguished Professor Address 1990,
Director Financial Management Association 1988-90,
English Speaking Union Fellow,
Fulbright,
Elected to Beta Gamma Sigma,
First class honours B.Sc.(Econ)
CBV (Chartered Business Valuator),
National Post Leader in Management Education Award 2003

ACADEMIC EMPLOYMENT: CIT Chair in Structured Finance (1999-), Professor of Finance, Rotman School of Management, University of Toronto (1987-Present), Visiting Professor Nankai University (China) 1989, the Czech Management Centre (1998), visiting scholar London School of Economics (1985).

TEACHING EXPERIENCE: Graduate (MBA) courses on The Economics of Enterprise, the Economic Environment of Business, Business Finance, Corporate Financing, International Financial Management, Mergers & Acquisitions, Financial Management, Capital Markets & Corporate

Financing (EMBA), Financial Theory of the Firm (Ph.D), Capital Markets Workshop (Ph.D). Undergraduate courses (B.Comm) in International Business and Business Finance. Executive courses (2-5 days) on Money and Foreign Exchange Markets, Business Valuation, Financial Strategy, Equity Markets, Capital Market Innovations, Mergers & Acquisitions and Finance for Non-Financial Managers.

JOURNAL ARTICLES

"Stochastic Demand, Output and the Cost of Capital: A Clarification," Journal of Finance, 35 (June 1980),

"Capital Structure, Taxes and the Cost of Capital," Quarterly Review of Economics and Business, 20 (Autumn 1980,

"Stock Valuation Models Under Inflation," Financial Analysts Journal, (May-June 1981),

"Market Structure, Uncertainty and the Cost of Equity Capital," Journal of Banking and Finance, (May 1981),

"Capital Budgeting Frameworks for the Multinational Corporation," Journal of International Business Studies, (Fall 1982),

"Hedging and Foreign Exchange Exposure," Management International Review, (Spring 1982),

"Correct Procedures for Discounting Risky Cash Outflows," Journal of Financial and Quantitative Analysis, (June 1982),

"Total Price Uncertainty and the Theory of the Competitive Firm," Economica, (May 1983),

"Portfolio Composition and the CAPM," Journal of Economics and Business, (June 1983),

"On the Negative Risk Premium for Risk Adjusted Discount Rates," Journal of Business Finance and Accounting, (Spring 1983),

"On the Unanimity Literature and the Security Market Line Criterion," Journal of Business Finance and Accounting (Winter 1983),

"Empirical Tests of the Monetary Approach to Exchange Rate Determination," (with R. Vander Kr,aats) Journal of International Money and Finance, (December 1983),

"The Ex-Dividend Day Behaviour of Canadian Stock Prices: Tax Changes and Clientele Effects," Journal of Finance, (June 1984) (with D. J. Johnstone),

"On the Relationship Between Time State Preference and Capital Asset Pricing Models," Financial Review (May 1984),

"Bid-Ask Spreads in the Market for Foreign Exchange," Journal of International Money and Finance (August 1984),

"An Economic Analysis of Hedging and The Canadian Accounting Treatment of Revenue Hedges," Canadian Journal of Administrative Sciences, (June 1987),

"The Dividend Tax Credit and Canadian Ownership Objectives," Canadian Journal of Economics (May 1987),

"A Note on the Demand for Labour and the Phillips curve Phenomenon," Journal of Economics and Business (July 1987) (with W. Y. Lee and J. Finkelstein),

"Adjustment to Production Uncertainty and the Theory of the Firm: A Note," Economic Inquiry (1988),

"The Deregulation of Canada's Financial System," Banking and Finance Law Review, (Jan 1989),

"Stock Returns and the Dollar," Canadian Investment Review, (Spring 1990), (With W. Rotenberg),

"Taxes, Funds Positioning and the Cost of Capital,' in R. Aggarwal (ed) Advances in Financial Planning and Forecasting, JAI Press, 1990,

"Assessing Foreign Exchange Exposure: Theory and Application Using Canadian Firms," Journal of International Financial Management and Accounting (Spring 1990) (With W. Rotenberg),

"Research in Finance at Canadian Administration and Management Faculties," Canadian Journal of Administrative Studies, (With F. Heath), (December 1990),

"The Influence of Production Technology on Risk and the Cost of Capital," Journal of Financial and Quantitative Analysis (March 1991),

"Evidence on Corporate Preferences For Foreign Currency Accounting Standards", Journal of International Financial Management and Accounting, (with W. Rotenberg) (Summer 1991)),

