Q. Has Dr. Cleary ever evaluated a utility's business risk for purposes of determining an appropriate capital structure? If so, please list those cases and provide copies of all testimony and exhibits filed by Dr. Cleary.

A. Yes. Dr. Cleary examined business risk and capital structure considerations for Alberta utilities in the Alberta 2013 Generic Cost of Capital Proceedings.

Dr. Cleary's testimony is provided as Attachment "A".

BEFORE THE ALBERTA UTILITIES COMMISSION

IN THE MATTER OF:

ALBERTA UTILITIES COMMISSION (AUC)
2014 GENERIC COST OF CAPITAL
APPLICATION NO. 1608918
PROCEEDING ID 2191

EVIDENCE OF DR. SEAN CLEARY, CFA, BMO PROFESSOR OF FINANCE

SUBMITTED ON BEHALF OF:
OFFICE OF THE UTILITIES CONSUMER ADVOCATE (UCA)

ON ALLOWED ROE, CAPITAL STR UCTURE & RELATED ISSUES

January 31, 2014

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1. INTRODUCTION

1.1 Qualifications

This evidence is prepared by Dr. Sean Cleary, CFA of Queen's University. I am currently the BMO Professor of Finance at Queen's School of Business and the Director of the Master of Finance Program. I earned my Ph.D. in Finance at the University of Toronto in 1998 and earned my CFA designation in 2001.

I am providing evidence on corporate finance issues including rate of return and capital issues. The expertise to provide such evidence has been gained through various endeavours. My research has dealt primarily with empirical corporate finance issues, consisting of 26 publications.[1] Most of this work has dealt directly or indirectly with capital structure and cost of equity issues. I have authored or co-authored 12 finance text books, all of which deal with capital structure, cost of equity, and cost of capital analysis. The three editions of "Introduction to Corporate Finance" (co-authored with Laurence Booth, University of Toronto) include estimates of the cost of equity and cost of capital for actual companies. I estimate the cost of capital for actual companies on a regular basis, which I use for teaching purposes. In addition, I previously worked as a commercial lender.

I have previous expert consulting experience having worked on a project for the Chicken Farmers of Ontario (CFO) in August-September 2013. This project involved estimating an appropriate ROE, capital structure, and cost of capital for the average chicken farmer in Ontario. This information is being used in determining a new pricing formula for Ontario chickens.

My CV is included in a separate attachment to my evidence.

1.2 Summary of ROE Estimates

Several approaches were used to estimate the appropriate generic ROE for Alberta utilities including the CAPM, DCF approaches and the Bond Yield Plus Risk Premium (BYPRP) approaches. Based on an equal weighting of these three approaches, I estimate the following best estimates and ranges for an appropriate ROE for 2013-2015:

[1] This includes a number of Top Tier publications, with my work having been cited over 1,500 times.

Year	CAPM (60%)	DCF (20%)	BYPRP (20%)	Overall Range	Best Estimate
2013	6.20	7.32	6.81	4.55-8.70	6.78
2014	6.58	7.67	7.56	5.10-8.70	7.27
2015	6.68	7.67	7.90	5.30-8.70	7.42

The details of all estimates are provided herein, as is the reason for choosing an equal weighting scheme. The inputs used in determining these estimates are based on research that suggests that the economy has improved and is stable. This trend in the economy is expected to continue at a steady pace. As a result, growth in profit and dividends, interest rates, yield spreads and required risk premiums by market participants are all expected to gravitate gradually to long-term average levels.

The estimates are lower than in previous Decisions; although well within the range of 6.4% to 9.5% considered in the 2011 Decision. They are also consistent with our current low interest rate environment, which has persisted much longer than anyone anticipated, and which is expected to change gradually over the next two to four years. In fact, the CAPM estimates are in line with previous Decisions and recommendations, if they had been adjusted to use the lower prevailing long-term interest rates as RF, which will be discussed later.

Perhaps even more importantly, the estimates are very consistent with long-term expectations for overall stock market returns which average in the 8 to 9% range, as compared to higher historical averages that were obtained during periods of higher inflation in the 4% range. These numbers are consistent with market return estimates using common CAPM and DCF inputs, combined with existing market conditions. Indeed, aggregate stock market return expectations of 8-9% has become the "norm" in terms of planning among today's investment professionals including actuaries, pension plans, financial advisors, and most professional and retail investors. Hence, it seems that in this environment, it is reasonable to expect that the required return on regulated utility companies should be lower than the average expected market returns, given their below average risk profiles. This implies we could consider 8% as an upper level, just as 9% may have been considered as such in previous Decisions.

1.3 Summary of Comments on Capital Structure

The extreme financial pressures resulting from the 2008-2009 crisis that warranted an across the board 2% equity ratio bump in 2009 have long since abated. Capital market conditions have stabilized, utilities currently benefit from very low base interest rates combined with yield spreads that remain only slightly elevated, providing them with very low cost long-term borrowing. An examination of credit metrics provided by UCA witnesses suggests that, at current equity ratios, utilities have slack in terms of meeting

acceptable (i.e., A-rating) cut-off ranges. Further, it is not clear that falling below one or more criteria is grounds for an automatic downgrade to BBB status, or that this would be a catastrophic event.

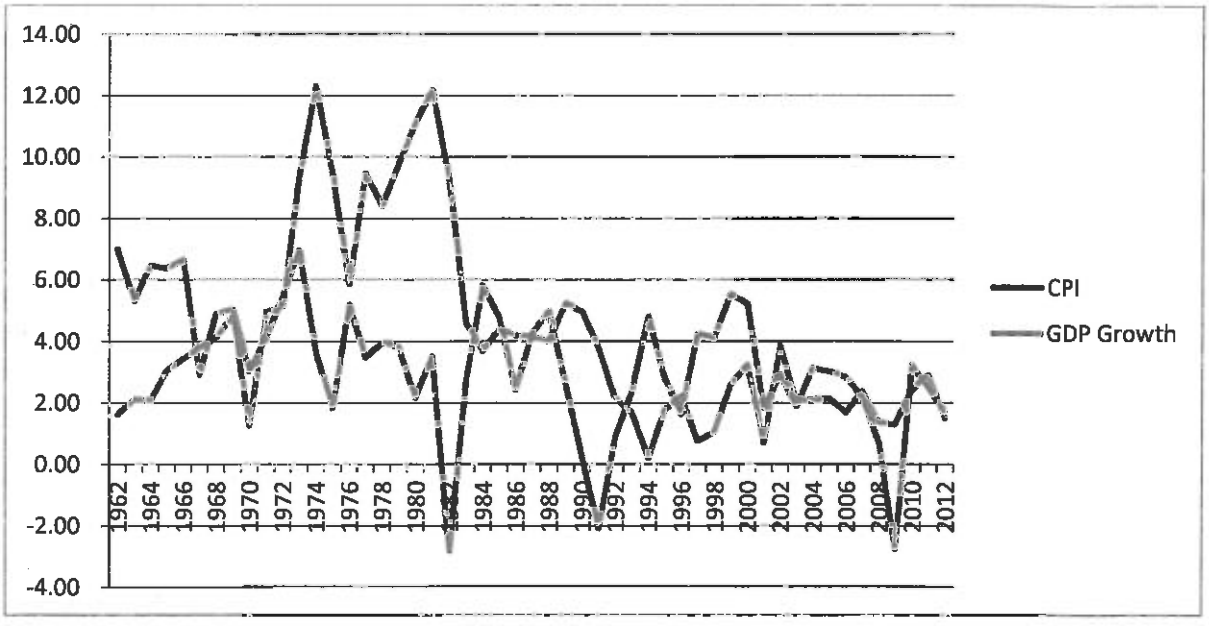
2. THE ECONOMY AND CAPITAL MARKET CONDITIONS – PAST, PRESENT AND FUTURE

2.1 The Past and Present:

The figure below shows Real GDP growth (%) and total inflation as measured by the Consumer Price Index (CPI) over the 1962 to 2012 period. The graph shows that real GDP growth has generally been in the 2 to 6 percent range, with the exceptions of the three recessionary periods that occurred in the early 1980s, the early 1990s, and during our most recent financial crisis. Table 1 reports summary statistics that show the average for GDP growth over the entire period was 3.3% (median 3.0%). It is interesting to note that GDP growth declined on average to 2.5% (median 2.7%) over the 1992 to 2012 period. This represents the period "following" the Bank of Canada's initiation of a 2% inflation target in 1991, giving a year's grace period until its implementation had begun to take solid footing. This decline in average growth is accompanied by reduced volatility which is obvious from the figure, and as measured by the standard deviation reported in Table 1.

FIGURE 1

REAL GDP GROWTH AND CPI – CANADA (1962-2012)



Data Source: Statistics Canada.

TABLE 1

REAL GDP GROWTH AND CPI SUMMARY STATISTICS – CANADA (1962-2012)

	1962-2012 (%)		1992-2012 (%)	
	Real GDP	**CPI**	**Real GDP**	**CPI**
Average	3.32	4.16	2.60	1.90
Median	3.21	3.43	2.81	1.99
Max	6.99	12.33	5.53	3.88
Min	-2.86	0.19	-2.77	0.20
Std Dev.	2.22	3.14	1.80	0.88

Data Source: Statistics Canada.

Figure 1 also reports CPI, which averaged 4.16% (median 3.43%) over the entire period. These summary stats are obviously driven by the high rates of inflation during the 1970s and 1980s. Inflation rates have generally been within the Bank of Canada's 1 to 3% target range since the policy's adoption in 1991, being in line with the 2% target as evidenced by the average of 1.9% (median 1.99%). CPI growth has also been very stable during this latter period, which is obvious from the graph, and also by the huge decline in standard deviation. Obviously, forecasting inflation is much easier today than it was in previous years.

At the time of the 2011 decision, all parties agreed that economic conditions had improved significantly over those existing at the time of the 2009 decision. However, everyone also acknowledged that several risks and concerns still remained; albeit to various degrees. The Consensus Economics (January 2011) forecasts of GDP growth for 2011 and 2012 were 2.5% and 2.7%, while the Bank of Canada's January 2011 *Monetary Policy Report (MPR)* anticipated similar growth rates at 2.4% and 2.8% for 2011 and 2012 respectively. In fact, real GDP growth turned out to be 2.4% in 2011, but much lower than expected at 1.7% in 2012.

