BUSINESS RISK AND CAPITAL STUCTURE FOR UNION GAS

EB-2011-0210

Evidence of

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Before the

Ontario Energy Board

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EXECUTIVE SUMMARY

- Union Gas Limited ("Union") is a business corporation incorporated under the laws of the province of Ontario, with its head office in Chatham-Kent, that conducts both an integrated natural gas utility business that combines the operations of distributing, transmitting and storing natural gas, and a non-utility business. In this proceeding, Union has applied to the Ontario Energy Board ("Board"), pursuant to section 36 of the Ontario Energy Board Act 1998 (the "ACT") for an order or orders approving or fixing just and reasonable rates and other changes for the sale, distribution, transmission and storage of gas effective January 1, 2013. Included in the application by Union is a request for the Board approval of Union's proposed change in capital structure increasing Union's common equity component from 36% to 40% (described at Exhibit E1. Tab 1)
- Capital structure is mainly determined by two factors: the business risk of the utility and the general state of the capital markets. Union's short term business risk is very low as it continues to earn its allowed ROE. Further there is no indication that the impact of the five year IRM period has exposed Union's shareholder to any increase in risk. In fact while under IRM, Union's tendency to over earn has increased. Union's long term risk has demonstrably decreased since natural gas prices have collapsed, so the risk of long term recovery of Union's rate base has diminished relative to 2006, when Union last filed business risk testimony.
- In my judgment, the business risk of Union has marginally decreased relative to RP-2003-0063/87/97 when Union requested and was granted a 35% common equity ratio in the Board's decision dated March 18, 2004.[1] Union then requested a 40% common equity ratio in 2006 which was settled at 36%, so Union's last litigated common equity ratio was 35%. On business risk grounds there is no justification for increasing Union's common equity ratio from 35% to 40%.
- Financial market conditions are more unsettled than in 2004 or 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

[1] Union Gas was a given a little bump in EBRO499 when it's common equity ratio was increased to 35% from 34% after it was consolidated with Centra Gas Ontario, which had a 36% common equity ratio. A straight blended rate would have been 34.5%. Historically Union had a 29% common equity ratio.

developments.[2] Should the Board allow Union its formula ROE then there are no grounds for adjusting the common equity ratio for these changes, since that would amount to double counting their effect. Further the Board approved ROE materially exceeds the allowed ROEs recently awarded in other Canadian jurisdictions.[3] This combined with the marginal decrease in Union's business risk suggests that Union should no longer be allowed a 0.15% premium over that allowed Enbridge Gas Distribution (EGDI).

- Overall I would recommend that Union be allowed a 35% common equity ratio[4] and the Board's formula ROE without any premium. I have not entered ROE testimony since the Board will review its formula ROE 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 low risk Canadian utility like Union Gas.
- With a 35% common equity ratio and the Board allowed ROE, the financial metrics for Union Gas will be better than during the term of the settlement when Union's allowed ROE was fixed at 8.54%. During this time Union maintained a very strong A rating from DBRS as well as excellent access to the commercial paper market with an R-1 (low) rating. Union's BBB+ S&P rating is due to its ownership by a weak parent, since it is a flow through of Spectra Energy's S&P BBB+ rating. S&P is much more cautious than DBRS in awarding stand-alone credit ratings to regulated utility subsidiaries 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- there is greater regulatory protection in Canada.[5]

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

[3] 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). The additional 0.67% for Ontario utilities cannot be justified on economic or financial grounds. Towers Watson, Union's actuaries are using 6.30-8.00% for the expected return on Canadian equities in valuing Union's pension fund J.E-2-12-6, while its current cost of long term debt is less than 4%.

[4] This is consistent with the terms of Spectra Energy's 10K filed with the SEC and its credit agreement stipulating no more than 65% debt (page 46 Annual Report)

[5] When the Board agreed to Union's requested 35% common equity ratio in its 2004 decision Union had an A- S&P bond rating and in 2002 it was A, now it is BBB+. Obviously Union's common equity ratio should not be increased simply because it is now owned by a weak US parent.

1.0 INTRODUCTION

Q. PLEASE DESCRIBE YOUR QUALIFICATIONS AND EXPERIENCE.

A. Laurence Booth is a professor of finance and finance area co-ordinator in the Rotman School of Management at the University of Toronto, 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.[6]

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), the London Property Management Association (LPMA), the Schools Energy Coalition (SEC), and the Vulnerable Energy Consumers Coalition (VECC), hereinafter "CME et al." have asked me to provide an opinion on Union's proposal to change its capital structure and to recommend fair and reasonable financial parameters.

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

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

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 Union Gas.

CME et al provided me with a copy of the Board's rules on evidence and I note under 13A-d that the specific information that I relied on is specified in footnotes throughout this report, and the general research that I have undertaken, in my CV. However, in terms of 13A-e I would note that Union'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 Union's discussion are contained in my discussion of Union's business risk herein..

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-2005-0520), for example, Union Gas 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 Union Gas Limited's ("Union's") business risk since 1998 that would warrant a change in the deemed equity thickness authorized by the Board for Union. In addition, I evaluate Union's business risk relative to the sample of U.S. local distribution companies ("LDC's") employed by Dr. Michael Vilbert in his evidence."

Dr. Carpenter went on to answer the question as to why 1998 and stated:

> "It is my understanding that 1998 corresponds to the last time the Board approved a change in Union's equity thickness that involved an evaluation of Union's business risk. In its most recent 2004 decision involving Union'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.[7]

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.

Q. HAS YOUR APPROACH BEEN ACCEPTED BY THE BOARD?

A. Yes. In its Decision on the rates application by Centra Gas Ontario Inc. and Union Gas Limited, EBRO 493/4 (page 198) the Board stated that:

> "The Board finds Union's capital structure, which recognises changes in preference share capital, tax accounting, and includes a 34% common equity component as recommended by the ADR settlement agreement to be appropriate for the 1997 test year. Should the LGIC approve the companies' merger application, the Board expects Union and Centra to fully justify from first principles, in the 1998 rates case, the proposed capital structures of the amalgamated companies."

Professor Berkowitz and I provided testimony in the subsequent case, along with Dr. Cannon and Ms. McShane. This was done largely on the basis of business risk assessments, and I would recommend that the Board continue to make its capital structure decision based on changes in business risk tempered by a consideration of conditions in the capital market and the ability of the utility to raise funds on fair and reasonable terms.

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

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. 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 cannot 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[8]

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.

[8] 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.[9]

These comments mean that any regulatory authority has a variety of tools to manage the regulated firm's income risk. The ***first*** is that 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 and the 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 National Energy Board 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.[10]

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

[10] 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 though 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 to be realised 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 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.

Given a choice between capital structure change 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 may be too high, with the result that 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. Union is owned indirectly by Spectra Energy a major US energy company. Spectra is not the good credit that Union is, and is rated BBB+ by S&P and previously was even lower rated when it had serious problems in the early 2000's. As I will discuss there are tax and other advantages to a company using debt, that is, other people's money. For a competitive firm, 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. This is particularly true for a company like Union, where the taxes are determined on a flow through basis. In J.F-1-13-2 attachment 1, Union indicated that its income tax component was $39.7 million, but $19.2 million was deferred. As a result, there is little to no advantage to the utility using debt.

However, for utilities owned within a holding company, 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 UHCs 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.

This situation has recently become worse as some rating agencies, such as Standard and Poors, 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 in some way. 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 a 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.

Q. HOW DO THESE COMMENTS APPLY TO UNION GAS?

A. These comments are relevant to Union, since it has the same BBB+ rating as its parent Spectra Energy, despite a much better "A" rating from DBRS. Such concerns were raised earlier. For instance in EBRO 493/4 testimony Dr. Berkowitz and I made the following comments (Page 13):

> "Westcoast Energy (WEI), the parent of both Centra and Union for example, has partly financed the acquisition of its holdings through borrowing against its investment in its regulated subsidiaries. In a series of remarks in its credit reports DBRS has pointed out the "double leveraging" by WEI of its regulated assets. In its August 1, 1995 credit report DBRS stated "The approximately 25% common equity component of consolidated capitalization (of WEI) is about 8 percentage points lower than the average approved common equity components of rate base of the WEI regulated utilities." In September 1997 DBRS (page 3) again went on to state "WEI's non-consolidated capital structure includes 33% debt. This is projected to rise to 39% by the end of 1997. Given that the remaining assets are comprised of investments in subsidiaries, this represents double leveraging at the holding company level." Finally, in its May 1998 report (page 3) DBRS states "Consolidated debt to capital of about 68% reflects double -leveraging at the holding company level. While coverage ratios are adequate on a consolidated basis interest coverage remains weak on a non-consolidated basis."
>
> WEI's actual consolidated equity ratios for the last three years have been:

	Per cent		
Ratio	**1997**	**1996**	**1994**
Common equity	24.7	25.8	22.3
Preferred equity	6.6	5.8	3.3

> where the common equity ratio includes minority interest as common equity. WEI is a competitive firm freely choosing to finance its operations with 25% common equity while maintaining an A(low) investment grade bond rating. Moreover, it has the flexibility to lower its common equity ratio from approximately 33% down to 25% by borrowing against the regulated assets of its subsidiaries. However, these assets have already been used to support debt at the subsidiary level, which gives rise to to what DBRS calls "double leverage", or what we have referred to as the "debt capacity transfer" problem."

The parent of Union Gas at that time, Westcoast Energy (WEI), borrowed against its Union Gas assets while still maintaining an investment grade bond rating. This was recognised by DBRS.

Dr. Berkowitz and I went on to point out that there was a $433 million shortfall in equity at the holding company level, that is, since WEI's assets were 90% regulated its consolidated

common equity ratio should have been approximately the 33% average of its operating subsidiaries, but it wasn't. Further we stated that:

> "The **second** reason could be that the regulated assets are properly leveraged and WEI's additional leverage causes the debt to be issued at non-investment grade bond ratings. This would imply that none of the regulated utilities' credit is being left on the table. However, WEI's credit rating over this period was upgraded by CBRS from B++(high) to A(Low) in 1992 and has been A(low) with DBRS throughout the period. Evidently, throughout this period WEI has maintained an "A" bond rating, significantly above the lowest investment grade rating in Canada of B++(low). Interestingly, its interest coverage ratios (based on net interest) throughout this period have been as follows:

	1997	**1996**	**1995**	**1994**	**1993**	**1992**
DBRS	1.73	1.81	1.81	1.62	1.65	1.61

> These coverage ratios are significantly below the "benchmarks" that are usually stated to be necessary for an "A" rating, yet WEI's ratings are described as stable and have recently been confirmed. Moreover, DBRS specifically refers to these consolidated interest coverage ratios as "adequate."

I have referenced the above remarks made by Dr. Berkowitz and myself fifteen years ago, since Union's common equity ratio has increased from the 29% of that period to first 34% and then 35%, when consolidated with Centra Gas Ontario, then 36% in 2006 as a result of a settlement to the current requested 40% common equity. If for simplicity we use $3.56 billion as Union's rate base (Exhibit E5, Tab 1, Schedule 1) this means that the common equity will have increased from $1.03 billion to $1.21 billion to $1.25 billion to $1.28 billion, and if approved $1.42 billion, that is, at a 40% common equity ratio Union would have $400 million more in common equity than it would have had with its historic 29% common equity ratio.

Union's parent, Spectra Energy, can use the increased ability to borrow at the parent level to lower its US taxes, where currently marginal US corporate tax rates are higher than in Canada. At a 35% tax rate the value of the tax shields transferred to Spectra Energy is $140 million assuming that Union still had a 29% common equity ratio. Further, Union would not be asking to increase its common equity ratio if the allowed ROE were unfair and below its cost of equity

capital, since to do would destroy shareholder value. The implication is that Spectra and Union view the Board's allowed ROE as at least fair and reasonable.[11]

Q HAVE THESE IDEAS BEEN ACCEPTED BY REGULATORS?

A. Yes to a degree. The Alberta EUB stated (AEUB 2003-061, August 2003, page 103):

> *"The Board notes that since cost of capital recovery is provided for through its annual revenue requirements, a regulated utility, like AltaLink, would naturally wish to maintain low debt ratios. This allows the utility to minimize the financial risk imposed on equity investors, and to also maintain high debt ratings."*

The use of debt financing is thus like any other efficiency gain in that the gains should be competed away and flow through to the customers. Managers of a utility should operate the utility in a professional manner to reduce costs. However, alternative incentives exist under Canadian corporate law:

> "Every director and officer of a corporation in exercising his powers and discharging his duties shall:
>
> 1) act honestly in good faith with a view to the *best interests of the corporation*; and
>
> 2) exercise the care, diligence and skill that a reasonably prudent person would exercise in comparable circumstances."