"Peoples Acquisition of Zale: An application of Valuation Principles," in Canadian Investment Banking Review, (R. Rupert, Editor), McGraw-Hill Ryerson, 1992,

"The Cost of Equity Capital of a Non-Traded Unique Entity," Canadian Journal of Administrative Sciences, (June 1993),

"Lessons From Canadian Capital Market History," Canadian Investment Review (Spring 1995),

"Making Capital Budgeting Decisions in Multinational Corporations," Managerial Finance 22-1, (1996),

"Great Lakes Forest Products" Accounting Education 5 (Winter 1996) (with Professor W. Rotenberg),

"On the Nature of Foreign Exchange Exposure" Journal of Multinational Financial Management" (Spring 1996),

"The Importance of Market to Book Ratios in Regulation," Quarterly Bulletin, National Regulatory Research Institute, Winter 1997,

"A New Model for Estimating Risk Premiums (Along with Evidence of their Decline)" Journal of Applied Corporate Finance, (Spring 1998),
"The Case Against Foreign Bonds in Canadian Fixed Income Portfolios," Canadian Investment Review, (Spring 1998),

"The CAPM, Equity Risk Premiums and the Privately Held Business," Journal of Business Valuation (1999),

"Estimating the Equity Risk Premium and Equity Costs: New Ways of Looking at Old Data," Journal of Applied Corporate Finance, (Spring 1999),

"Time to Pass the Old Maid," Canadian Investment Review, (Spring 1999),

"Risk and Return in Capital Markets," Canadian Treasurer 16-2, March 2000,

"What Drives Shareholder value," Canadian Treasurer 16-3, June 2000.

"Capital Structures in Developing Countries," Journal of Finance 61-1 (March 2001, pp 87-130) (with V. Aivazian, V. Maxsimovic and A. Demirgic Kunt), (abstracted in the CFA Digest-31 -3 August 2001)

"Discounting Expected Values with Parameter Uncertainty," Journal of Corporate Finance 9- 2 (Spring 2003, pp 505-519)

"Equity Risk Premiums in the US and Canada," Canadian Investment Review (Spring 2001),

"Financial Planning with Risk," Canadian Journal of Financial Planning (December 2001),

"How to Find Value when None Exists: Pitfalls in Using APV and FTE," Journal of Applied Corporate Finance (Spring 2002),

"Do Emerging Market Firms Follow Different Dividend Policies than Firms in the US: Evidence From Firms in 8 Emerging Markets," Journal of Financial Research 26-3, (September 2003, pp 371-387) (Abstracted in CFA Digest 34-1, Feb 2004) (With V. Aivazian and S. Cleary),

"Dividend Policy and the Organisation of Capital Markets, Journal of Multinational Financial Management, 13-2 (April 2003, pp 101-121 (With V. Aivazian and S. Cleary),

"What to do with Executive Stock Options," Canadian Investment Review 16-2, (Summer 2003, pp 12-18),

"Formulating Retirement Targets and the Impact of Time Horizon on Asset Allocation," Financial Services Review 13-1, (Spring 2004),

"Dividend Policy and the Role of the Contracting Environment," FSR Forum, December 2005, pp 13-22,

"Dividend Smoothing and Debt Ratings," Journal of Financial and Quantitative Analysis, with V. Aivazian and S. Cleary (June 2006),

"Capital Cash Flows, APV and Valuation," European Financial Management, (Spring 2007).

"What Drives Provincial-Canada Yield Spreads" Canadian Journal of Economics, (Summer 2007) with Walid Hejazi and George Georgoplous.

"Cash Flow Volatility, Financial Slack and Investment Decisions," China Finance Review 2-1, (January 2008) with Sean Cleary,

"Capital market Developments in the Post 1987 Period: A Canadian Perspective," Review of Accounting and Finance 8-2, 2009, with Sean Cleary.

"Collateral Damage," 2008, Canadian Investment Review 21-4, pp 10-17.

"The Secret of Canadian Banking: Common sense?" World Economics, September 2009

"Information Asymmetry, Dividend Status and SEO Announcement Day Returns" (with Bin Chang), Journal of Financial Research, (Spring 2011)

"Target Date Funds: Good News and Bad News," (with Bin Chang) Journal of Risk, Spring 2011, pp 1-28.

"The Influence of productivity growth on Equity market performance, Journal of Wealth Management (with Bin Chang, Walid Hejazi and Pauline Shum) (forthcoming)

"Asset Allocation and the Performance of American Target Date Funds," Rotman International Journal of Pension Management, (With Bin Chang) Fall 2011.