The slower than expected growth resulted from some of the risks noted in the forecasts related to the 2011 proceedings. In particular, the U.S. economic recovery was slower than anticipated and the economy only grew by 1.8% that year (below expectations). Even more importantly, the crisis in the Eurozone far

exceeded expectations, as did the global fallout from this situation. The high level of uncertainty in global economies and financial markets was further fueled by concerns over the U.S. fiscal situation and debt ceiling, as well as concerns regarding the amount and timing of the "tapering" of easy U.S. monetary policy as things began to improve. As a result of these and other events, global GDP growth was just over 3% in 2012, about 1% lower than most forecasts in early 2011 (e.g., the Bank of Canada had forecast 3.9% growth in its January MPR).

The increase in economic uncertainties and the slower than expected economic growth minimized inflationary pressures and in response to all of these factors, the Bank maintained the overnight lending rate at 1% from September of 2010 through to the present. This was contrary to expectations at the beginning of 2011 that the Bank would start gradually raising interest rates throughout 2011 and beyond. Inflation rates turned out to be 2.9% in 2011 and 1.5% in 2012, relative to 2011 predictions of inflation in the 1.9 to 2.2% range for both years.

Given the foregoing discussion, it is not surprising that long-term government bond yields did not increase during 2011 and 2012 as had been predicted. In fact, they declined – and significantly. This decline occurred in the U.S. and Canada, as well as in many other economies, and took almost everyone by surprise, since rates were almost universally expected to increase from such abnormally low levels. Consider for example, Bill Gross, fixed income "guru," and Managing Director of the world's largest fixed income fund manager Pacific Investment Management Co. LLC (PIMCO). In March of 2011, he made the call to reduce PIMCO's holdings in U.S. treasuries from 12% to 0%, based on that premise government bond yields had nowhere to go but up. He like most others was wrong, and U.S. treasury bonds went on to provide returns of over 17% in 2011 as long-term U.S. Treasury yields declined further throughout the year.

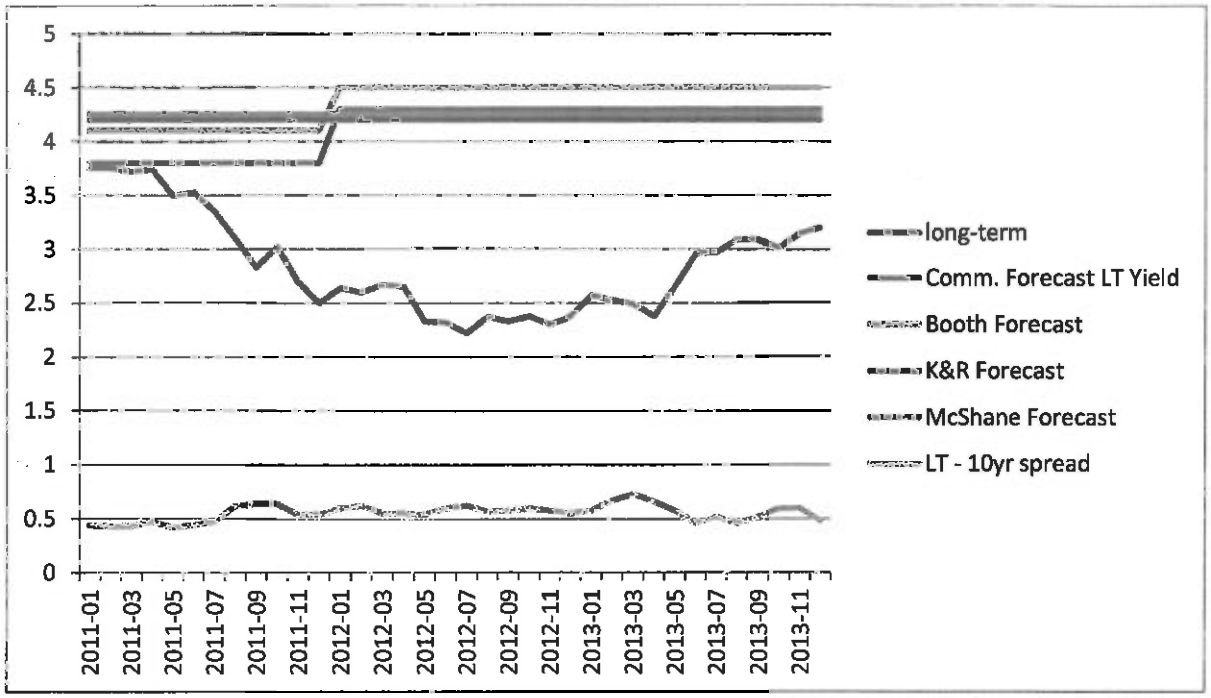
At the time of the last decision, the Commission used the prevailing Consensus Economics forecasts for government 10-year yields, which were 3.3% for 2011 and 3.8% for 2012. They then added the long-term average spread between 10- and 30-year government yields of 50 basis points, to arrive at estimates for 30-year government bond yields of 3.8% and 4.3% for 2011 and 2012 respectively. The 2011 estimate was below those provided by all parties (e.g., 4.1, 4.2, 4.25), while the 2012 estimate was very close to those provided (e.g., 4.5, 4.2, 4.25). Figure 2 shows that these estimates were much higher than actual rates, as yields declined steadily from the second quarter of 2011 through the first half of 2012, in response to the unexpected uncertainties discussed previously.[2] In fact, long-term rates averaged 3.3% in

[2] Note that the spread between 10- and 30-year bond yields remained stable, hovering around the 50 basis point spread added to the 10-year yield forecasts.

2011, 2.4% in 2012 and 2.8% in 2013. They remained below 2.5% for over half of 2012, and only moved slightly above 3% during the last half of 2013, where they still reside.

FIGURE 2

CANADIAN BOND YIELDS (2011-2013)



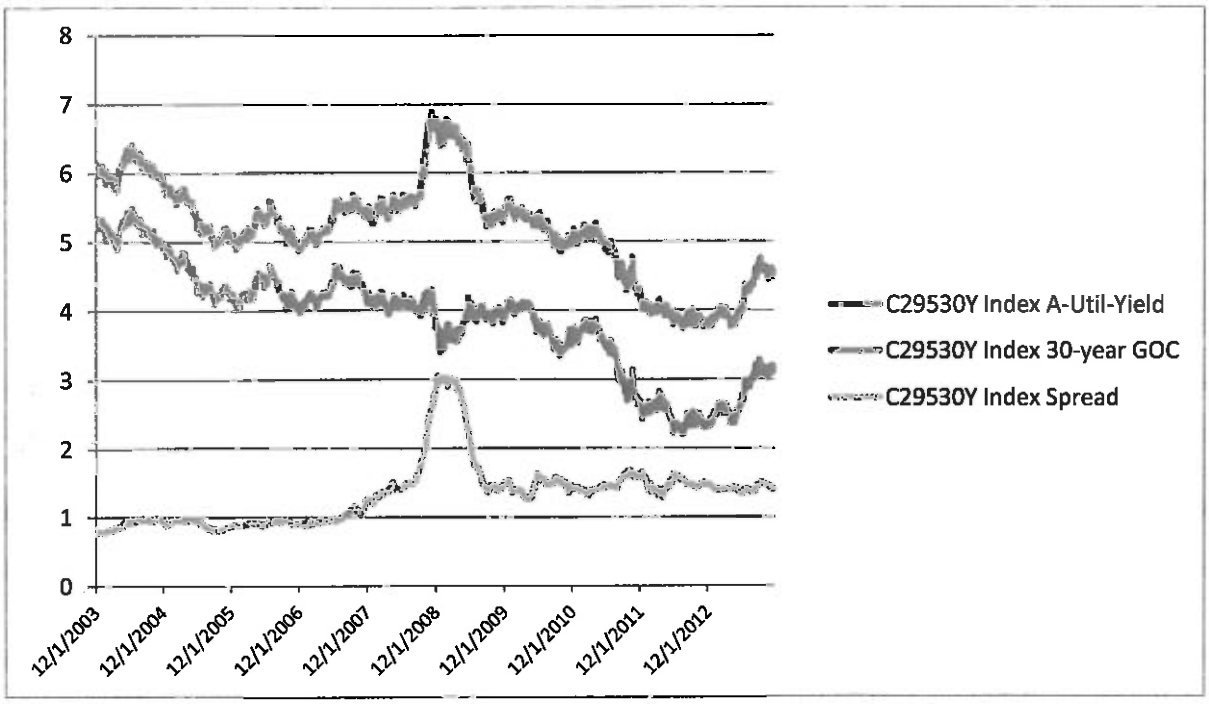
Data Source: Bank of Canada website at http://www.bankofcanada.ca.

During the 2011 proceedings, all parties noted that yield spreads had declined significantly from their previous abnormal high levels, but remained somewhat elevated. For example, the A-rated Utility spread was noted to be 141 basis points on July 29, 2011, well above the 2003-07 average spread of 95 basis points. This observation was consistent with the views mentioned previously that the economy had stabilized, but that some risks remained. This point was acknowledged by the Commission in its discussion of the facts. At the time, the parties had slightly conflicting views regarding the future direction of these spreads, or at least with respect to the speed of adjustment toward "normal" levels. Figure 3 reports the yields for long-term government bonds and A-rated utilities over the 2003 to November 29, 2013 period. As it turns out, the spreads remained quite stable throughout the 2011 to 2013 period, averaging 1.48% in 2011, 1.46% in 2012, and 1.41% up to November 29, 2013, and with a period ending spread of 1.41%. Combining this observation with the decline in long-term government yields, and we can see that the cost of long-term borrowing declined throughout the period for A-rated utilities.

As rough estimates, we could add the average spreads to the average government yields, resulting in the following rates for A-rated utilities: 4.8% in 2011, 3.9% in 2012 and 4.2% in 2013.