Further the governance guidelines of the TSX (Where Were the Directors, 1994, the Dey Report) indicate that

> *"We recognize the principal objective of the direction and management of a business is to enhance shareholder value, which includes balancing gain with risk in order to enhance the financial viability of the business."* (S 1.11)

This imposes on the directors a fiduciary responsibility to the company's shareholders and not to their customers. In Union's case this means Spectra Energy. In this context utilities asking

[11] This is another implication of Averch-Johnson effect.

for more common equity are acting like the managers of any other private corporation which is to say in the best interests of their shareholders. This may not necessarily be in the best interests of their customers.

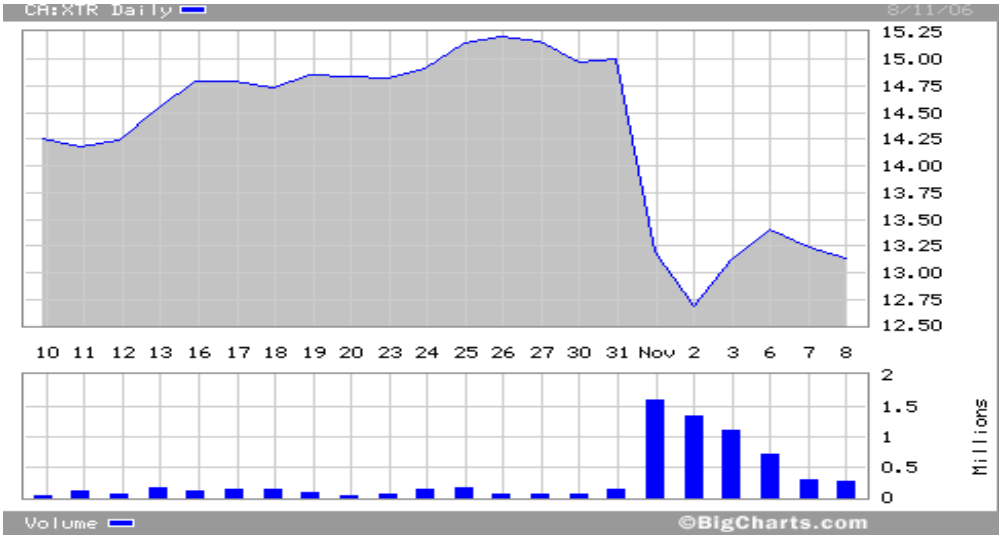
Q. WHY IS THE COMMON EQUITY RATIO SO IMPORTANT?

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 9.58% as requested by Union, then at a 25% tax rate (for simplicity), the pre-tax costs are actually 12.77% for the equity (.0958/(1-.75)) compared to 4.0% for the debt or a spread of 8.77%. In terms of the revenue requirement, this means that every dollar shifted from debt into equity costs the rate payers 8.77%. Union estimates the actual pre-tax cost of this change in capital structure at $19 million (Exhibit A2, Tab 1, Schedule 1, page 29), which accounts for a significant part of the claimed revenue deficiency.

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. Plus 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,[12] 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:

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….

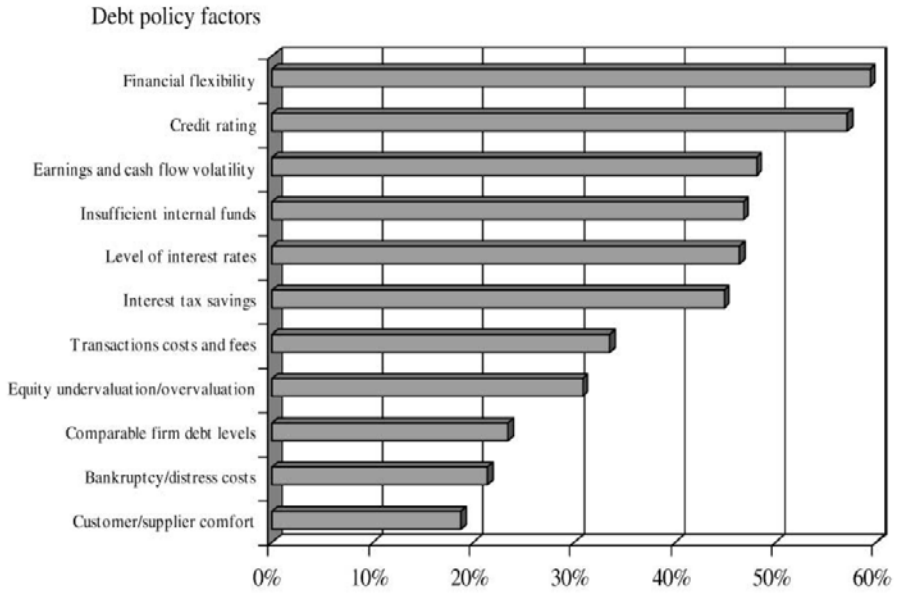
Value of levered firm = value of all-equity firm + $T_C D$

- (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.

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.

[12] 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 ideas are also common in financial practice. Two prominent finance researchers at Duke University in the US[13] 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 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.

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

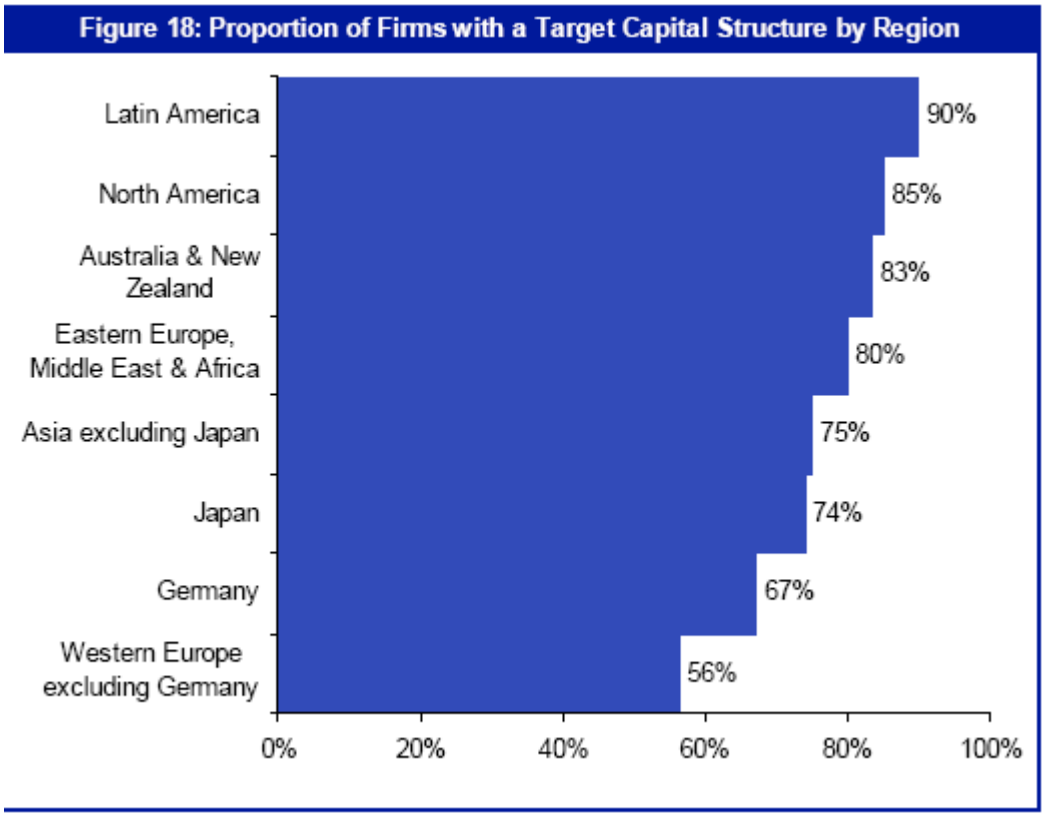
Figure 21: Factors in Determining Level of Debt

Factors	%4 or 5	%4 or 5	N
Credit rating		57%	252
Ability to continue making investments		52%	253
Tax shield		32%	256
Ability to maintain dividends		31%	254
The market's capacity for my debt		29%	248
Transaction costs on debt issues		25%	252
Other companies in industry		20%	250
Credit spread relative to fair spread		18%	246
Competitor actions when debt is high		18%	248
Ability to manage Earnings per Share		17%	246
Other companies in rating category		16%	246
Supplier attitudes		15%	255
Customer attitudes		13%	253
High debt => efficient management		8%	248
Shareholders maintaining control		7%	243
Investor taxes		6%	246
Debt signals high quality		6%	246
Creditors rights in home jurisdiction		5%	244
Signalling to competitors		5%	249
Employees attitude to high debt		4%	255
Debt improves employee bargaining		0%	247

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.[14]

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

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

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

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%.

The 2004 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."

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 criteria 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:

  - 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 one of 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 UNION GAS?

A. In its Annual Report Union has grouped its risks into the following:

- *Market risk:*
- *Commodity price risk*:
- *Credit risk:*
- *Weather risk:*
- *Regulatory risk*:
- *Human Resource risks*:
- Other

These risks are commonly identified by Union in its annual reports. Most of them, however, are not addressed by Mr. Broeders (Exhibit E1, Tab 1, page 5) in his brief discussion of Union's business risk. Mr. Broeders only discusses weather risk, consumption risk, lower interest rate risk and cost escalation risk. In my view, none of these risks are material. Moreover, there is no discussion as to whether these risks have changed appreciably since 2006, 1998 or earlier. In considering the four risks highlighted by Union:

- ***Weather risk*** is completely diversifiable and is not priced as Dr. Carpenter, Union's business risk expert in 2006 agrees. Union is also requesting a move to a 20 year declining trend weather normalisation.

- ***Consumption risk*** is mainly directed at consumers or industrial users;

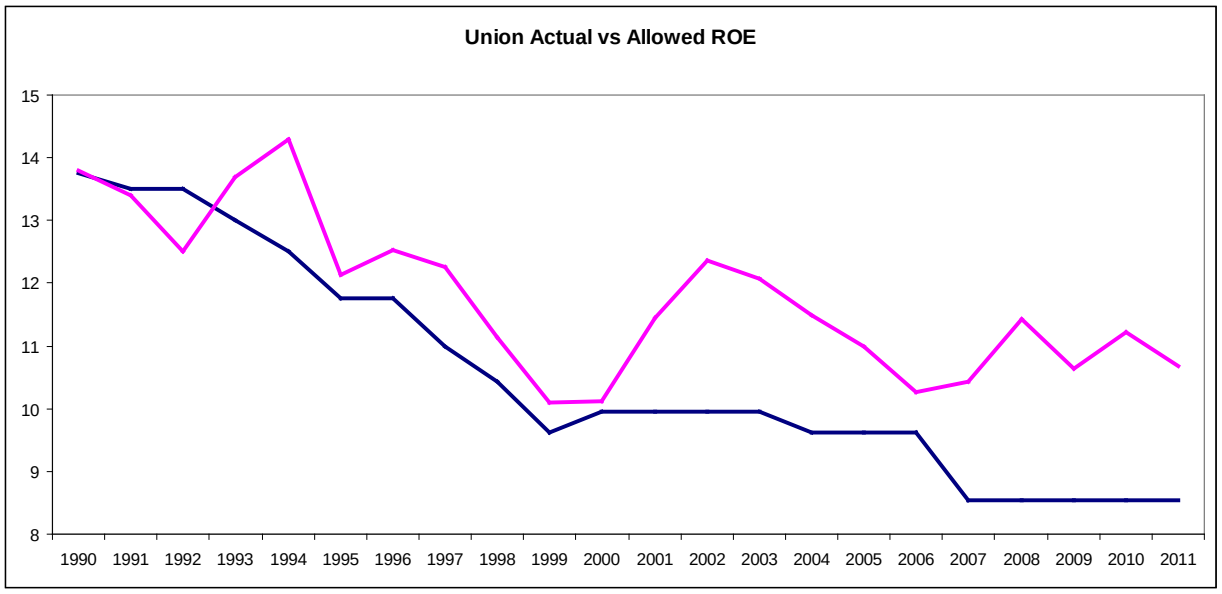
    - Consumers are installing high efficiency furnaces in a predictable way and reducing their energy consumption, which is easily forecastable.

    - Industrial demand moreover is increasingly moving to power generation partly as a result of provincial energy policy with three new plants in operation and more to come.