NON-JOURNAL PUBLICATIONS:

"Financial Considerations for Providing Incentives for Private Industry and their Implications for Employment Level and Stability," (with M. J. Gordon) Technical study #2, Labour Market Development Task Force, Ministry of Supply and Services Canada, 1982.

"A Comparison of the Car Insurance Industry in Ontario with The Public Monopolies in Saskatchewan, Manitoba and British Columbia," 122 pp, in C. Osbourne (ed) Report of the Inquiry into Motor Vehicle Accident Compensation in Ontario, Ontario 1988.

"Securities Market Regulation: Institutional Ownership and Diversification;" "TSE Listing Proposals for Junior Companies," and "Discount Brokerage and the Entry of Financial Institutions." Reports submitted to the Ontario Securities Commission, July 1982, June 1983 and December 1983.

"Bank Profitability, Is It Excessive? (With M. Jensen and S. Klein), Report to the House Standing Committee on Finance, Trade and Economic Affairs, May 1982.

"Survey of Foreign Bank Affiliates," Chapter 8 in Small Business Financing and Non-Bank Financial Intermediaries, Facsym 1981.

"A Methodological Error in the Application of the Capital Asset Pricing Model" Proceedings ASAC, (May 1981).

International Business, (with A. Rugman and D. Lecraw), McGraw Hill, 1985.

"Hedging Foreign Exchange Exposure," in Rugman (ed), International Business in Canada: Strategies for Management, Prentice-Hall, 1988.

"Section 1650 of the CICA Handbook: Interpreting Foreign Results Under a Flexible Accounting Standard," (With W. Rotenberg), CGA Communications, 1989.

"Liability Management in the Public Sector," Report for Ministry of Treasury and Economics, May 1990 (with P. Halpern,)

"The Tax Deductibility of Interest and Hostile Takeovers," John Deutsch Institute, May 1990.

"Regulation of Transmission and Distribution Activities of Ontario Hydro," in R. Daniels, Editor, Ontario Hydro at the Millenium: Has Monopoly=s Moment Passed? McGill-Queens University Press Fall 1996 (with P. Halpern).

"Competition and Profitability in the Financial Services Industry in Canada," in J. Mintz & J. Pesando (editors) Putting Consumers First C.D Howe Institute, 1996.

"What Drives Shareholder Value," Financial Intelligence IV-6, Federated Press , Spring 1999.

"Canada's Competitiveness over the last 20 years," Rotman Management, Spring/Summer 1999.

"A Walk through Risk and Return," Advisor's Guide to Financial Research, 1999.

"Picking the Right Stocks," Advisor's Guide to International Financial Research, 2000.

"The CAPM, Equity Risk Premiums and the Privately Held Business," reprinted in W. Albo et al, Purchase and Sale of Privately Held Businesses, CA Press, Toronto, Ontario, 2000

"Investments, Alternative Investments and Bubbles," in Advisor's Guide to New Investment Opportunities, 2001.

"The Increasing Complexity of Bank Brands," Rotman Management, Spring/Summer 2001.

"Asset Allocation in the Long Run," Advisor's Guide to Risk Management, 2002.

"The Competitiveness of Corporate Canada," Financial Post, July 2002.

"Corporate Responsibility," Rotman Management, Spring/Summer 2003.

"The MBA International Finance course: a course whose time has come and gone, in A. Rugman (editor) Research in Global Strategic Management, JAI press, June 2003.

"The fundamentals of finance all business professionals should know and remember," Inside the Minds: Textbook Finance, Aspatore Books, June 2003.

"Anticipating the Big Boom," Rotman, the magazine of the Rotman School of Management, Fall 2005.

"Asset Allocation: The Long View," in H. Evensky (Editor) Retirement Income Redesigned: Master Plans for Distribution, Bloomberg Press, Princeton, 2006.

"Loyalty in Finance," Rotman, the magazine of the Rotman School of Management, Fall 2006.

Introduction to Corporate Finance, John Wiley and Sons, 2007 (with Sean Cleary)

"Saving Capitalism from the Capitalists," Rotman, the magazine of the Rotman School of Management, Summer 2008.

"An Overview of Value Based Management," in Advanced Corporate Finance, C. Krishnamurti and S.R. Vishwanath Prentice Hall International, 2009.

Introduction to Corporate Finance, John Wiley and Sons, (2nd edition) 2010 (with Sean Cleary)

"The Cost of Equity Capital and Fair Rate of Return on Equity (ROE) for a Canadian Utility" Canadian Regulation, Gordon Kaiser (Editor) 2011.