FIGURE 3

A-UTILITY YIELDS (2003-2013)

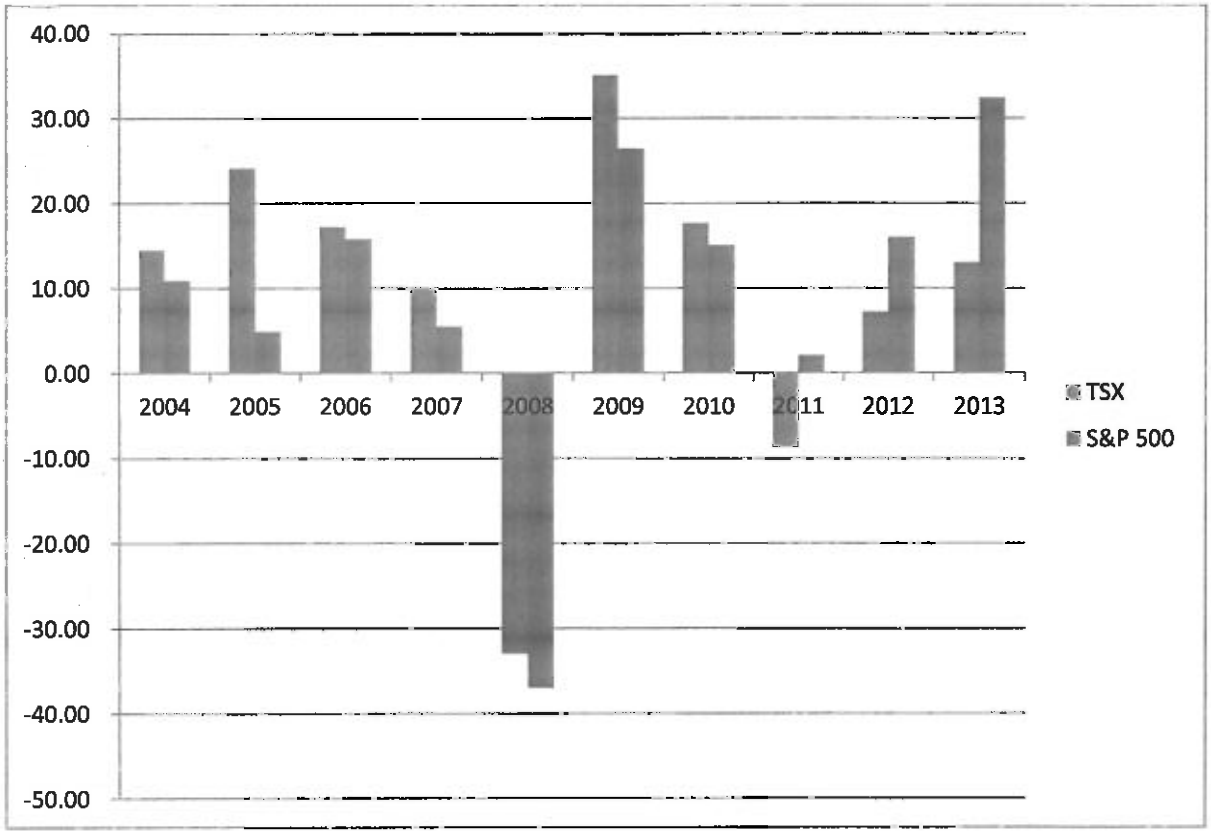


Source: Bloomberg.

Canadian stock markets provided returns of -8.7%, 7.2% and 13.0% over the three years ended 2013, while U.S. markets enjoyed much higher returns of 2.1%, 16.0% and 32.4%. Figure 4 shows that the high 2011-13 U.S. returns were driven by the fact that stock prices were hit harder in 2008, and took longer to recover than those in Canada, as well as being fueled by continued Quantitative Easing and improving corporate earnings. In fact, despite the crisis, and extreme volatility in returns, stocks in both Canada and the U.S. provided average returns above 9% during the decade ended December 31, 2013 – 9.7% in Canada and 9.2% in the U.S. (geometric means of 8.0% and 7.4%).

FIGURE 4

STOCK MARKET RETURNS - (2004-2013)



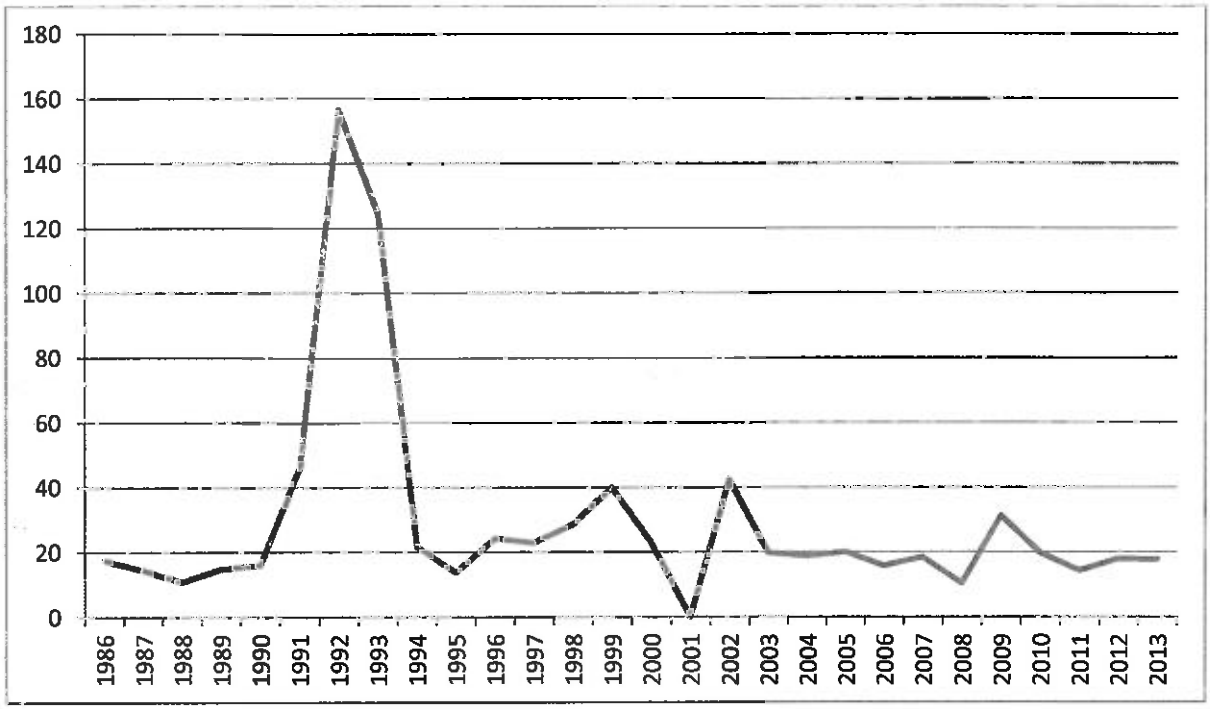
Source: Bloomberg

Figure 5 graphs the trailing price-earnings (P/E) ratios for the S&P/TSX Composite Index over the 1986 to 2013 period. We can see that this ratio tends to fall in the 15 to 20 range, aside from two very extreme numbers in 1992 and 1993, when earnings were extremely low due to fallout from a recessionary period. In fact, the median value over this period was 19.7, with the average being skewed by extreme observations. Similarly, the long-term average P/E ratio for U.S. stock markets is around 16. It is common to hear market observers suggest that the stock market is undervalued when P/E ratios fall below 15, or that they are over-valued when they exceed 20. While this is very simplistic, it does suggest that the current P/E ratios which are hovering around 17 to 18 in both Canada and the U.S. are in familiar (i.e., normal) territory. This is also true of dividend yields which are about 1.9% in the U.S. and 3.0% in Canada. In fact, Vincent Delisle, Managing Director, Portfolio Strategy Group at Scotiabank provided a December forecast for 2014 which he dubbed a "normalization" year. Among other items he noted that forward P/E ratios (i.e., price-to-"expected" earnings) were hovering around their long-term averages of 14.3 in Canada and 14.9 in the U.S. Volatility indexes were also hovering in the 12-15 range,

significantly below 20, and well below crisis peaks of over 70. All of these indicators suggest that equity markets ended the year with relatively "normal" conditions.

FIGURE 5

P/E RATIOS FOR THE S&P/TSX INDEX (1986-2013)



Data Source: Toronto Stock Exchange

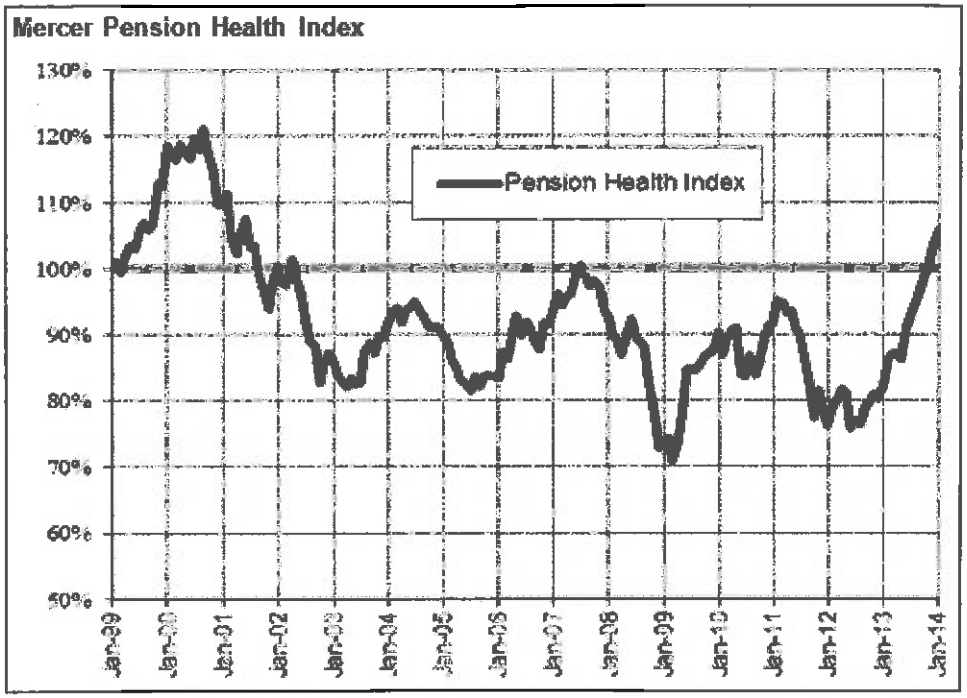
Pension fund health has been a closely watched and important concern in recent years. Poor stock returns during the crisis, combined with extremely low levels of interest rates hit the funding status of all pension funds. This created concerns that amounted to crises both at the individual and systemic levels. A commonly used measure of overall pension health is the Mercer Pension Health Index, which tracks the funded status of a hypothetical defined benefit pension plan. Figure 6 depicts the value of this index over the 1999 to 2013 period. The index ended 2013 up 24% to 106%, its highest level since 2001, and well above the all-time low of around 70% in early 2009.