- ***Lower interest rates*** would indeed lower the allowed ROE and increase pension liabilities. However, this is not a risk to the company if the Board has correctly determined an ROE formula that reflects Union's cost of capital. Further as I will show later, we have rock bottom interest rates in Canada, and the probability that rates will go lower is extremely slim; a comment which also applies to pension and other post-employment benefits.

- For ***cost escalation risk***, Union notes that lower natural gas prices have already had a positive impact on the company's cash flow (Exhibit A2, Tab 1, Schedule 1) which will have lowered Union's risk. If natural gas prices return to price levels seen in 2006 then that would add support for the current common equity ratio, but if they continue at present levels it supports a lower common equity ratio.

However, the critical question is whether Union's ability to earn its allowed ROE has deteriorated, which is one major aspect of risk. The following graphs Union's actual ROE (before sharing) with the allowed ROE since 1990 (J.E-2-12-9).



The company indicates that Union has always earned its weather normalised return (J.E.2.12-9-b), but it appears that there were two years of minor under-earning in 1991 and 1992. Regardless the average over-earning since 1990 has been 1.22%. Further 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 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 supporting such a recommendation. As a largely fixed cost producer, many of Union's costs are not relevant for a particular period, nor needed to immediately deliver volumes.

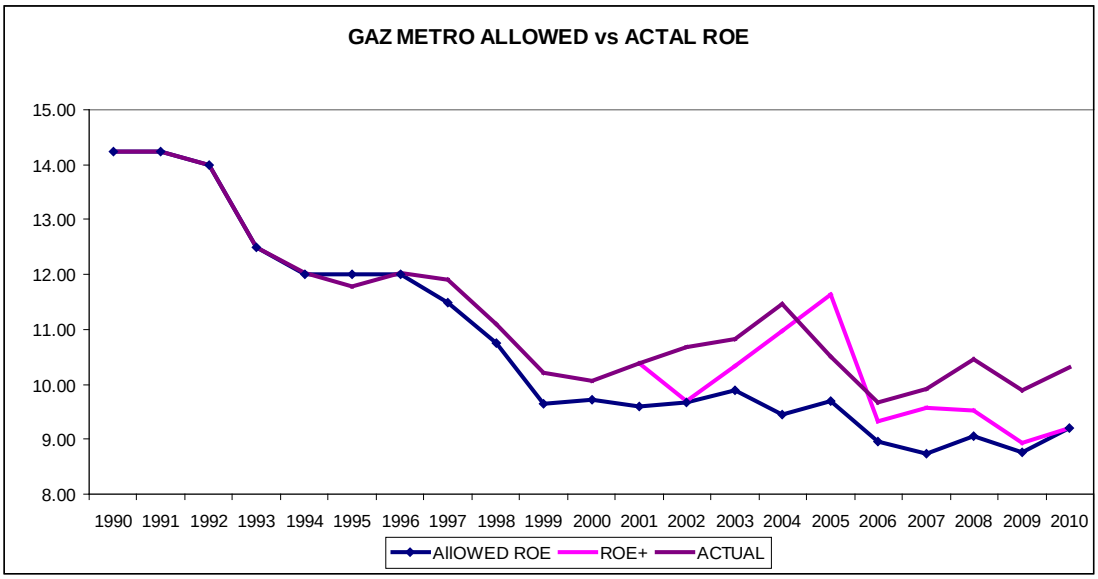
In J.E.3.5-1 Union listed the pre-tax excess earnings for the period 2007-2012 as follows:

	2007	2008	2009	2010	2011	2012
Shared	-	34.2	7.1	3.4	16.7	-
UNION	26.2	48.1	44.5	40.7	45.8	12.0
Total	26.2	82.3	51.6	44.1	62.5	12.0

Over the period 2007-2012 Union over–earned by $288.7 million of which only 21.2% was shared with ratepayers and the balance retained for Union's shareholder. This shows that when given an incentive, Union can operate much more efficiently than when under simple cost of service 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.[15]

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.

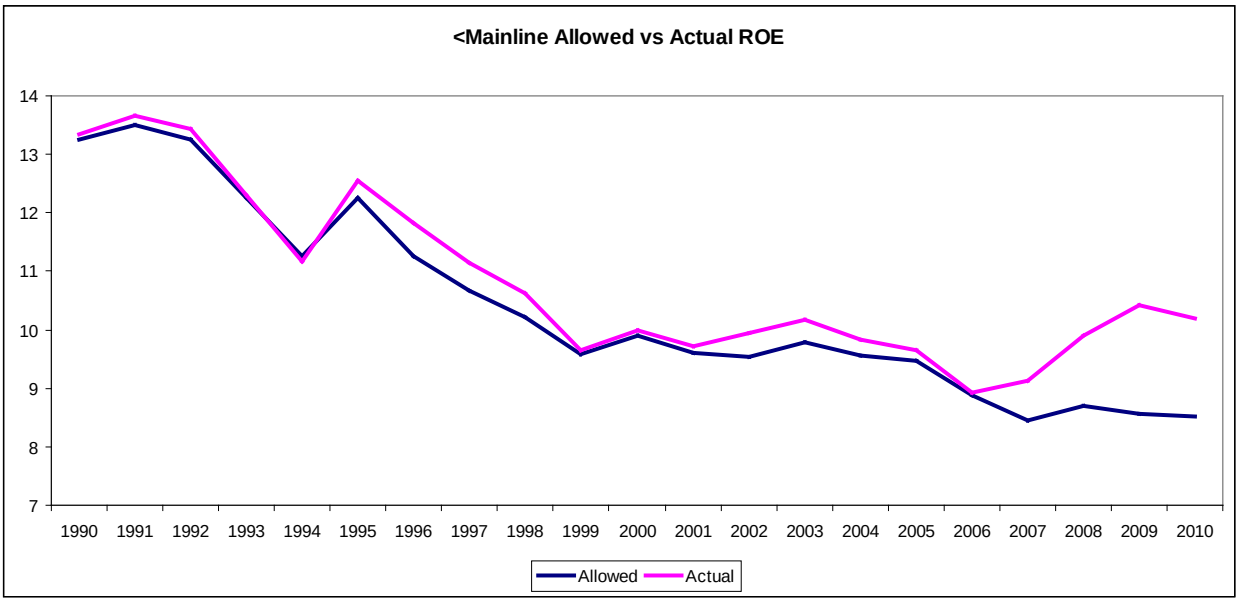
[15] Noticeably DBRS does not list PBR as a "challenge" to Union's credit rating.



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" its 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. Union is forecasting $12 million excess earnings for the last year of the settlement (2012), when over the prior four years the excess earnings averaged $61 million.

I mentioned earlier that the TransCanada system of companies also usually over-earn the ROE allowed by the National Energy Board. The following is the Mainline's allowed versus actual ROE.



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 indicating the extensive historic "padding" in the operations of both 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 consistent over-earning its allowed ROE, while constantly "crying wolf" in terms of increased business risk and yet 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 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 judge these remarks to indicate that the typical reaction of a board in Canada is that 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 NEB again seem to be perfect examples of this. Faced with lower throughout 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 is 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. However, as the NEB indicated for the Mainline there are some long run risks that the Board cannot shield its utility from.

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

A. Yes, but in my judgment they are minimal and have decreased since 2006. This assessment is in part based on looking at what Dr. Carpenter had to say about Union's business risk in 2006 and the fact that these "risks" to a large extent are not discussed by Union at the current point in time. Dr. Carpenter's summary was

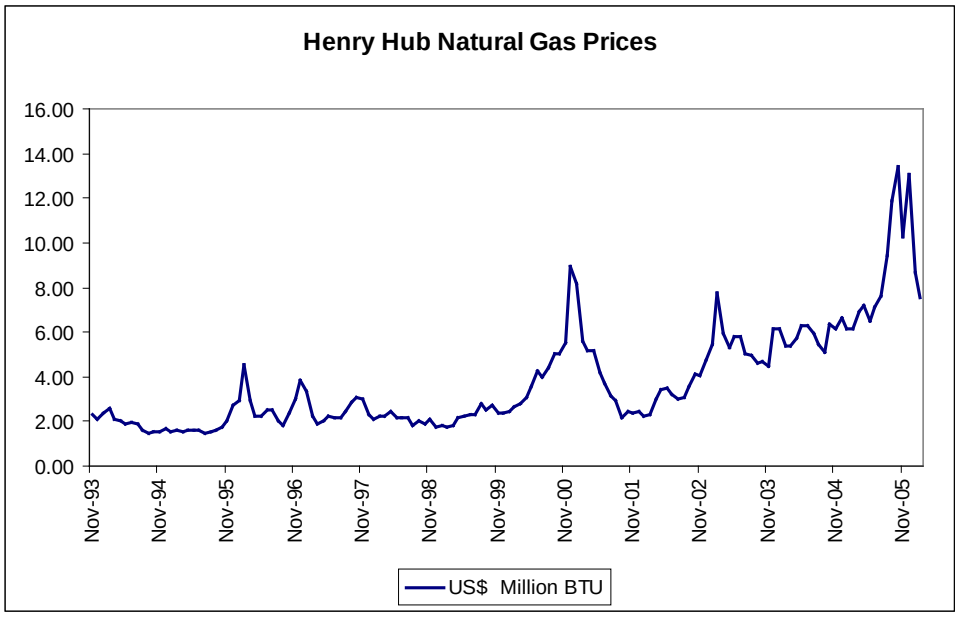
> "Primarily as a result of Union's competitive position in its transportation and storage business, I conclude that Union is more risky than the portfolio of gas LDCs used by Dr. Vilbert in his analysis.

This assessment was based on five major "risks" analysed by Dr. Carpenter as significant changes since 1998:

- Changes in the commodity market for natural gas and "Union and its customers are now facing extremely high and volatile prices"
- Increased risk of by-pass as reflected in the Board's recent approval of GEC's application.
- Market risks associated with new gas fired generation demand
- Increased competitive risk in Union's storage and transportation business;
- Significant uncertainty in the future regulatory environment for Union's storage and transportation business.

There is no significant discussion of these risks in Union's application, certainly none with respect to the company's business risk.

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. There was no question that natural gas prices spiked over period 2001-2005 and peaked at $13.42 in October 2005, which was close in time to the preparation of Union's 2006 testimony. 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 when I wrote my testimony. 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 and Union in its 2010 Annual report simply mentions that Union competes (sic) with alternative fuels. The reason for this is that, as I will discuss, the price of natural gas has collapsed, making it the fuel of choice for both residential and industrial customers. In Mr. Henning's evidence (Exhibit A2, Tab 1, Schedule 4, page 2) he has a graph of the Henry Hub price which in 2009 collapsed from the $12 high down to $4 where it has stayed pretty much the same through mid-2011. As such natural gas prices are much lower and less volatile than in 2006 removing this "change in risk."

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."

Union has noted the same in the decreased spread between winter and summer prices and its impact on the value of storage.

In terms of the ***second*** risk of increased by-pass, in 2006 I looked at Enbridge Gas Distribution Inc's management discussion and analysis (MD&A) to its 2005 Annual Report of February 2, 2006. EGDI had the following much fuller discussion of the impact of the Board decision (page 9) than did Union,

> "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 even though it is briefly mentioned in

the Union Gas 2010 Annual report. Nothing of any substance seems to have happened since 2006 and again this "risk" seems not to have materialized. Further the amount of revenues at risk to by-pass for Union are modest compared to those of risky gas LDCs like PNG.