TESTIMONY

Expert financial witness (individually & with the late Professor M.K. Berkowitz) in rate hearings for Altalink partners, ATCO Gas (South), ATCO Pipelines (South), ATCO Electric, Bell Canada, Consumers Gas, Teleglobe, Maritime T&T, Island Tel, BC Tel, AGT, Newfoundland Tel, Union Gas, Ontario Hydro, Centra Gas Ontario, NB Tel, Northwestel, Pacific Northern Gas, BC Gas, West Kootenay Power, TransCanada Pipelines, TransEnergie, Trans Mountain Pipelines, IPL, Westcoast Energy, Nova Gas Transmission, Foothills Pipeline, TQ&M, ANG, and Centra Gas Manitoba.

Other civil cases include: prudent investments in a money market fund; the use of inverse floaters; the valuation of a brick company; the purchase of a private company by a Crown corporation; the liability of an investment dealer in a deficient private offering memorandum; the role of the Crown in managing moneys placed "in trust," the motivation for differential investment decisions, the materiality of press releases and the role of event clauses in contracting.

Ph.D SUPERVISOR:

George Pink, A Dominance Analysis of Canadian Mutual Funds, 1988,

Greg Lypny, An Experimental Study of Managerial Pay and Firm Hedging Decisions, 1989,

Frank Skinner, Credit Quality Adjustments and Corporate Bond Yields, 1990,

Rui Pan, Probability Analysis of Option Strategies, 1994,

Peter Klein, Three Essays on the Capital Gains Lock-in Effect, 1996,

Guy Bellemare, Capital Market Segmentation: US -Canada, 1996,

Kevin Lam, The Pricing of Audit Services, 1997,

Sean Cleary, The Relation Between Firm Investment and Financial Slack, 1998,

Xinlei Zhao, Three Essays on Financial Markets, 2002,

Lynnette Purda, Elements of Corporate Debt Policy, 2003,

Themis Pantos, Investment Distortions in the Presence of a Sovereign Debt Overhang, 2003.

Zhao Sun, PEG ratios and Stock Returns, 2004.

Zhaoxia Xu, Dynamic Adjustment of Financial Policy, 2007

Bin Chang, Information in Financial Markets, 2008

Ambrus Kesckes, Three Essays on IPOs, 2008 (Co-chair with Jan Mahrt-Smith)

Jun Zhou, Industry Influences on Corporate Financial Policy, 2010.

CASE WRITING:

A fair rate of return for Bell Canada, 1986.
Canvend 1984, A & B, 1988.
Peoples Jewellers, 1988.
Great Lakes Forest Products A, 1989.
Inco, 1989.

Peoples acquisition of Zale, 1990.
American Can Canada, 1990.
Great Lakes Forest Products A, 1993 (with W. Rotenberg)
BC Telephone, 1993
103 Kirsten Avenue, 1994
Great Lakes Forest Products B, 1994 (with W. Rotenberg)
Mill Creek Jewellery,1995 (With E. Kirzner)
Chapters, draft 2002.
Second Cup Valuation, draft 2002.

SERVICE:

Executive Committee: 1980-2, 1989-90, 1993-4, 2001-3, 2009-10
Finance Area Co-ordinator 1987-91, 1994-2008
External Advisory Board, Health Administration Faculty, 1985-92.
Editorial Board Activities:
- Journal of Economics & Business 1982-87.
- Finance Section Editor, Canadian Journal of Administrative Sciences 1993-2005.
- Journal of Multinational Financial Management 1989-.
- Journal of International Business Studies 1992-
- Associate Editor, Multinational Finance Journal, 1995-
- Journal of Applied Finance 2003-2007

Director at large Multinational Finance Society 1998-
Co-Chair 1991 Northern Finance Association meetings.
Chair 1998 Northern Finance Association meetings
Chair 2008 MFS annual meetings.
President Multinational Finance Society, 2010-11
Programme Committee member FMA meetings, October 1993.
Programme Committee member SFA meetings November 2002.
Programme Committee member, MFS meetings 2002-10
Programme Committee Member, Global Finance Conference, 2006.
Programme Committee Member, European Financial Management 2006-2010
Programme Committee member, NFA meetings 2008-
Investments Committee, Trinity College, U of T.
Pension Committee, Governing Council University of Toronto, 2011
Special committee on the Supplementary Retirement Arrangement (SRA) University of Toronto, 2011
Frequent media commentator.

February 2012