Mercer also estimated the funding status to be 99.9% based on the average of actual plans that they reviewed. Their numbers also suggest that only 6% of the plans were less than 80% funded by the end of 2013, compared to 60% at the beginning of the year. This improvement was due to the capital market conditions discussed above. "It's hard to overstate how good 2013 was for most defined benefit pension plans. Stock markets soared, long-term interest rates rose sharply, and the Canadian dollar weakened which further magnified foreign returns" said Manuel Monteiro, Partner in Mercer's Financial Strategy

Group. In short, this improvement is a reflection of "improving" capital market conditions, and is a welcomed event as it alleviates many of the concerns regarding pension fund health.

FIGURE 6

MERCER PENSION HEALTH INDEX - (1999-2013)



Source: http://www.mercer.ca/press-releases/1576765?siteLanguage=1007, January 10, 2014.

In summary, since the time of the 2011 decision, many of the risks identified at that time materialized, and many of these risks exceeded expectations. As a result, weak global growth and high uncertainties affected the Canadian economy and capital markets. This resulted in slower than expected growth and inflation, and long-term interest rates that were far below expectations, and that actually declined significantly rather than increase. Over this period, yield spreads remained remarkably stable, at slightly elevated levels relative to historic "pre-crisis" levels. Stocks performed poorly in 2011, before rebounding in 2012 and 2013.

2.2 The Future:

After some challenging times, the global economy is recovering and is expected to grow at a moderate pace in 2013, before improving significantly in 2014. For example, Table 2 shows the December 2013 Consensus Forecasts' average suggest 2013 and 2014 global GDP growth figures of 2.4% and 3.0%, while the Bank of Canada's October 2013 MPR estimates were 2.8 and 3.4%.

TABLE 2

REAL GDP GROWTH GLOBAL FORECASTS (2013-2014)

Real GDP Growth (%)	2013		2014	
	Consensus	Bank of Canada	Consensus	Bank of Canada
World	2.4	2.8	3.0	3.4
U.S.	1.7	1.5	2.6	2.5
Euro Zone	-0.4	-0.4	1.0	1.0

Source: Consensus Economics Inc. (December 2013) and Bank of Canada MPR (October 2013).

Table 2 shows that the expected global improvements are based in large part on expectations that the U.S. economy will finally hit a more normal growth stride, after what will be a disappointing 2013, at least growth-wise. Indeed, the U.S. economy has been providing some very positive data over the last few months. The U.S. Leading Indicator Index hit 98.3 in November, well above the Q1 2009 trough level of 77, and its highest level since the first quarter of 2008. The unemployment rate declined to 6.7% by December 2013, its lowest level since October 2008. This was despite a smaller than anticipated number of jobs added during that month – 74,000 versus expectations of 197,000, and versus an average of 213,500 per month over the previous four months. The consumer debt-to-disposable income ratio continued to decrease, falling below 140%, well below its pre-crisis peak of over 160%. While consumer spending was affected by increased taxes, given more recent improvements in employment, consumer confidence, and debt burdens, it is expected to improve going forward. All of these factors can also be expected to lead to improved business investment, which would be consistent with the fact that sales of investment-grade bond issues hit an all-time high during 2013. Aside from the possibility that this projected growth does not materialize, the major uncertainty that markets have focused on has been the timing and pace of tapering of the Fed's Quantitative Easing (QE) stimulus. The most recent mixed December employment results have clouded the water on this issue slightly more.

In addition to the U.S. economy, predictions regarding improving global growth are based on the belief that the worst of the Euro crisis are behind us, and that the Eurozone will display positive, yet modest, growth as the slow path to recovery begins. While overall growth is expected to be negative for 2013, the Euro Zone can now be considered out of recession, even if economic growth projections remain very weak. In fact, the European Central Bank (ECB) remains concerned over extremely low levels of inflation, citing them as a big reason for the decision to leave its benchmark rate at 0.25% in January

2014. GDP growth is expected to return to positive territory for all four quarters of 2014, resulting in overall annual GDP growth of 1.0%. While this is not spectacular, it does indicate the economy is stable, and is moving in the right direction. If recent history has taught us anything, it is that such recoveries can often take quite some time.

The Bank of Canada ("Bank") lowered expectations for real GDP growth for the Canadian economy in their most recent MPR in October of 2013. Their economic growth forecasts were lowered from their July outlook to: 1.6% (-20 basis points) for 2013, 2.3% (-20 basis points) for 2014, and 2.6% for 2015 (-10 basis points). Table 3 shows that the 2013 and 2014 forecasts are in line with Consensus forecasts (1.7% and 2.3%), and with those of the IMF (1.6% and 2.3%) and the OECD (1.7% and 2.3%). The 2015 forecast is slightly above the average of available forecasts for 2015.

TABLE 3

REAL GDP GROWTH FORECASTS – CANADA (2013-2015)

Real GDP Growth Rate (Forecast)	2013	2014	2015
Conf. Board of Canada	1.8	2.4	
CIBC World Markets	1.7	2.3	2.3
IHS Insight	1.7	2.4	
BMO Capital Markets	1.8	2.3	2.5
Desjardins	1.7	2.2	
Econ Intell Unit	1.7	2.2	
EconoMap	1.7	2.3	
EDC Economics	1.7	2.0	
HSBC	1.7	2.3	
JP Morgan	1.7	2.1	
National Bank	1.7	2.2	
RBC	1.7	2.6	2.7
TD Economics	1.7	2.3	2.5
University of Toronto	1.7	2.3	
Scotia Econ	1.7	2.2	2.5
Informetrica	1.7	2.2	
Average	1.71	2.27	2.50
Median	1.7	2.3	2.5
Max	1.8	2.6	2.7
Min	1.7	2.0	2.3
IMF (Oct 13)	1.6	2.2	
OECD (Nov 13)	1.7	2.3	
Bank of Canada (Oct 13)	1.6	2.3	2.6

Source: Consensus Economics Inc. (December 2013) and Bank of Canada MPR (October 2013).

In its October MPR, the Bank noted: "Inflation in Canada has remained low in recent months, reflecting the significant slack in the economy, heightened competition in the retail sector, and other sector-specific factors. With larger and more persistent excess supply in the economy, both total CPI and core inflation are expected to return more gradually to 2 per cent, around the end of 2015." In particular, they provided the following inflation estimates for 2013, 2014 and 2015 - 1.0%, 1.5% and 1.9%. The core inflation estimate for 2013 was 1.3%, while the 2014 and 2015 estimates for core and total inflation were the same. Similar to the GDP growth forecasts discussed above, the total inflation projections were very much in line with the Consensus forecasts, as well as with those of the IMF and OECD, all of which can be found in Table 4.

TABLE 4

CPI FORECASTS – CANADA (2013-2015)

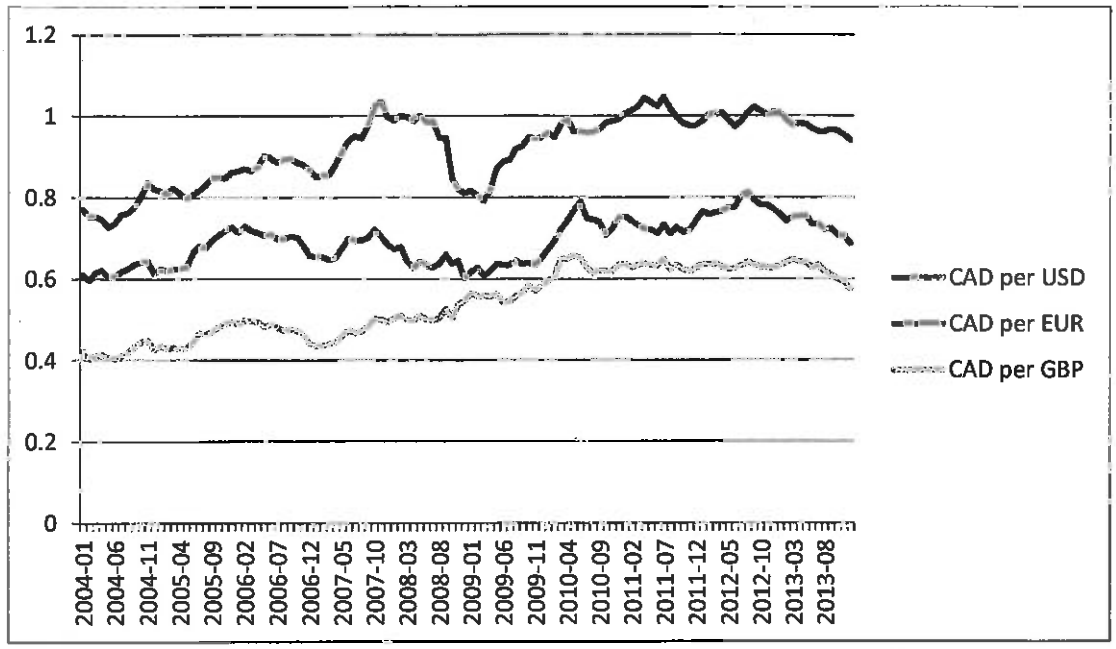
CPI (Forecast)	2013	2014	2015
Conf. Board of Canada	1.1	1.9	
CIBC World Markets	1.0	1.5	1.9
IHS Insight	1.0	1.5	
BMO Capital Markets	1.3	1.5	1.9
Desjardins	1.0	1.6	
Econ Intell Unit	1.0	1.5	
EconoMap	0.9	1.3	
EDC Economics	1.4	1.8	
HSBC	0.9	1.4	
JP Morgan	1.0	1.4	
National Bank	1.0	1.4	
RBC	0.9	1.5	1.9
TD Bank (Economics)	1.0	1.5	2.2
University of Toronto	0.9	1.2	
Scotia Econ	1.1	1.7	1.9
Informetrica	1.1	1.9	
Average	1.04	1.54	1.96
Median	1.0	1.5	1.9
Max	1.4	1.9	2.2
Min	0.9	1.2	1.9
IMF (Oct 13)	1.1	1.6	
OECD (Nov 13)	1.0	1.6	
Bank of Canada (MPR Oct 13)	1.0	1.5	1.9

Source: Consensus Economics Inc. (December 2013) and Bank of Canada MPR (October 2013).