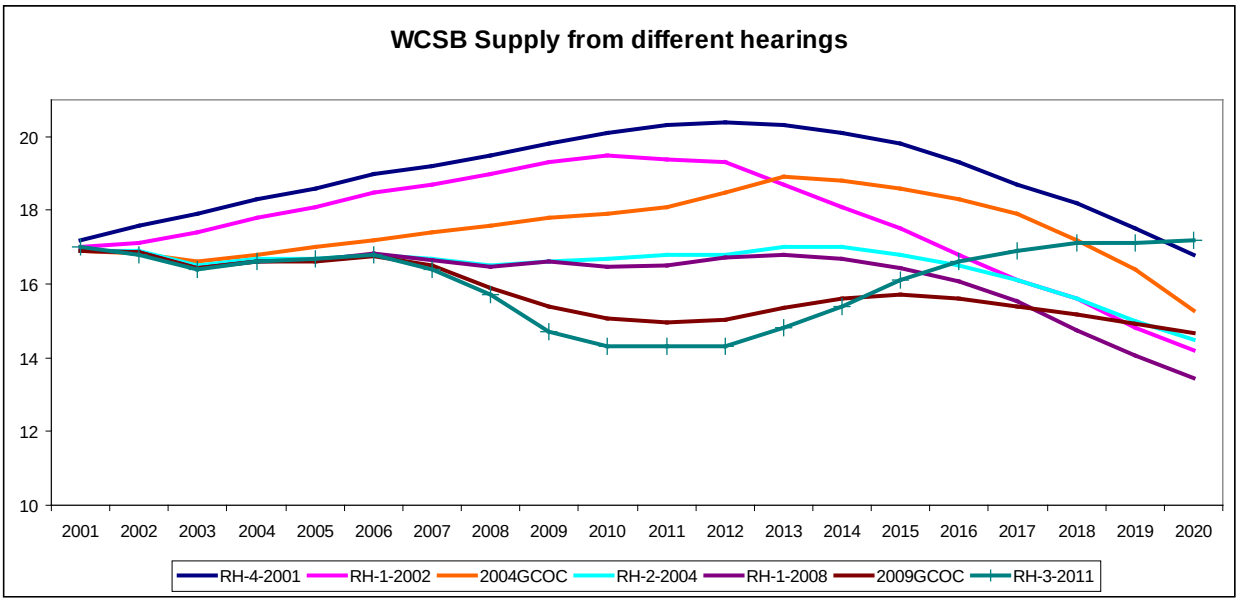
The ***third*** risk is related to new gas fired generation. Here I would note that Union admits that growth in gas fired generation has been driven by the province's "off coal" policy and that three new gas fired generating units have been built in Union's franchise area at St Clair, East Windsor and 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. I would judge Dr. Carpenter's fears in this area to have been ill founded.

In terms of the ***fourth and fifth*** risks of the regulation of Union's storage and transportation business, this is now moot since in franchise storage is no longer regulated.[16] I will discuss the pipeline segment later.

Q. WHAT ABOUT SUPPLY RISK?

A. I have provided testimony before the NEB on the business risk of both the TransCanada Mainline and TQM. This testimony relied on forecasts made by TransCanada Pipelines. The following is TransCanada's overall supply forecast from the WCSB and how this has evolved over time. I provide it since it conflicts to some extent with the ICF forecast provided by Union Gas.

[16] S&P mentions the increase in non-regulated activities including storage as a risk factor for Union's business risk.



The starting point is RH-4-2001 (Mainline hearing) when questions surrounding whether WCSB supply would expand sufficiently to fill the Mainline became a concern. Clearly supply forecasts were consistently downgraded in RH-1-2002, which was a Mainline depreciation hearing, and the AUC's generic cost of capital hearing (where NGTL was a participant), but the WCSB supply was still forecast to increase. This changed in RH-2-2004 (Mainline hearing) when supply was forecast to be flat through 2014 before declining, with a similar forecast in RH-1-2008 (TQM hearing).

This situation has changed since 2009 due to the emergence of shale gas as a "game changer". The most important change is that shale gas has changed the supply position of the WCSB, since western Canada has vast reserves of non-conventional gas that is now economic to produce and is forecast to offset the decline in conventional gas. The following is a table prepared by TransCanada of the ultimate potential of the WCSB.[17] This was prepared for a Board hearing into the implications of the change in supply for central Canada and its impact

[17] TransCanada Pipelines, Assessment and Implications of Natural Gas Supply Developments for the Ontario Market, Ontario Energy Board EB-2010-0199, November 2, 2010, page 14.

on the existing infrastructure. The main implication is that non-conventional supplies have essentially more than doubled the remaining supply potential of the WCSB.

Figure 6: Ultimate Potential of the WCSB

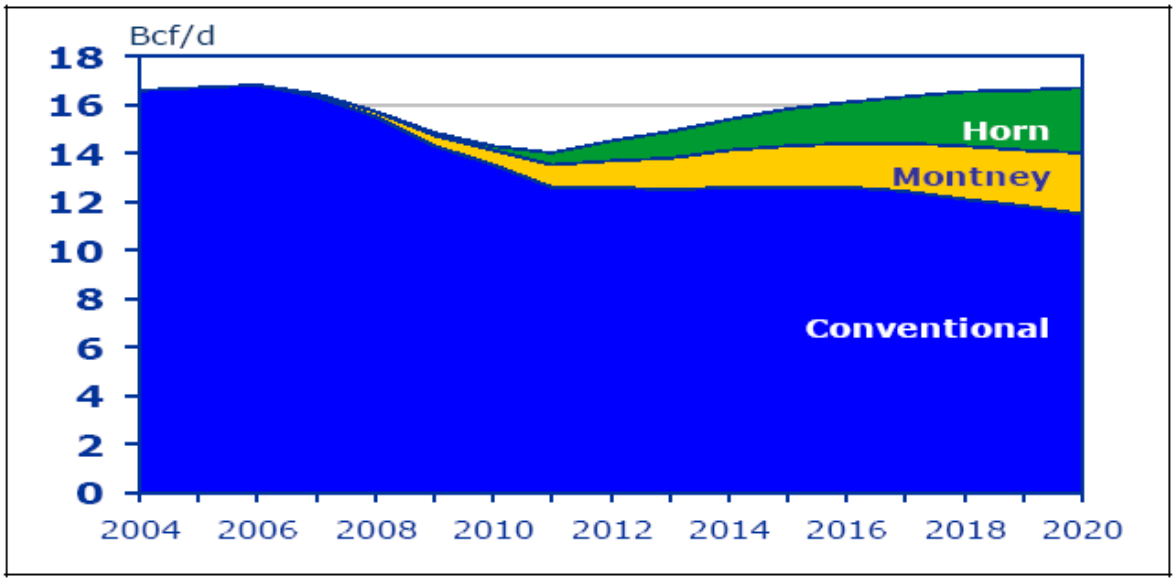
	Cumulative Production TCF	Remaining Potential TCF	Ultimate Potential TCF
WCSB Conventional[1]	168	109	277
WCSB CBM[1]	1.0	55	56
Montney Shale Hybrid[2]	0.1	30 – 50	30 – 50
Horn River Shale[2]	negligible	40 – 100	40 – 100
WCSB Total	169	234 – 314	403 – 483

1 Source: ERCB & Gas Potential Committee
2 Source: TransCanada

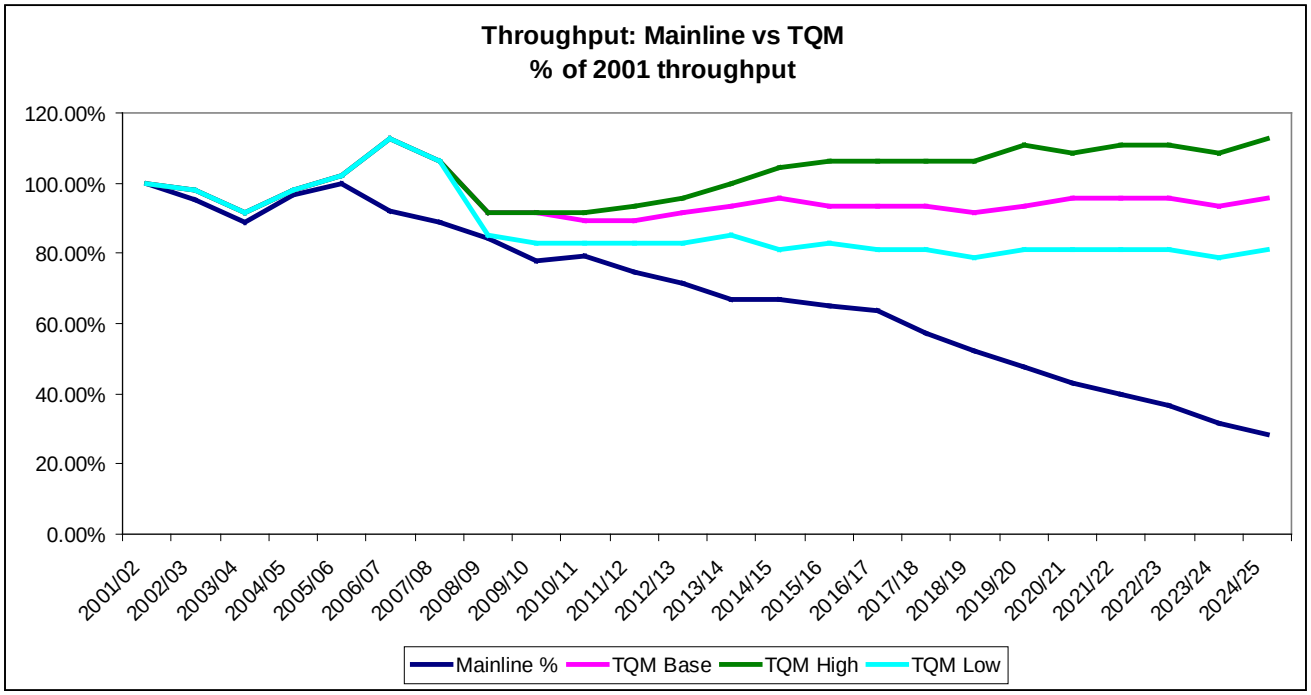
Until quite recently the prevailing view was that the WCSB was entering a period of decline as conventional supplies had peaked. However the dramatic increase in potential unconventional supplies, both coal bed methane, shale and tight gas has reversed this assessment with a dramatic increase in the resource potential. TransCanada now forecasts that these unconventional supplies will dramatically impact total production from the WCSB, where the growth in Horn River and Montney supply will offset the decline in conventional production to keep total production at around 16 BCF a day.[18] The following graph comes from page 16 of TransCanada's submission to the Board.

[18] TransCanada Pipelines, Assessment and Implications of Natural Gas Supply Developments for the Ontario Market, Ontario Energy Board EB-2010-0199, November 2, 2010.

Figure 9: WCSB Total Production (Bcf/day)

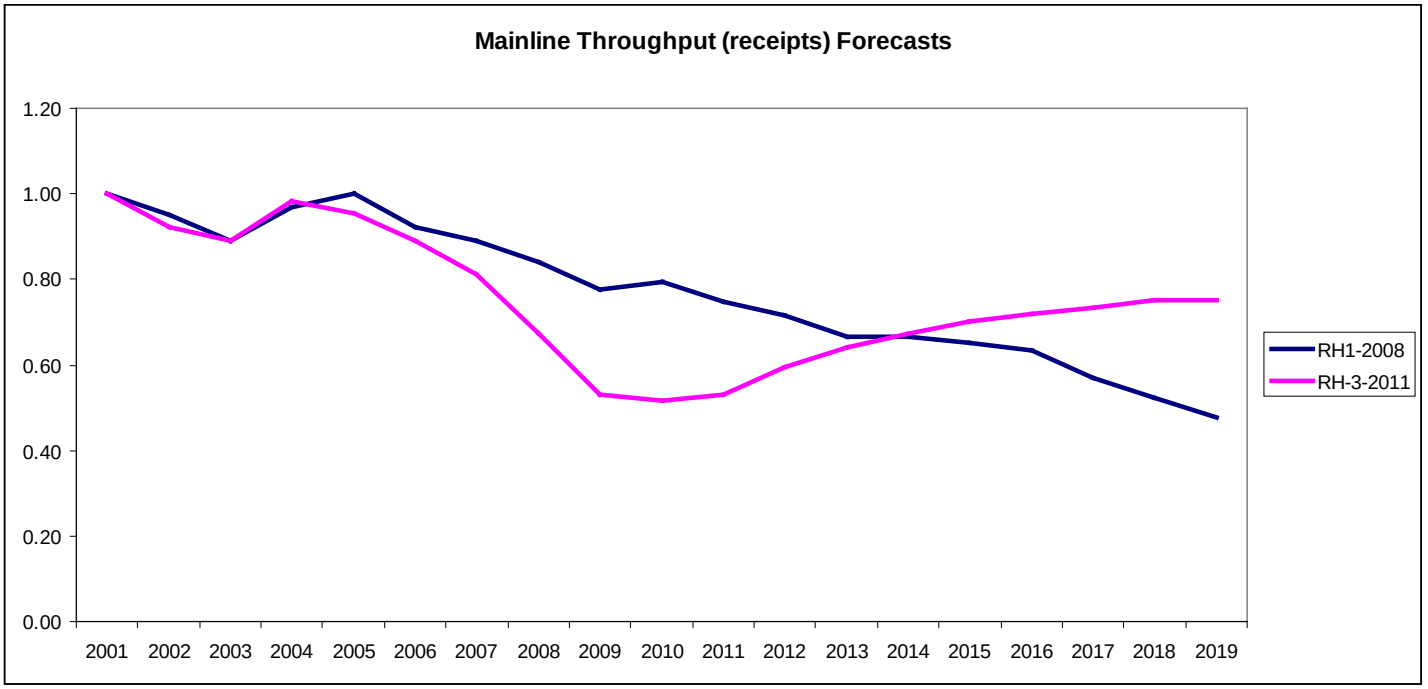


Of relevance to Union Gas is that at the time of the TQM hearing I pointed out that approximately 50% of contract demand on TQM originated from Union Gas either at Dawn or the Parkway Belt. Conversely only about 50% was picked up directly from the WCSB, mainly at Empress. I deduced from this that TQM did not face the same supply risk as the WCSB export pipelines like the Mainline and that the development of Dawn as a major hub gave suppliers on TQM a much more diversified supply base than the Mainline. I therefore viewed the two major reasons for the NEB increasing the Mainline's common equity ratio in RH-4-2004, namely pipe on pipe competition and supply risk, as not being applicable to TQM. This judgment was supported by the following TransCanada's throughput forecast.