The forecasts for GDP growth and inflation are based on a number of factors in addition to the impact of global economic conditions discussed previously. Figure 7 includes the exchange rates for the Canadian Dollar (CAD) against the U.S. Dollar (USD), the Euro and the British Pound (GBP). The graph shows that the CAD traded around par during 2001 and 2012 and at the start of 2013, but has trended downward throughout the year. While the Bank does not make public forecasts on the dollar, the general consensus among economists at the banks in the fall of 2013 was that the dollar was over-valued at $0.94 U.S. and it would decline throughout 2014 to the $0.90-$0.92 range.

FIGURE 7

EXCHANGE RATES – CANADIAN DOLLAR (2004-2013)



Data Source: Bank of Canada website at http://www.bankofcanada.ca.

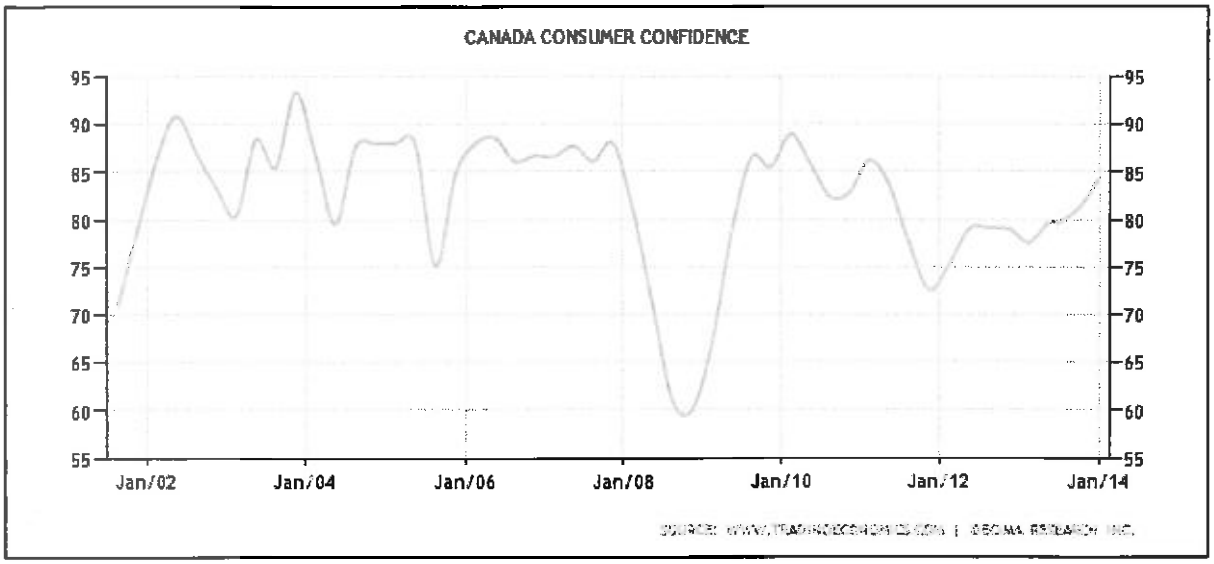
The Bank noted that the expected increases in exports and business investment had been slow in materializing due to slower than expected growth in the U.S. They expect business investment to improve going forward based on a variety of factors including:

- improved exports
- improving business sentiment – according to their *Business Outlook Survey*, as well as those of the Canadian Federation of Independent Business (CFIB) and the Conference Board of Canada (CBC).
- solid corporate balance sheets
- accommodative financial conditions, despite recent interest rate increases - according to their *Business Outlook Survey* and *Senior Loans Officer Surveys*.

The Consumer Confidence Index reported by the Decima Research Inc. increased to 84.4 in Q4 2013 from 81.2 in Q3. Figure 8 shows that this is above the average over the 2001 to 2013 period of approximately 82, and is well above the minimum value of 60 in Q4 2008.

FIGURE 8

CONSUMER CONFIDENCE – CANADA (2001-2013)



The Bank expects consumer spending to grow; albeit moderately based on several factors, including:

- improved consumer confidence
- improvements in employment and disposable income
- the growth in consumer debt has been declining
- favorable credit conditions (despite recent increases in mortgage rates).

Based on the discussion above, it is not surprising that the Consensus forecasts for the overnight lending rate expected it to remain at its present level of 1% throughout 2014.

Of course, there are several uncertainties associated with the projections above. The Bank noted the following key risks to their outlook: (1) high levels of consumer debt; (2) potentially inflated prices in the Canadian housing market; (3) the Euro situation may not be fully resolved yet and/or the recovery may be much slower than expected; and (4) exports may not rebound as anticipated.

The consumer debt issue has certainly been the focus of much concern by the Bank and most economists as the household debt-to-income ratio hit an all-time high of 163.7 in Q3, a level that is consistent with the "pre-crisis" level in the U.S. However, the bank notes that debt service ratios remain very low, offsetting some of the concerns associated with the high debt-to-income ratios.

The Canadian housing market appears to be overvalued on two important ratios, price-to-rent and price-to-income. Across the OECD only Belgium and Norway have more expensive residential property.

Canadian housing prices are now more expensive than the general level of U.S. housing at their peak in 2007. Canadian households are currently spending approximately 30% of their income on housing, which is close to the 1996 record. However, mortgage rates were substantially higher in 1996, implying that an increase in mortgage rates would be unaffordable to Canadians. Concerns abound that the Canadian consumer may not be able to handle a sustained decrease in real estate prices, or more importantly a sudden shock in housing prices, which is likely a significant factor in why the Bank has decided to maintain their accommodative monetary policy. In order to stem what many see as an overheating housing market, without increasing interest rates, we have seen implementation of tighter mortgage restrictions. However, the market has remained very resilient to date. December numbers reported by the Canadian Real Estate Association (CREA) suggest that 2013 sales activity will be slightly above (i.e., +0.8%) that of 2012 – well ahead of expectations of a 2% decline at the start of the year. Further, average sales prices will actually be about 5% higher than in 2012 – contrary to expectations that they would increase only 0.3%. Whether this adds more fuel to the "bubble" concerns or not remains to be seen. Bank of Canada Governor stated in a December speech that he expected a "soft landing" in the housing market; although risks of a sharp correction are still present.

The Bank's concerns regarding weak exports were shared by many economists in the fall of 2013; although several of the banks predicted the Canadian dollar would weaken, which would address the problem to a certain degree. In fact, when the November 2013 trade results were released in early January of 2014, they revealed a $940 million trade deficit, the 23rd consecutive month in red numbers. This news caused the Canadian dollar (CAD) to decline to a three-year low of 93 cents. Two days later, disappointing December employment numbers were released (i.e., 45,900 positions lost and an increase in the unemployment rate from 6.9% to 7.2%). This caused a further slide in the CAD, ending trading on January 10, 2014 at $0.9173.

The recent decline in the CAD could have several impacts on the Canadian economy, if it doesn't reverse. First, it may help to reduce or eliminate the trade deficit which has persisted for almost two years (as predicted by the banks). Secondly, it provides the Bank with "room" to increase interest rates to combat inflation, and perhaps address the consumer debt and housing issues. This is because the stimulus of the lower dollar would offset the increased rates to a certain degree.

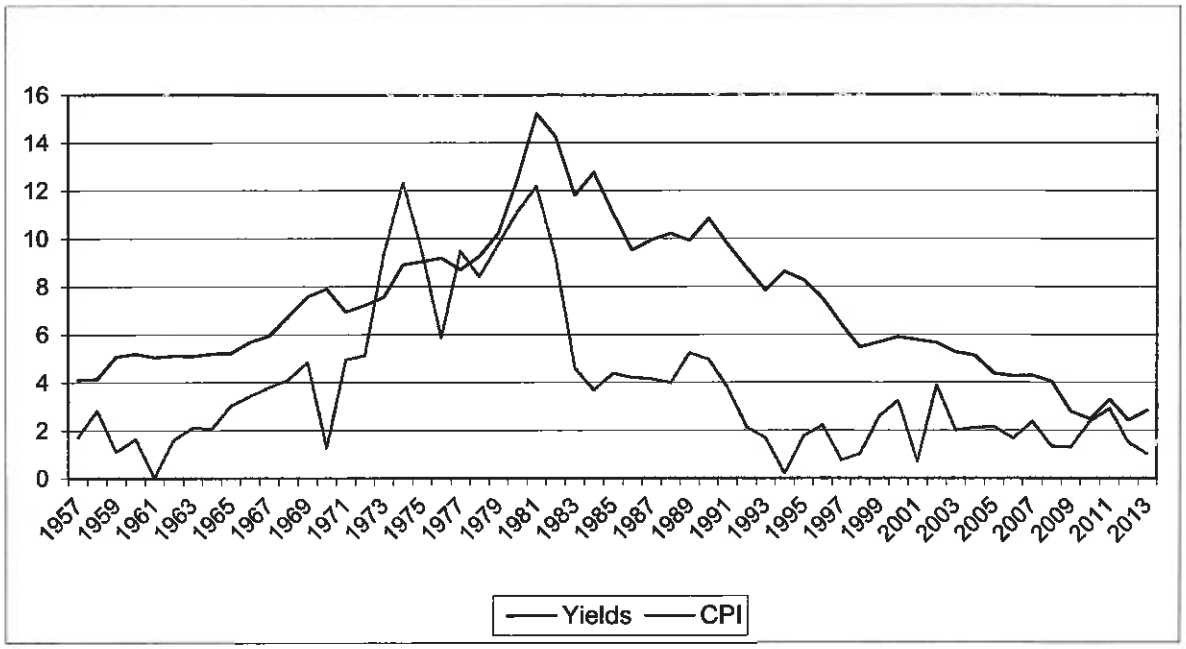
What does all this mean for capital markets? Let's begin by looking at bond yields in particular.

Figure 9 shows the relationship between long-term Canada bond yields and inflation since 1957. The graph shows that yields are closely related to inflation. Of course, yields are determined based on "expected" inflation, and we can see a few years in the 1970s where inflation exceeded bond yields, since

inflation greatly exceeded expectations. The decline in both inflation and yields since 1991 is obvious from the graph, with inflation hovering around the 2% target, so it is this part of the graph that we should focus on, since this is representative of our current monetary regime. In fact, yields have not exceeded 6% since 1998, averaging 4.36% over this period, with inflation averaging 2.01%.

FIGURE 9

BOND YIELDS AND INFLATION – CANADA (1957-2013)

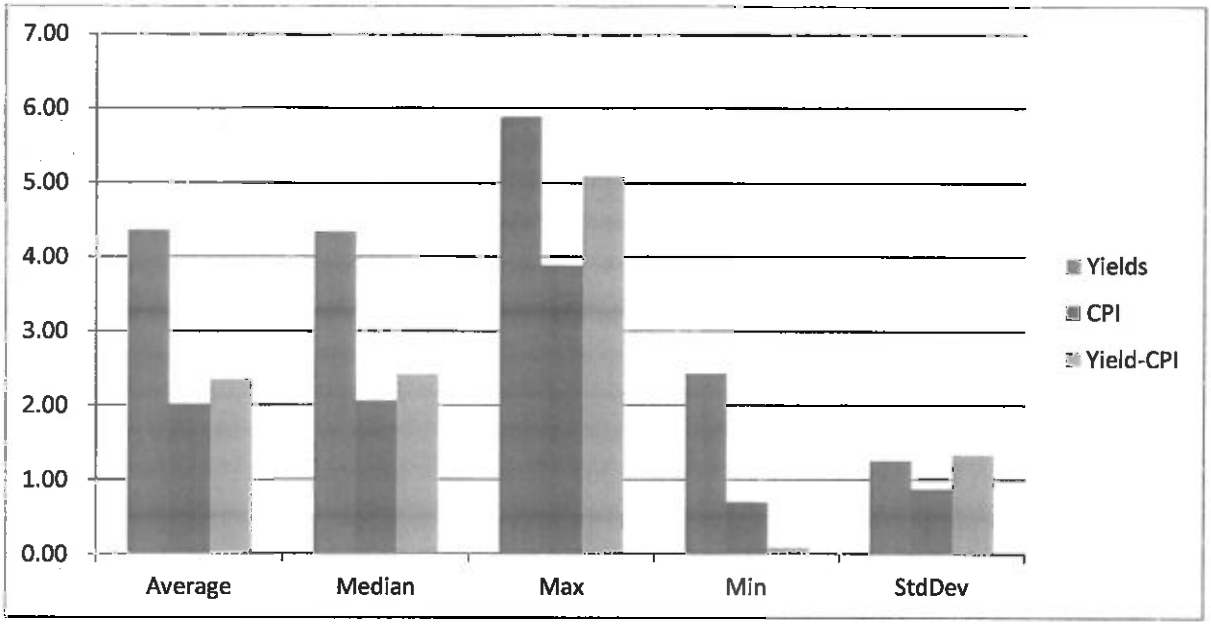


Data Source: CANSIM database.

It is noteworthy that the volatility in yields and inflation has decreased significantly since 1998, which is obvious from Figure 9. This can also be seen in the standard deviations reported in Figure 10, which reports summary statistics for the 1998 to 2013 period. For example, the standard deviation of the yields was 1.25% over this period, versus 2.98% over 1957-2013. Figure 10 also shows that the difference between yields and inflation averaged 2.4% over the period, with a standard deviation of 1.33%. Combining these stats with long-term inflationary expectations of 2% suggests that long-term yields will gravitate towards 4.4% in the long-term, and under average conditions. Clearly, yields remain low today, but they are increasing, and are expected to do so at a gradual pace over the next two years.

FIGURE 10

SUMMARY STATISTICS YIELDS AND INFLATION – CANADA (1998-2013)

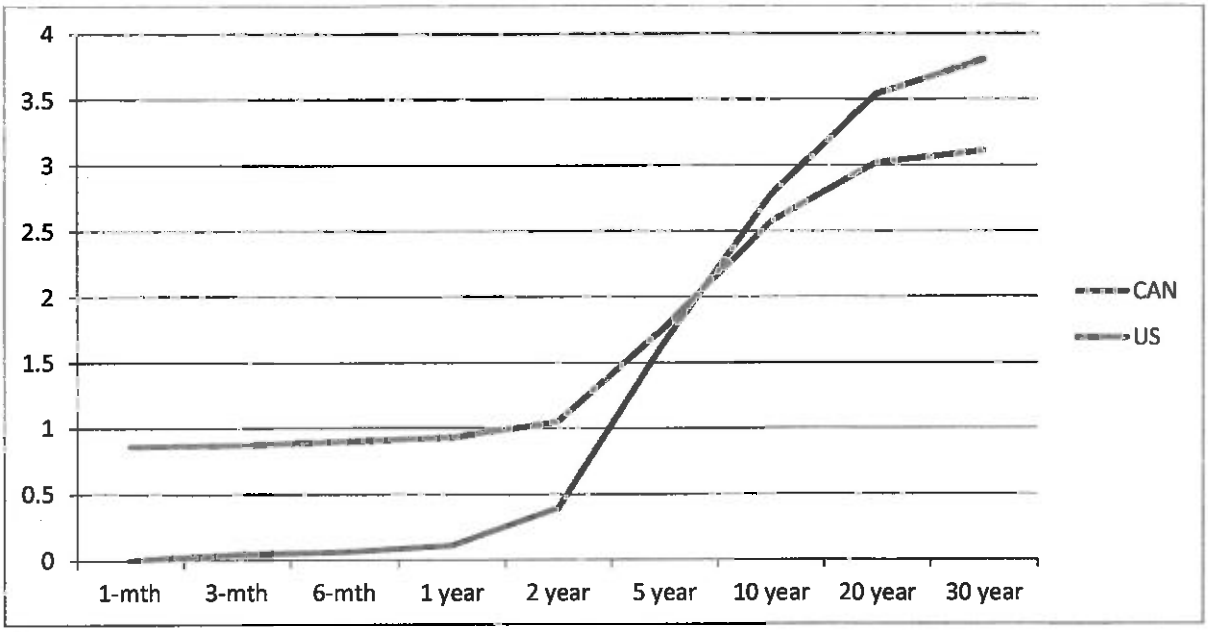


Data Source: CANSIM database.

Figure 11 depicts the yield curves for Canada and the U.S. as of January 14, 2014. The graph accentuates just how atypical our current environment is with respect to interest rates. We can see that U.S. rates for debt that matures within a year are very close to zero, while in Canada they are just below 1.0. Aside from the extremely low levels, we observe the positive Canada-U.S. spread for short-term rates. However, when we look at the long end of the curve, we see that long-term U.S. rates actually exceed those in Canada (by 69 basis points), which is atypical excluding recent years.

FIGURE 11

YIELD CURVES – CANADA AND THE U.S. (JANUARY 14, 2014)

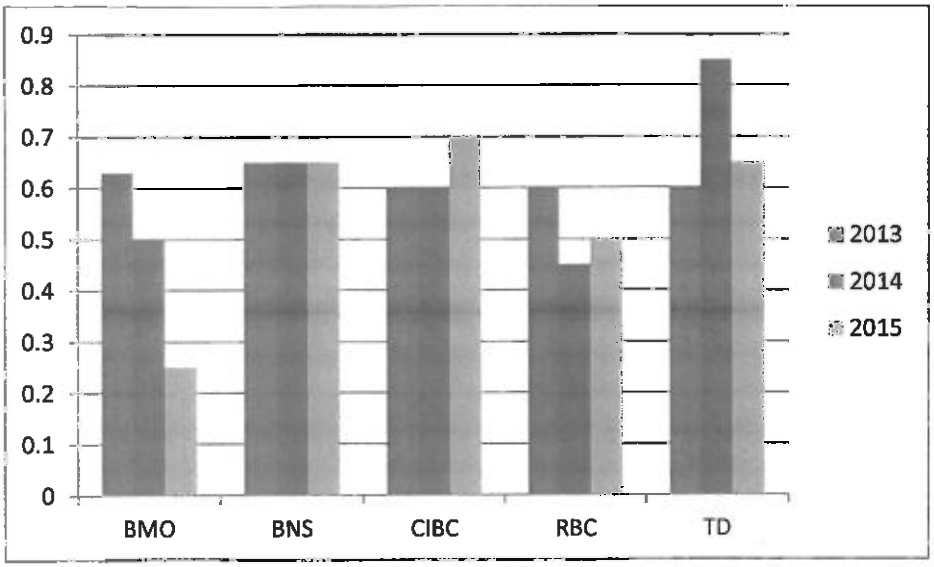


Source: Globe and Mail Report on Business, January 15, 2014.

If we believe things will move back to a more Canada-U.S. spread, Figure 11 suggests there is room for long-term rates to increase in Canada, all else being equal. On the other hand, U.S. Treasury yields are also extremely low at present so there is no reason to assume that our rates will rise any faster than they will in the U.S. In fact, Consensus Forecasts suggest that forecasters expect very little change in the -20 basis point spread between Canada and U.S. 10-year bond yields, with only a slight narrowing to -10 basis points by March 2014 and December of 2014. This is also consistent with the beliefs of the Big Five Banks in their November-December of 2013 forecasts. Figure 12 depicts their predictions for the 30-year U.S.-Canada yield spread. The spread in December was around 60 basis points, and the Banks' average prediction for the respective year ends were 62, 61 and 55 basis points respectively, so not much "narrowing" of this spread is predicted, aside from BMO who expected it to narrow to 25 basis points, but not until 2015.