This forecast showed a constant throughput for TQM while the Mainline had declining throughput. The importance of Dawn is simply that it allows Gaz Metro through TQM, and both EGDI and Union's customers access to a more diversified supply base. This lowers their risk relative to the TransCanada Mainline

The death of both the WCSB and the Mainline has been exaggerated. While the situation of the TransCanada Mainline is currently being examined in a major hearing before the NEB, no group has yet to put forward an alternative supply forecast to that produced by TransCanada. The following graphs the Mainline's throughput forecast out to 2020 in RH-1-2008 and currently (RH-3-2011) based on this supply forecast.



In both cases shown above the throughput is initialised to 1.0 in 2001 although TransCanada has changed the yearly formatting from 2001/02 for example to 2002. Note that 2007-2013 has lower throughput, but after 2013 throughput rapidly increases to exceed what was forecast in RH-1-2008 at the time of the TQM hearing. By 2020 the current forecast has throughput of 75% of 2001 whereas in 2008 it was 48%. Based on TransCanada's throughput forecast there is no doubt that while the immediate future looks weaker than in 2008, longer term the Mainline looks healthier. This means there will be more WCSB gas flowing through to central Canada. This conclusion flows from TransCanada's analysis that it is the swing pipeline and that the increased supply from the WCSB has to flow down one of the "straws" sucking gas from the WCSB and the other straws are all full.[19]

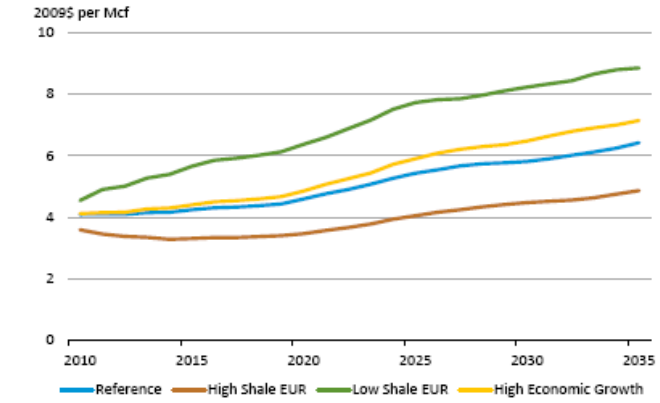
[19] TransCanada does discuss the possibility of enlarging some of the other straws.

Q. ARE YOU CONFIDENT IN TRANSCANADA'S FORECASTS?

A. No. I am very much aware that the North American natural gas market is flush with gas as shale gas, particularly in the US, is a game changer. A recent Business Week article (November 13, 2011) quoted an independent US gas producer as saying that "the US had the capacity to become the Saudi Arabia of natural gas" and that in 2009 the US passed Russia to become the world's largest producer of natural gas. However, the US still relies on Canadian imports and the price per barrel of oil equivalent for natural gas was $21.87 in the US on October 31, 2011 versus $91.11 for oil. Consequently we would expect substitution of gas for oil to drive up the price of natural gas.

In January 2012 the US Energy Information Administration published report on the US natural gas industry.[20] With its reference case it forecasts that natural gas prices in the US will increase 57% between 2010 and 2035, but this estimate is conditional both on the strength of the US economy's rebound driving up the demand for natural gas and the development of more supplies from shale.

Figure 2. Natural gas wellhead prices in the baseline cases (no additional exports)



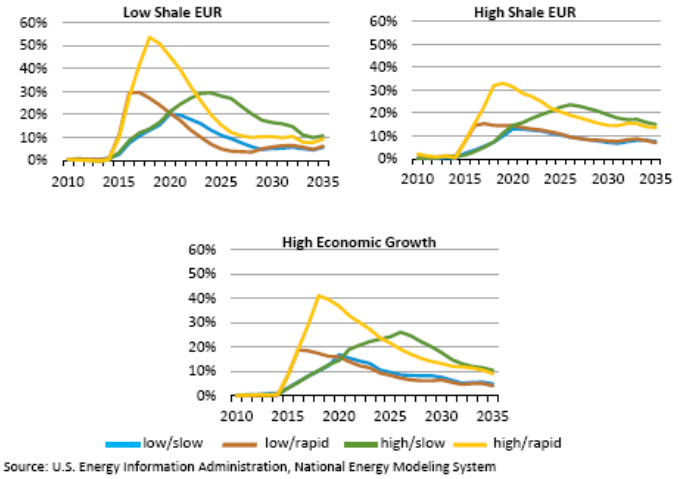
Source: U.S. Energy Information Administration, National Energy Modeling System

[20] Effect of increased natural gas exports on domestic energy markets, EIA, January 2012.

However, the EIA study indicates that market forces are working as faced with low US prices producers are investigating liquifying natural gas and shipping it to Asian markets. This is because unlike the oil market, natural gas markets are not integrated with significant price differences ranging from $0.75 (mmbtu) in Saudi Arabia to $4 in the US, $9.21 in the UK and $16 in Asian markets. It thus makes sense for producers to consider LNG plants to ship natural gas to Asian markets. The EIA study indicates that it takes at least four years to permit and build an LNG Plant, and that the US has significant advantages due to the fact that making use of existing US infrastructure is cheaper than building LNG facilities from scratch.

With 6-12 bcf a day of exports phased in, the EIA estimates the following significant price increases from its reference price under different scenarios. For example, in the low shale rapid permitting and export of natural gas scenario, prices increase by 54% over the reference price of no exports. Clearly in these cases the implications for Canadian exports to the US and the Mainline are more optimistic than in the reference case which sees these imports decline dramatically.

Figure 4. Natural gas wellhead price difference from indicated baseline case (no additional exports) with different additional export levels imposed



Source: U.S. Energy Information Administration, National Energy Modeling System

At the same time that producers are seeking to export excess natural gas, some are also shutting in supplies. On January 24, 2012 the Report on Business noted that Chesapeak Energy, the second largest

natural gas producer in North America stated it was cutting production by 0.5 bcf a day and was prepared to cut by 1 bcf a day.[21]

I judge from this discussion that natural gas markets are in a state of flux. Faced with a huge increase in the supply of natural gas from shale and weak demand in the US we have seen collapsing natural gas prices. This has caused problems on the TransCanada Mainline, which serves to increase the importance of the Dawn hub, particularly with increasing supplies from Marcellus, and the strategic value of Union's pipeline and storage infrastructure. Further market forces are working and prices will rise as producers seek out alternative ways of getting the true energy value out of natural gas. However, the main conclusion is that from the viewpoint of what has changed since 2006 and indeed 1998, Union Gas is ***less*** risky now than at either of those points in time. This is because all of the five increases in risk put forward by Dr. Carpenter in 2006 are no longer important, while Union's transportation system is currently of much greater strategic importance than at either of those two earlier points in time.

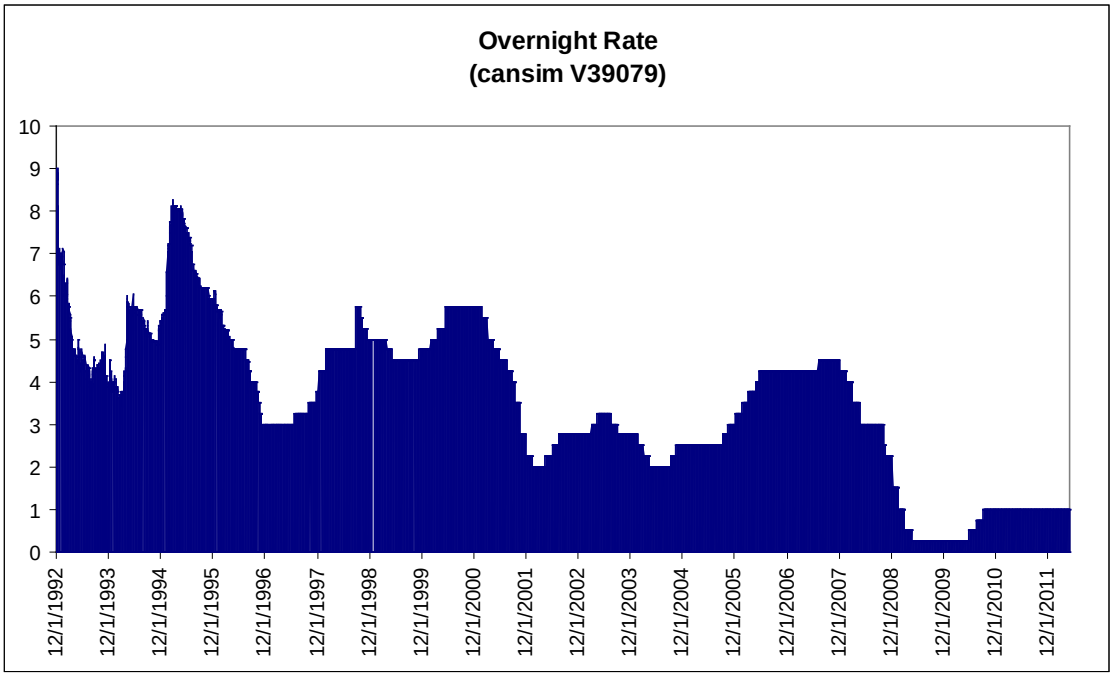
[21] Globe and Mail, Gas drillers scale back to tackle glut, low prices, Report on Business, January 24, 2012.

4.0 FINANCIAL RISK

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. 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.

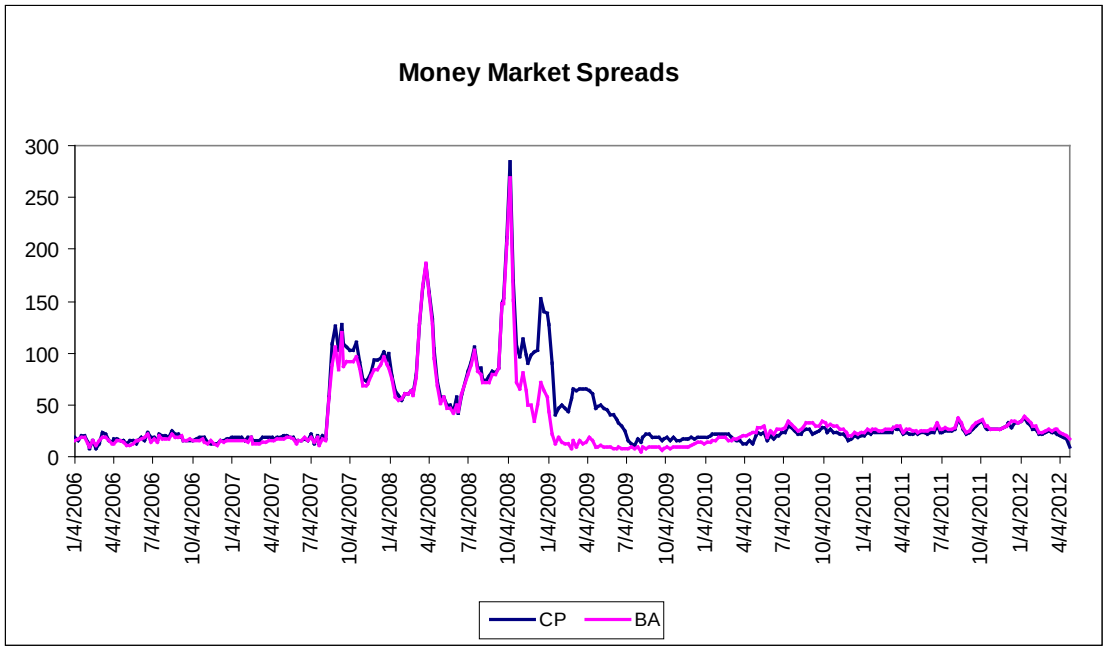
They were, and still are, very worried about a housing bubble in Toronto and Vancouver[22] where house prices increased strongly in response to both lower interest rates and a stronger economy. In response on January 17, 2011 the Federal Government announced a second round of tightening in the mortgage market by restricting amortisation periods to 30 years, reducing the maximum amount that can be borrowed to 85% of appraised value and no longer insuring home equity lines of credit. 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 while by the end of 2011 levels of personal indebtedness in Canada exceeded 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, that is, basically the next three years. The assumption is that in the face of rock bottom US interest rates the Bank will keep the overnight rate at 1.0%, otherwise the Canadian dollar will appreciate hurting manufacturing in central Canada. That it is external events triggering monetary policy in Canada is clear from the following graph of the spread between the yield on 91 day Treasury Bills (TB) and those on Bankers Acceptances (BA) and Commercial paper (CP).