FIGURE 12

PREDICTED U.S.-CANADA YIELD SPREADS – YEAR- END (2013-15)

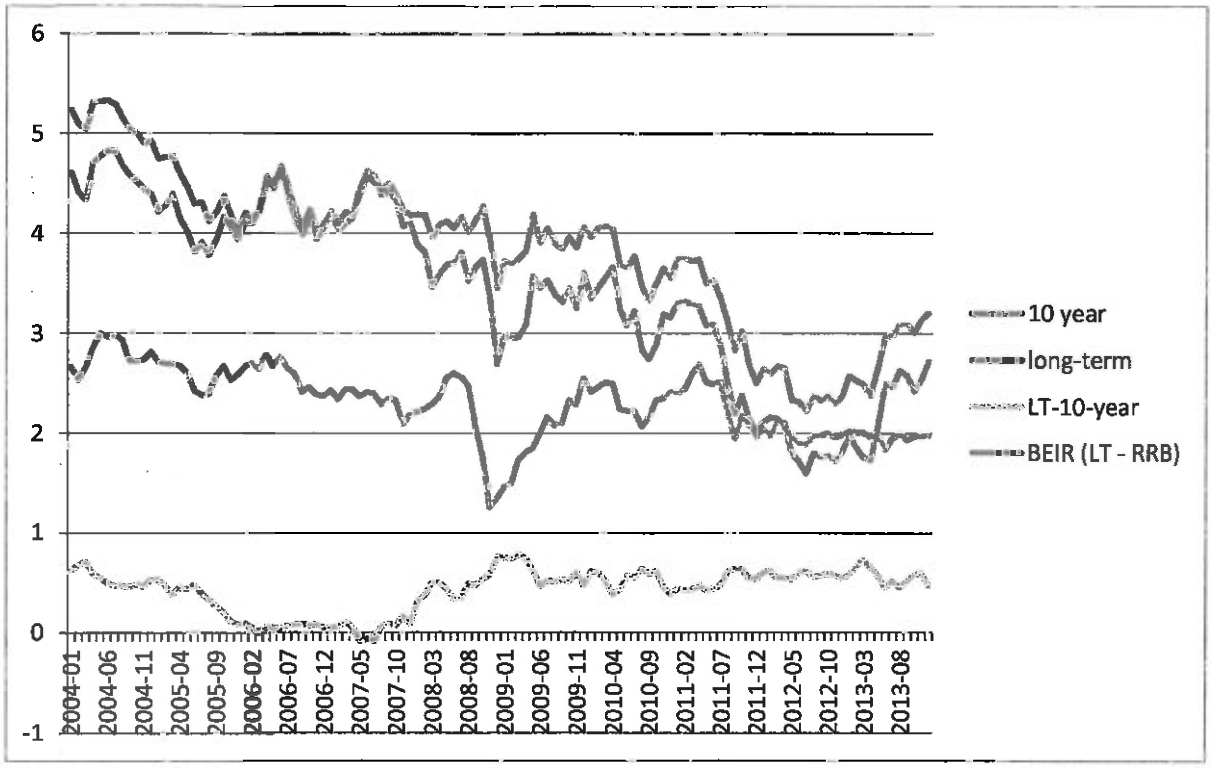


Data Source: Various Bank Forecasts (October-December 2013).

Figure 13 shows 10-year and long-term bond yields in Canada over the last 10 years, which have moved in tandem for the most part. The graph also shows the spread between the two rates, which had a median of 0.48 over the entire period. It is obvious from the graph that this spread has remained very steady since 2008, hovering around the median of 0.55 over this more recent period. The graph also shows the break-even inflation rate (BEIR), which is the difference between the yield on long-term Canada bonds and the yield on Canadian Real Return Bonds (RRB) and can be viewed as an indicator of future inflation rates. This rate remained within the Bank's target band for inflation over the entire period, peaking at 3.0% in 2004, hitting a trough of 1.26% in November of 2008 around the peak of the crisis, and averaging 2.3% overall, slightly above the Bank's target. It sat at 1.98% at the end of 2013.

FIGURE 13

SELECTED BOND YIELDS – CANADA (2004-2013)



Data Source: Bank of Canada website at http://www.bankofcanada.ca.

Considering the discussion above, it is reasonable to assume that bond yields will increase, albeit slowly, in the coming months. This seems to be the view of most economists in the fall of 2013, as can be seen in Table 5. The December 2013 Consensus Forecasts for 10-year Canada bond yields were 2.8% for the end of March 2014 and 3.2% for the end of December 2014 – up from the January 14, 2014 level of 2.57%. If we assume the increase occurs fairly evenly throughout the year, this implies an average 10-year rate for 2014 of 3%, with a rate of 3.2% at the start of 2015. Assuming that the consistent 50 basis point spread of 30-year yields over 10-year yields persists throughout 2014 and 2015, this implies long-term rates would increase from their current level of 3.11% to 3.5% and 3.7% for 2014 and 2015 respectively. The forecast average for 3-month T-bill yields, which is not included in the table, was 1.0% for both March and December of 2014, little changed from the current level of 0.87%.

TABLE 5

10-YEAR YIELD FORECASTS – CANADA (2014)

10-Year Canada Yields	March 2014	December 2014
Conf. Board of Canada	2.6	2.8
CIBC World Markets	2.8	3.0
IHS Insight	2.6	3.1
BMO Capital Markets	2.9	3.4
Desjardins	2.9	3.3
Econ Intell Unit	2.7	3.0
EconoMap	2.8	3.2
EDC Economics	Na	na
HSBC	Na	na
JP Morgan	Na	na
National Bank	2.9	3.3
RBC	2.8	3.4
TD Bank (Economics)	2.8	3.1
University of Toronto	2.7	3.3
Scotia Econ	2.7	3.2
Informetrica	2.8	3.4
Average	2.77	3.19
Median	2.80	3.20
Max	2.9	3.4
Min	2.6	2.8

Source: Consensus Economics Inc. (December 2013).

It is reasonable to assume that as economic and capital markets gradually return to a more typical state that A-rated Utility yield spreads will experience a gradual reduction from 1.4% to around 1%. This 40 bps decrease, if realized, would offset to a great extent the expected increase in long-term government yields of 40 bps during 2014, and another 20 bps in 2015. Of course, if some of the uncertainties identified earlier persist or get worse, these spreads may not return to normal levels, or may do so much slower than expected, so it is not a given.

Predicting stock market performance in the short run is always fraught with uncertainties, and it is always much more productive to think in terms of long run expectations. Nonetheless, we can say that markets seem to have returned to a somewhat normal state in terms of valuation metrics and volatility. Table 6 reports summary statistics for Canadian capital markets over the 1938 to 2013 period.

TABLE 6

CAPITAL MARKET SUMMARY STATISTCIS – (1938-2013)

1938-2013 (%)	CPI	Cdn. Stocks	Long Canadas	T-bills(91-day)	U.S. Stocks (CAD)
Average	3.80	11.29	6.41	4.91	12.18
Median	2.88	11.08	4.39	3.98	12.37
Std. Dev.	3.47	16.71	8.94	4.24	17.41
Geo. Mean	3.74	10.00	6.06	4.83	10.81

Data Source: Data to 2008 are from the Canadian Institute of Actuaries; data since 2009 are from CANSIM.

The long-term average return in the Canadian stock market over this period was 11.3%, with a geometric mean of 10.0%. This occurred over a period in which inflation averaged 3.8% (geometric mean of 3.7%). This implies "real" returns of approximately 7.5% (6.3%). If we combine these with long-term expected inflation of 2%, we would expect stock returns of 8.3% to 9.5% going forward. In fact, these numbers are consistent with the results of Mercer's "Fearless Forecast" from December of 2013. The results are based on a survey of 47 leading Canadian and global investment managers that was conducted late in the 4th quarter of 2013. Based on this survey, investment professionals expected an 8% return on equities for 2014 – in line with long-term averages on a real basis. Based on an expected long-term government bond yield of 3.5% in 2014, estimates of 8%, 8.3% or 9.5% imply market risk premiums of 4.5%, 4.8% or 6%, which are in line with the long-term historical average of approximately 5%, and within the usual 4-6% range.[3]

TABLE 7

MEDIAN ESTIMATES FROM MERCER'S FEARLESS FORECAST FOR 2014

Market Returns (% in Canadian dollars)							CAD/USD FX Rate	WTI Crude Oil (US$/barrel)	Gold (USD/troy oz)
	Universe Bonds	Long Bonds	Canadian Equity	US Equity	International Equity	Global Equity			
Median	1.5%	0.5%	8.0%	8.0%	9.1%	9.0%	$0.93	$95	$1,200

Source: http://www.mercer.ca/press-releases/1576855?siteLanguage=1007, January 10, 2014.

Other analyst forecasts for 2014 Canadian stock returns were generally in line with these numbers; although some were slightly more conservative. For example, while Desjardins forecast 2014 returns of 8.7% in November 2013, Bob Gorman, chief portfolio strategist at TD Waterhouse forecast 7% returns in both Canada and the U.S., and Vincent Delisle of Scotiabank predicted "mid" single-digit returns for

[3] Greater discussion of the market risk premium will follow in the section dealing with the CAPM analysis.

Canada and high single-digit returns for the U.S. Indeed most finance professionals that use long-term stock return forecasts such as financial planners, actuaries, pension fund managers, etc. presently use 8% or some figure in the 8-9% range for planning purposes. This is an important point to consider as we proceed to estimate an appropriate ROE for utility companies which are considerably less risky than the average company. In other words, a reasonable required rate of return for utilities should be below 8%.

3. ROE CALCULATIONS

3.1 Estimating a Fair and Reasonable Rate of Return

The overriding issue of this analysis is to determine a "fair and reasonable" rate of return to Alberta utility companies. This return should appropriately, but not excessively, compensate such firms for all the costs of running their business including operating costs, required capital reinvestment outlays, and financing charges. The return should also compensate them appropriately for the business and financial risks they face. The discussion below provides an approach to estimating what constitutes appropriate compensation for these factors.

3.2 Past and Recent Decisions

In the most recent Decision in Alberta in 2011, the Commission determined that 8.75% was a fair ROE for 2011 and 2012, which was also used a placeholder for 2013. This represented a slight decline from the 9.0% rate set at the 2009 hearings for 2009 and 2010. The 2011 estimate was determined based on several approaches and considerations including:

- 2011 CAPM estimates of 6.4-9.0%, based on an RF of 3.4-3.8%, a MRP of 5.0-7.25%, a beta of 0.50 to 0.65 and a financial flexibility of 0.5%.
- 2011 DCF estimates of 8.8-9.5%, assuming that equity ratios are set to target a credit rating of A, and incorporating flotation costs of 0.5%.
- The evidence regarding historic returns on utilities was considered inconclusive.
- The Commission gave no weight to returns awarded by other regulators, acknowledging the unique trade-offs that may arise in any particular negotiation, and also that market conditions change through time.
- The Commission did not draw any specific applications of observed price-to-book ratios of utilities regarding an appropriate ROE, other than noting that ratios above 1.0 indicate that utilities are earning at least a fair return. This is consistent with the principles of financial theory.
- No adjustment was made to the CAPM results to reflect the fact that corporate yields spreads remained slightly elevated in 2011, as it was felt that the use of a large potential MRP of 7.25%, accounted for this matter adequately.

- The Commission acknowledged that reported evidence suggested that investors expected an 8% return in stocks going forward.

While the Commission typically does not weight decisions in other jurisdictions, I will briefly discuss a few recent ones.[4] On May 10, 2013 B.C. set a generic ROE at 8.75% for the period from January 1, 2013 to December 31, 2015, using FortisBC Energy Inc. as the benchmark utility. This rate included a 0.5% allowance for financial flexibility. It was down from 9.5% in the 2009 Decision. The estimate was based on a equally weighted average of the CAPM estimate of 7.64% (RF of 3.8%; MRP of 6.4%; beta of 0.6) and the DCF estimate of 8.9%, with 50 basis points added on for flotation costs. An automatic adjustment mechanism (AAM) was reinstituted at that time which adjusts the base ROE by adding 50% of the increase in long Canada bond yields (with a floor of 3.8%) and 50% of the change in utility bond spreads. They also decreased the equity ratio from 40 to 38.5%, noting improved financial conditions since the previous Decision.