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

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

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[23] and the willingness of large investors to lend to the banks and very low risk, stable Canadian companies



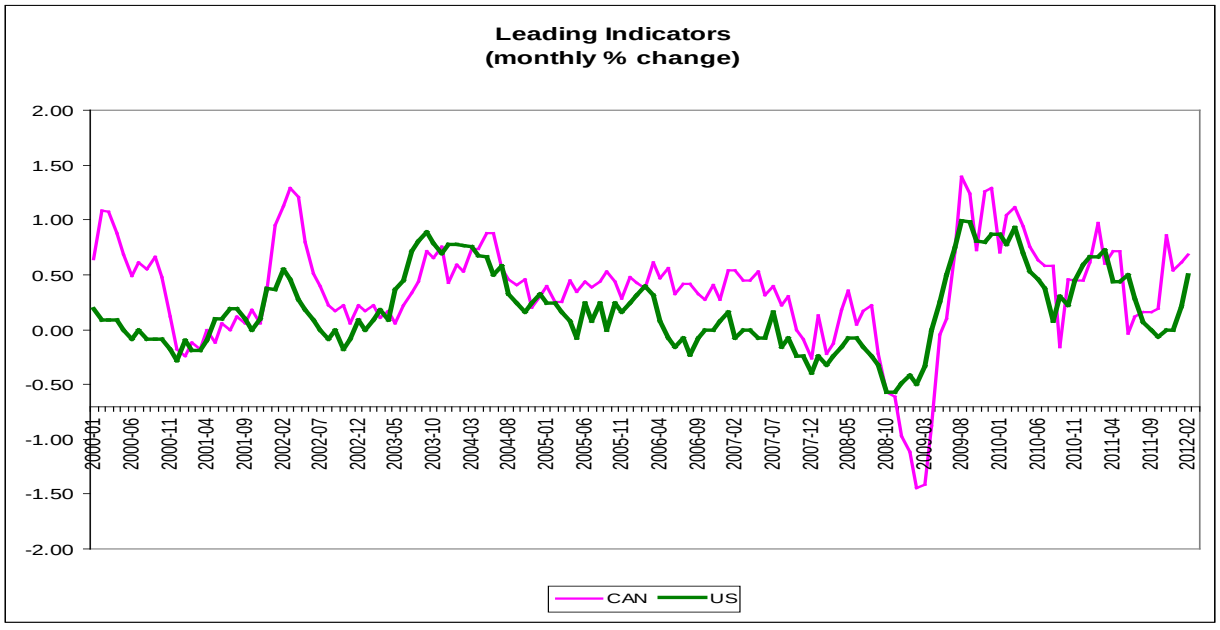
Before discussing these spreads, it is important to note that investors in the money market are mainly "parking" their money, rather than investing, since their main concern is security of principal. Consequently with any hint of default the market seizes up. This happens periodically in the CP market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

[23] 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.

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 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 under 20 bps (End of April 2012) as Treasury Bill yields have started to back up in the expectation that the overnight rate will increase. However, since T Bill yields are still exceptionally low at 1.06% actual CP funding costs for prime borrowers are still at very low levels at 1.23%. 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.

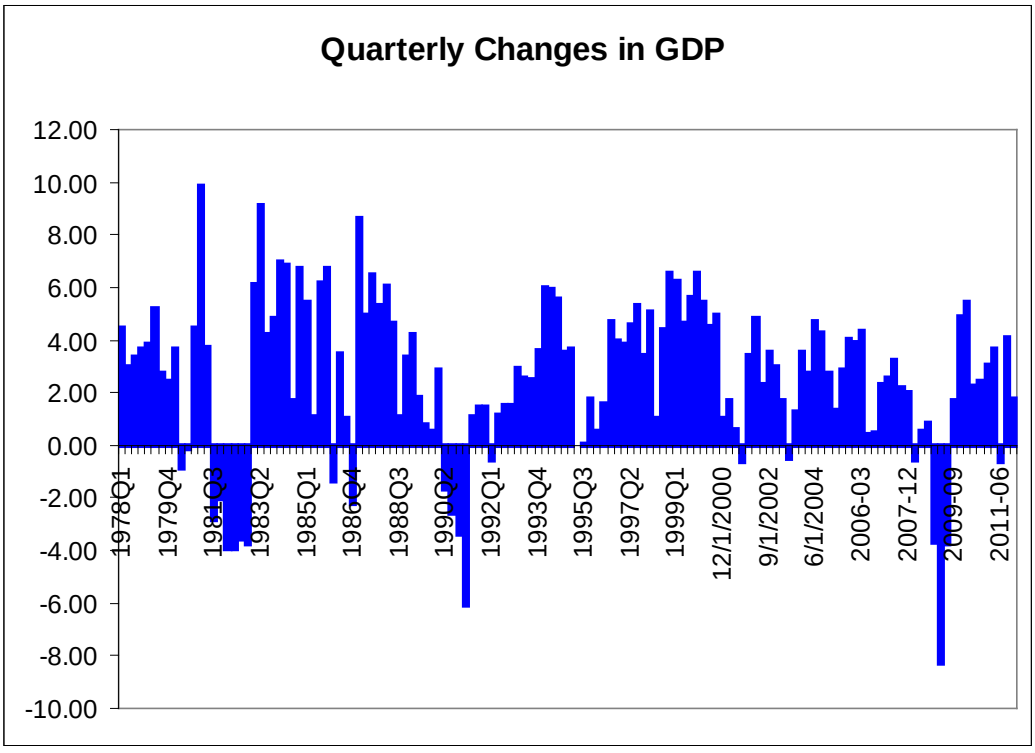


We can clearly see the drop in the leading indicators during the slow-down in 2001 and the rapid recovery in 2002 after which they stabilised throughout the period 2002-2007. However,

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%,[24] before moderating in 2009Q2 with a sharp snap back 2009Q3 into 2010Q1. 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.

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.[25]

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

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

[25] 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

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. 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.[26] Similar to the Statistics Canada graph, it shows that the Canadian economy has recovered and returned to creating employment. In stark contrast, the US economy is 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

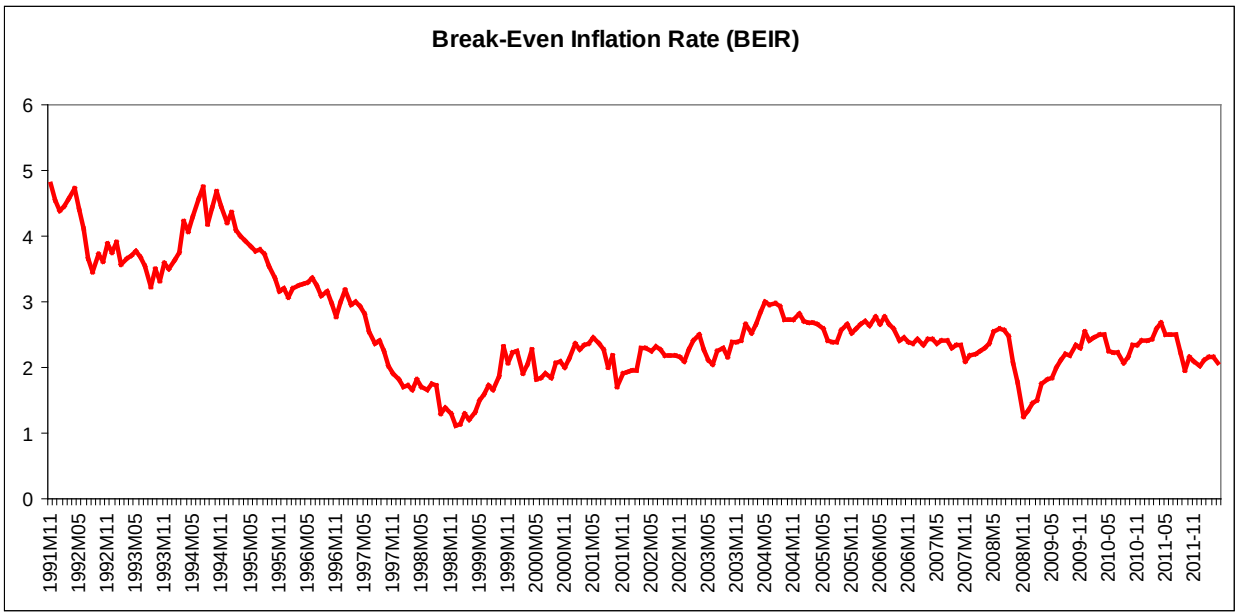
[26] DBRS, Corporate 2010 Year in Review and 2011 Outlook, January 2011.

experience of the Canadian economy is in marked contrast to the serious problems in the United States.

Q. WHAT IS YOUR OUTLOOK FOR INFLATION?

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 the 2008Q3 when the BEIR dropped from its "normal" level of just above 2.0% to 1.26% in November 2008.[27] 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 and currently sits at just over 2.0%.

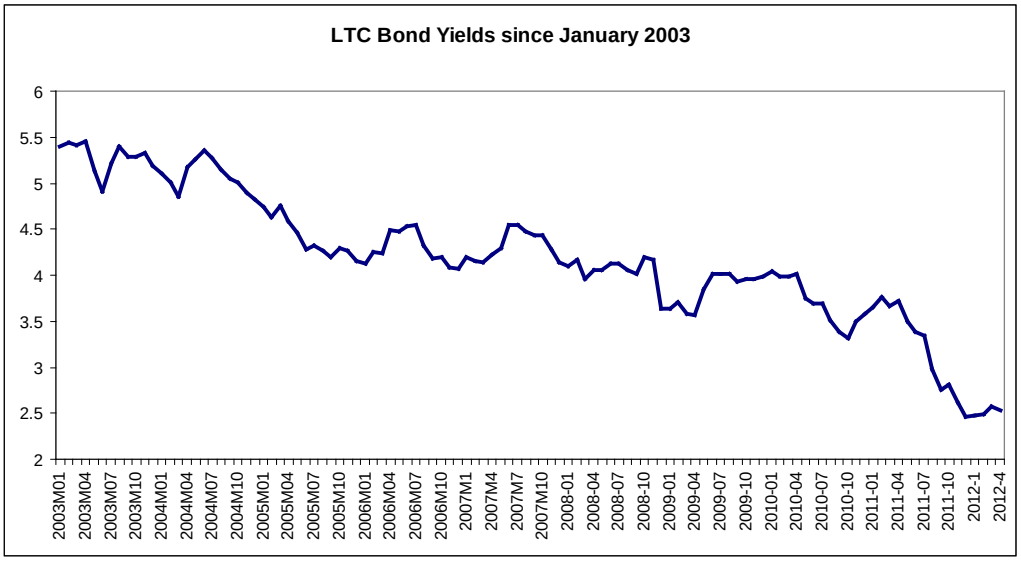
Q. WHAT HAS BEEN THE RECENT HISTORY OF THE LONG CANADA BOND YIELD?

Schedule 2 provides data on the full range of interest rates across the broad maturity spectrum as of the end of April 2012. What is evident is that interest rates for long maturity instruments

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

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 slightly higher. This is because the Bank of Canada is still keeping interest rates low to enhance the recovery. This spread will decrease as short term interest rates return to their more normal levels and the overall maturity structure of interest rates increases.

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 the recession and its implication for inflation. However, as these fears receded the LTC yield recovered to the 4.0% level 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 so that yields finished 2011 at 2.46% and currently they are only marginally higher.



Starting in 2010 Q2, 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 without some restructuring. These concerns were particularly acute for the PIIGs, Portugal, Ireland, Italy, Greece and Spain, 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, 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.[28] However, the contagion fear from Europe, with a potential domino impact on the banking system world-wide, triggered a rush into "safe' government bonds throughout 2011 Q3 and Q4 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[29] and 2011 and is forecast to drop more in 2012. The following is a table derived from tables from the IMF.[30]

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[28] The Czech Republic has still not signed the agreement and whether the austerity measures survive has been thrown into question by the election of Mr. Francoise Hollande in France and split elections in Greece (May 6, 2012).

[29] 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.

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

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

The IMF judges that 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 done 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 rates

over 10%, the US has a larger deficit and the same amount of public debt and yet currently faces no refinancing problems.[31]

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 were 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 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.

The tsunami of falling US long term interest rates through "Operation Twist" fear of Euro area sovereign debt failures and the AAA bond rating for Canada 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 April 2012, the Bank of Canada produced the following table.

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

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)	1.8 (2.0)	2.5 (1.8)	2.5 (1.8)	2.4 (2.1)	2.5 (2.6)	2.5 (3.1)	2.2 (3.1)	2.3 (3.0)	2.2 (2.8)	2.2	2.2	2.2	2.2
Real GDP (year-over-year percentage change)	2.2 (2.1)	2.0 (1.7)	2.7 (2.3)	2.3 (1.9)	2.5 (2.1)	2.5 (2.4)	2.4 (2.7)	2.4 (2.9)	2.3 (3.0)	2.2	2.2	2.2	2.2
Core inflation (year-over-year percentage change)	2.1 (2.2)	2.1 (2.1)	1.9 (2.0)	1.8 (1.9)	1.8 (1.7)	1.8 (1.9)	2.1 (1.9)	2.1 (2.0)	2.1 (2.0)	2.1	2.0	2.0	2.0
Total CPI (year-over-year percentage change)	2.6 (2.8)	2.4 (2.2)	2.0 (1.5)	2.2 (1.7)	2.2 (1.7)	2.1 (1.8)	1.9 (1.9)	1.9 (2.0)	1.9 (2.0)	1.9	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 (2.7)	2.3 (2.1)	1.9 (1.4)	2.1 (1.6)	2.1 (1.6)	2.1 (1.8)	2.0 (1.9)	2.0 (2.0)	2.0 (2.0)	2.0	2.0	2.0	2.0
WTI[b] (level)	94 (94)	103 (101)	103 (102)	104 (102)	105 (101)	105 (100)	105 (99)	104 (98)	103 (98)	102	101	99	99
Brent[b] (level)	109 (109)	118 (112)	122 (111)	121 (110)	119 (109)	117 (107)	115 (106)	113 (105)	112 (103)	110	108	106	104

a. Figures in parentheses are from the base-case projection in the January 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 April 2012

The Bank forecasts real GDP growth at approximately 2.4% year over year for 2012 and 2013 before levelling off at 2.2%, which is what the Bank of Canada regards as the economy's potential. This is similar to the Consensus Economics (April 10, 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 2.6% real growth for both 2012 and 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 also at 2.0%. 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 increased 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%. In essence the RBC forecast 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 (May 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	1.25	1.50	1.75	2.00	2.00
	Three-month	0.93	0.93	0.80	0.82	0.91	1.05	1.10	1.30	1.60	1.80	2.05	2.10
	Two-year	1.82	1.59	0.88	0.95	1.20	1.20	1.30	1.55	1.80	2.05	2.25	2.40
	Five-year	2.77	2.33	1.39	1.27	1.57	1.60	1.85	2.00	2.20	2.35	2.50	2.65
	10-year	3.35	3.11	2.15	1.94	2.11	2.10	2.20	2.35	2.50	2.60	2.80	2.90
	30-year	3.72	3.53	2.83	2.50	2.64	2.65	2.75	2.85	2.95	3.05	3.30	3.50
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	0.09	0.03	0.02	0.02	0.07	0.05	0.05	0.05	0.05	0.05	0.05	0.05
	Two-year	0.80	0.45	0.25	0.25	0.33	0.25	0.25	0.25	0.40	0.50	0.55	0.75
	Five-year	2.24	1.76	0.96	0.83	1.04	0.80	0.85	0.95	1.10	1.25	1.40	1.60
	10-year	3.47	3.18	1.92	1.89	2.23	1.95	2.05	2.25	2.40	2.55	2.75	2.90
	30-year	4.51	4.38	2.90	2.89	3.35	3.20	3.40	3.65	3.75	3.90	4.05	4.15

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% through 2013, while the 30 year LTC rate instead of increasing to 4.55% by the end of 2012 will only reach 2.85%, before gradually increasing to 3.50% by the end of 2013. In essence the RBC forecast puts off the return of Canada "back 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 2.57%

twelve months out, so adding the current 0.57% spread for the 30 year bond implies a similar 3.14% long term Canada bond yield mid-way between RBC's 2012 and 2013 forecasts.

Q. WHAT ABOUT THE U.S.?

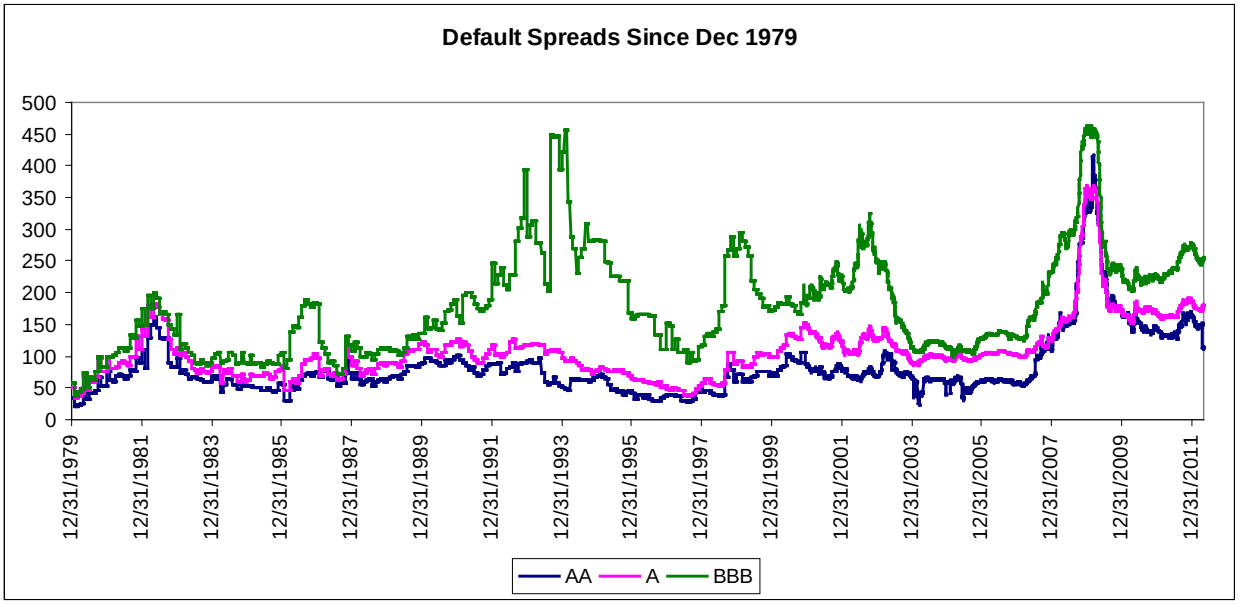
A. What is clear from the above discussion is that the US, Europe and Canada are all on different trajectories. The European countries are retrenching to lower both their debt and deficits relative to GDP and as a result face probably two years of slower growth as this fiscal stimulus is removed from 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. It is hardly surprising therefore that the Fed has announced that it is keeping the Federal Funds rate at 0.0-0.25% until the end of 2014.

Of importance is that currently long term US government interest rates (Treasuries) are yielding 0.71% 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 2013 it will still be 0.65%.

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

A. The following graphs the generic yield spreads between corporate and government bonds of the same maturity using the AA, A, and BBB indexes maintained originally by Scotia Capital markets.[32]

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

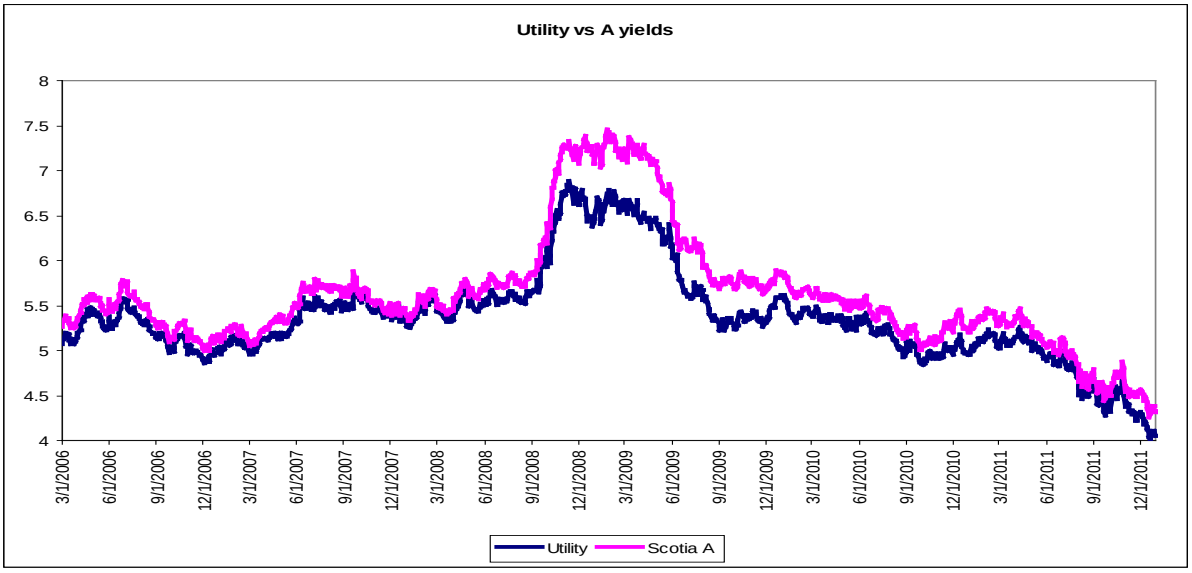


These yield spreads usually behave in a predictable manner. In a recession as the risk of bankruptcy increases investors sell off default-risky corporate debt and their liquidity drops. As a result their bond prices fall and their yields increase relative to the long Canada bond yield causing a wider 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 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.[33]

It is also important to distinguish between generic "A" and utility spreads. In the Board report on the cost of capital[34] the Board 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

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

(C29530Y). The following graphs the corporate credit spread based on the yields from the Scotia Capital "A" bond index and the Bloomberg utility series.



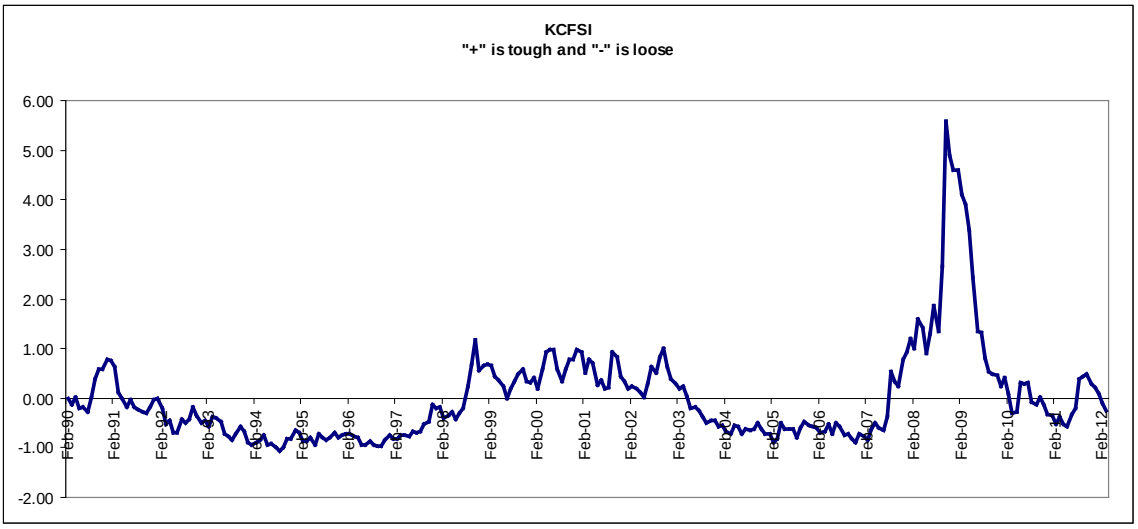
What is important to note is that utility yields were consistently lower than the generic A yields as the financial crisis started to emerge and remained so until the recent collapse in bond yields. This behaviour of yield spreads is not unusual. In fact in previous testimony I have noted that during the prolonged recession in 1992-1994 the same phenomenon was observed using the CBRS utility and non-utility spreads.[35] This behaviour points to the fact that the market does 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.

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

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. The following graphs the KCFSI when it 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.[36]

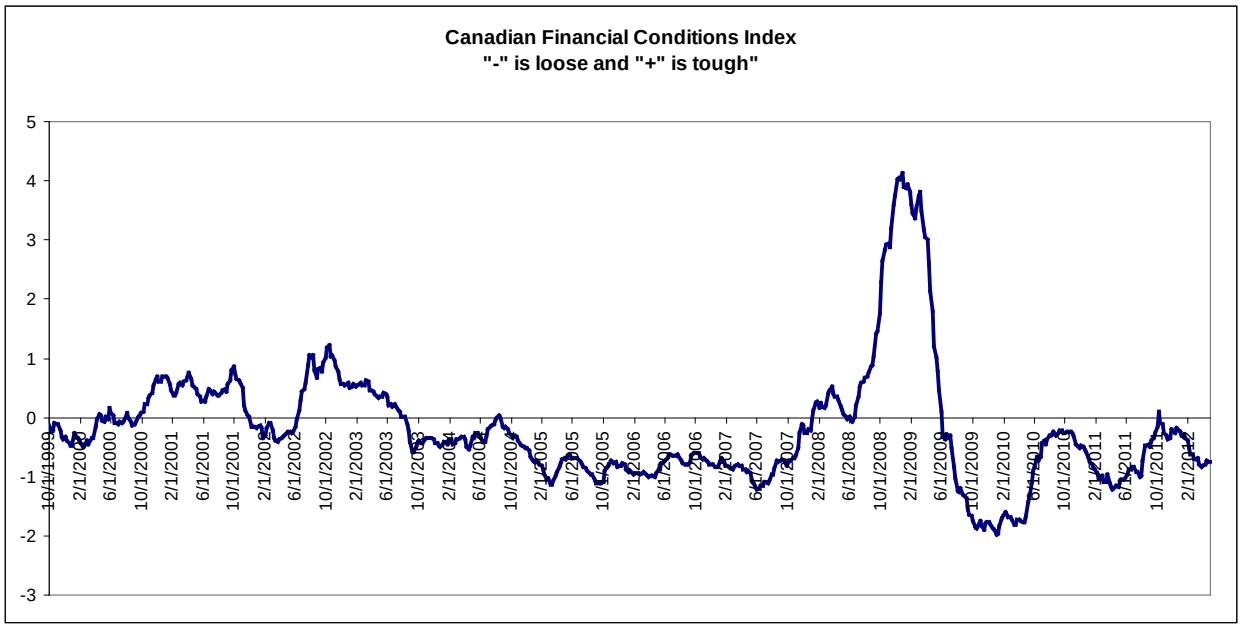


The major insight of the KCFSI is that it emphasises the enormous pressures in the US financial system during the financial crisis. Unlike the internet bubble crash in 2001 the crisis in 2008/9 struck at the very core of the US financial system, which is the banking system, where liquidity, that is the ability to trade securities at close to their true market value, dried up

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

in many parts of the capital market and the US government had to intervene on a massive scale. After consistently improving the KCFS index 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,[37] which is graphed below. The Bank of Canada indicator similarly tracks the enormous stress in the financial markets during the financial crisis. However, unlike the KCFSI the index continues to reflect loose or easy financial market conditions, primarily due to the better health of the Canadian banking system.

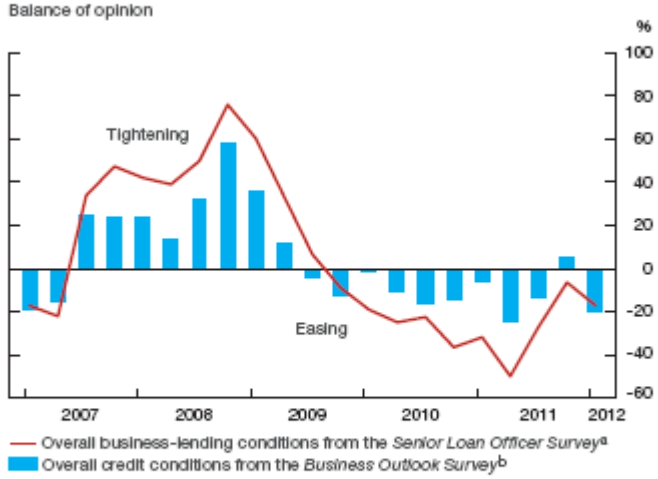


The performance of the Canadian index mirrors the assessment of the Bank of Canada in its Financial System Review (December 2011), where it indicated that credit conditions were little changed in Canada in Q3 2011. The graph below supports that assessment with recent data from the Monetary Policy Report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

[37] 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

firms remain relative easy. At the time of the 2009 technical conference into the Board's ROE formula we were just coming off dramatic tightening in credit standards and conditions, whereas for the last few years conditions in Canada have been relatively easy. This is in marked contrast to credit conditions elsewhere in the world, where banks are still selling off existing loans and restricting new loans in order to rebuild their capital levels to meet new higher prudency standards imposed by the Bank for International Settlements.[38]

Chart 18: Survey results suggest that credit conditions for Canadian firms began to ease again in 2012Q1



a. Weighted percentage of surveyed financial institutions reporting tightened credit conditions minus the weighted percentage reporting eased credit conditions
b. Percentage of firms reporting tightened credit conditions minus percentage reporting eased credit conditions

Source: Bank of Canada — Last observation: 2012Q1

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 and their impact 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 Schedule 3

[38] The BIS "Basel 3" standard imposes much higher common equity (approximately 3X previous levels) supporting loans and new liquidity requirements, that is, holding low earning, largely, government securities as a buffer. The combination of both means less bank lending.

is a graph of the price 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 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[39] 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'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 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 Daniels stated that people don't realise how low risk Enbridge's business is, this is not true as the stock market clearly noticed this. In my judgment, almost all the utilities demonstrated the low risk nature of their business throughout the financial crisis. This is not to

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

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 IMPLICATIONS OF CAPITAL MARKET CONDITIONS ON UNION'S CAPITAL STRUCTURE?

A. Capital market conditions today are much easier than in 2009, when the Board re-set the ROE adjustment model to include an adjustment for corporate credit spreads. At that time we were just coming off a short sharp recession in Canada, while the US still has not recovered. However, in retrospect the crisis simply illustrated the value of regulatory protection in Canada and the low risk nature of Canadian utilities. However, by adding 50% of the change in credit spreads and only adjusting the ROE by 50% instead of 75% of the change in the forecast long Canada bond yield, the allowed ROE in Ontario is significantly higher than it should be. At the same time current borrowing costs for high grade utilities like Union are sub 4.0%. The result is that as debt is rolled over at lower costs, Union's embedded interest cost is lowered thereby increasing its interest coverage ratio (ICR).

In previous hearings the ICR has been an important point of discussion since at times both Union and EGDI have been prevented from issuing enough long term debt, since they are restricted from being able to issue long term debt unless the ICR is above 2.0. In 2006 DBRS reports that Union's ICR was 1.90X whereas it reports Union's last twelve months ICR as 2.74X for the period ending September 2011. This will only increase with the Board's allowed ROE and would increase even further if the Board allows an increase in the common equity ratio to 40%. There is no question that even without the Board's allowed ROE formula and an increase in common equity Union's financial health is currently much better than it was in 2006. It is equally clear that there is no justification for this, given the easy capital market conditions.

Q. SHOULDN UNION'S COMMON EQUITY BE 40% THE SAME AS THE ONTARIO ELECTRIC DISTRIBUTORS?

A. No. As the Board noted in its Decision on EBRO 493/4 (page 198)

> "The Board finds Union's capital structure, which recognises changes in preference share capital, tax accounting, and includes a 34% common equity component as recommended by the ADR settlement agreement to be appropriate for the 1997 test year. Should the LGIC approve the companies' merger application, the Board expects Union and Centra to fully justify from first principles, in the 1998 rates case, the proposed capital structures of the amalgamated companies."

Also in the Board's recent decision on 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 EBRO 493/4 and other decisions has confirmed its expectation that Union justify any request for a change in its common equity ratio. Such a justification should be supported by a full analysis from "first principles." In my view, Union's current application does not include such an analysis.

Q. WHAT COULD JUSTIFY A LOWER COMMON EQUITY?

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 sue instruments like interest rate swaps to lower their risk and cost of funds, since this normally requires an A bond rating.

Union's common equity in 2007 was $1,177.5 and in this application they are requesting $1,496.6 million for 2013. Union 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 Union Gas is the second largest gas distribution utility in Canada and compares Union with EGDI, Gaz Metro and WEI. In my views Union should also be compared with Terasen Gas (FortisEnergy BC) and ATCO Gas.

Currently EGDI 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 Union Gas as being consistent with its low business risk, significant size and greater capital market access than any other gas utility in Canada than EGDI.

Q. DON 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

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[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. IS IT COMMONLY ACCEPTED THAT US UTILITIES ARE RISKIER THAN CANADIAN ONES?

A. Yes. 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%

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

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

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

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.

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

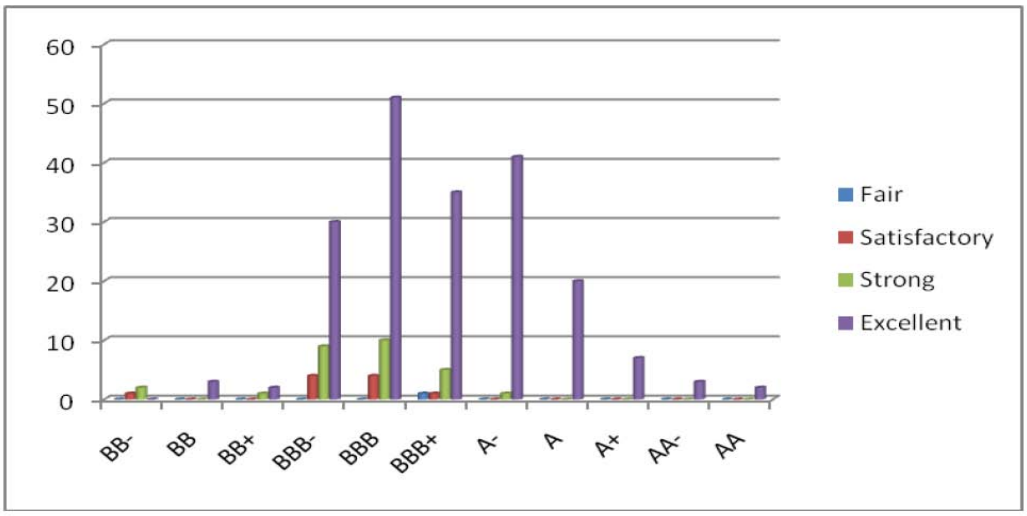
> "Moody's views the regulatory risk of US utilities as being higher in most cases than that of utilities located in some other developed countries, including Japan, Australia and Canada. The difference in risk reflects our view that individual state regulation is less predictable than national regulation; 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."

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.[44]



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

[44] 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.

> 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. It is 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[45]

> "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

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

- 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.

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 CONFIRMED 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.

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.

I would recommend that the Board ignore USA evidence from a regulatory enviuronment that differs from that in Canada and instead focus on an objective analysis of Union's business risk, its financial market access and the rating reports of DBRS and S&P.[46] My conclusion is that Union has less busines risk now than it did in 2006 or 1998. 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 Union's financial flexibilty has already increased significantly as the interest coverage ratio indicates and this will only increase yet

[46] S&P notes Union's expanding non-regulated business as a potential threat to its business risk assessment.

again as Union's allowed ROE increases with the Board's ROE formula. I would then recommend that Union's common equity ratio should remain at the last litigated level of 35% and the 0.15% premium over EGDI's allowed ROE be removed.

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	1.06
Canada	Six month Treasury Bills	1.15
Canada	One year Treasury Bills	1.32
Canada	Two year	1.31
Canada	Three year	1.41
Canada	Five year	1.58
Canada	Seven year	1.70
Canada	Ten year	2.02
Canada	Long term (30 year)	2.59
Canada	Real return bonds	0.55
Marketable Bond Average yields		
Canada	1-3 year	1.32
Canada	3-5 year	1.51
Canada	5-10	1.81
Canada	Over tens	2.49

Source: Bank of Canada's web site at http://bankofcanada.ca/en/securities.htm, for May 3, 2012.

Schedule3


EMERA INCORPORATED
EMA.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
8.0
6.0
4.0
2.0
0.0
Millions
FORTIS INC
FTS.TO
^GSPTSE
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