In February of 2013 the Ontario Energy Board adjusted the generic ROE downward from 9.75% to 8.98% as of May 1, 2013. The change reflected the significantly lower than expected long-term government yields, with the new ROE being determined using the AAM formula dictated in their 2009 Decision which adjusts by 50% of the change in 30-year government yields and 50% of the change in yield spreads. In Quebec, Regie de L'Energie determined an 8.9% ROE for 2012 and 2013. Their CAPM estimate was based on an RF of 4.23%, an MRP of 5.5% and a beta of 0.5. Regie uses an AAM similar to that of B.C. and Ontario but with a 75% adjustment for the change in government yields, instead of 50%. They also use a 50% adjustment for the change in yield spreads. Finally, Newfoundland Power was awarded an allowable ROE of 8.8% for 2013-2015, effective July 1, 2013. They do not presently use an AAM.

3.3 Capital Asset Pricing Model (CAPM) Estimates

This section employs the commonly used Capital Asset Pricing Model (CAPM) to estimate the allowed return on equity (ROE) for the average Alberta utility. Essentially CAPM can be used to estimate the required return on equity (Ke) for a firm from the point of view of a well-diversified investor. It can be presented as:

$$Ke = RF + (ERm - RF)\ Beta$$

Where,

Ke = required rate of return on common equity

RF = the risk-free rate

[4] There seems no need to discuss decisions prior to 2011, which were discussed at length in the 2011 decision.

ERm – RF = the market risk premium or MRP (i.e., expected market return (ERm) minus RF)
Beta = the measure of market risk of a security

This model is widely used:

- by over 68 percent of Financial analysts[5]
- by over 70 percent of U.S. CFOs[6]
- by close to 40 percent of Canadian CFOs[7]

Of course, the CFOs are using the CAPM for the same purpose as we are – to estimate a firm's cost of equity for cost of capital considerations. It has also been heavily relied upon in previous Decisions, which is appropriate in my opinion.

Technically, the CAPM is a one-period model, and the government T-bill rate should be used as the appropriate risk-free rate, since it is virtually guaranteed and does not fluctuate. However, analysts often use the CAPM to estimate the required return on common equity over many periods, such as when they are trying to estimate the cost of a firm's common equity financing component when estimating the firm's overall cost of capital. Under these circumstances, it is appropriate to use the yield on long-term government bonds instead of T-bills since they are more representative of the rate that could be obtained over longer investment horizons. This is practice is consistent with previous Decisions.

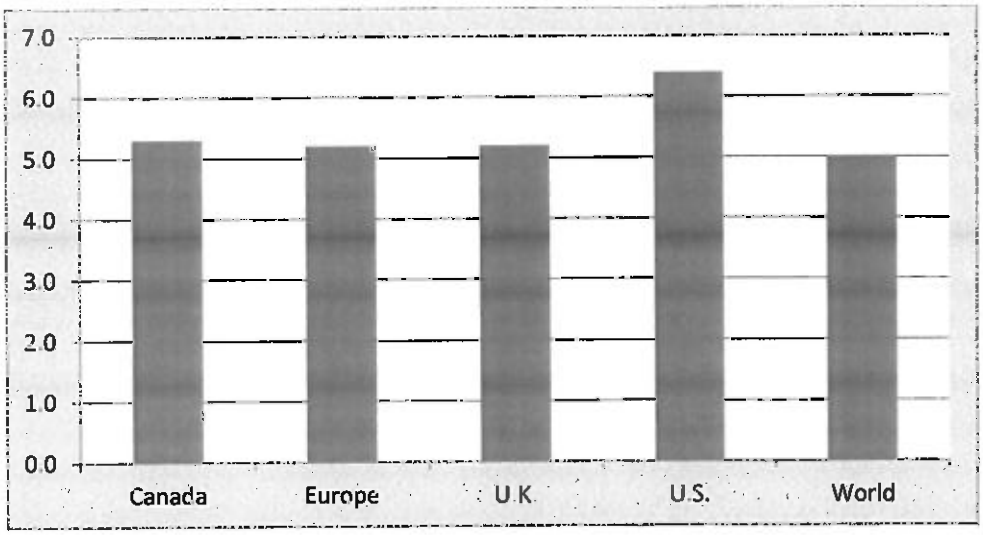
To estimate RF for 2013, we now have the benefit of perfect hindsight, as we have seen previously that 30-year government bond yields (RF in CAPM) averaged 2.8%. This seems a reasonable number to use since the long-term yield at the beginning of the year was 2.37%, and the Consensus forecasts as of December 2012 were 1.8% and 2.2% for 10-year yields, implying long-term yield estimates of approximately 2.3 to 2.7%, which turned out to be a little on the low side. At the time of writing, the long-term government yield was 3.11%, while estimates discussed previously, based on Consensus forecasts of 10-year yields plus 50 basis points, suggest that a rate of 3.5% is appropriate for 2014, and 3.7% for 2015. These numbers also seem reasonable given the previous discussion, so I will use them as my best estimate and also consider a range of 2.4-3.2% for 2013, and 3.1-3.9% for 2014, and 3.3-4.1% for 2015.

[5] Source: Model Selection from "Valuation Methods" Presentation, October 2007, produced by Tom Robinson, Ph.D., CFA, CPA, CFP®, Head, Educational Content, CFA Institute. Copyright 2007, CFA Institute.
[6] Graham, John R., and Harvey, Campbell R. "The Theory and Practice of Corporate Finance: Evidence from the Field." *Journal of Financial Economics* 60 (2001), pp. 187–243.
[7] Source: H. Kent Baker, Shantanu Dutta and Samir Saadi, ,"Corporate Financial Practices in Canada: where do we stand" Multinational Finance Journal 15-3, 2011.

The market risk premium (MRP), as measured by the return on the market less the long-term government bond yield over the 1900-to-2010 period, averaged about 5 percent in developed stock markets around the world, which is lower than the U.S. and Canadian averages, over that period, of 6.4 percent and 5.3 percent, respectively.[8] These figures can be seen in Figure 14. The figure for Canada is close to the difference in average returns for stock and bond returns over the 1957 to 2013 period of 4.9% as previously reported in Table 6. These numbers are also consistent with the expected MRPs according to a recent survey of analysts, companies, and finance professors, which were in the 5 to 6 percent range for most regions. The results for Canada and the U.S. are reported in Figure 15.

FIGURE 14

GLOBAL MARKET RISK PREMIUMS (1990-2010)

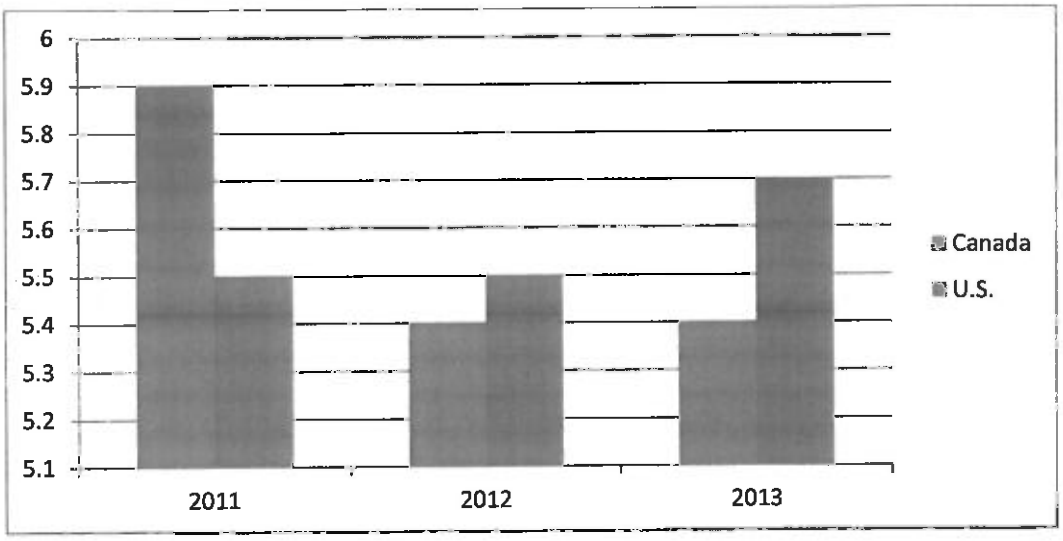


Source: Dimson, Marsh and Staunton, "Equity Premiums Around the World," in *Rethinking the Equity Risk Premium*, CFA Institute, 2011.

[8] Dimson, Elroy, Marsh, Paul, and Staunton, Mike, "Equity Premiums Around the World," in *Rethinking the Equity Risk Premium* (Research Foundation of the CFA Institute, December 2011).

FIGURE 15

CANADA AND U.S. MARKET RISK PREMIUM ESTIMATES (2011-2013)



Source: "Market Risk Premium and Risk Free Rate used for 51 countries in 2013: a survey with 6,237 answers," 2013, by Pablo Fernandez, Javier Aguirreamalloa, and Pablo Linares, Working Paper, IESE Business School.

Based on the previous discussion of capital markets, which seem to be in a reasonably stable state today; it is reasonable to assume that market participants would be satisfied with a figure slightly above the long-term average of 5.3% MRP. Therefore, I will use 5.5% as my best estimate for 2014 and 2015, and consider a range of 5 to 6%. At the start of 2013, more uncertainties existed, so I will use 6% - at the upper bound of the commonly used range, and historical figures. These estimates lie within the 4 to 6 percent range that is normally used, and is consistent with long-term averages. This seems appropriate in today's environment, where economic and market conditions are fairly stable; albeit not overwhelmingly positive. One would normally use 6 percent when market uncertainty is high, and lean toward values in the 4 to 5 percent range during periods of extreme market and economic optimism.

These estimates are also consistent with previous Decisions by the AUC and other regulators. For example, AUC used an MRP range of 5-7.25% in 2011, and 5-5.75% in 2009. Recent Decisions by other regulators discussed previously include the following ranges of estimates: BC – 5 to 6%; Newfoundland - 6%; and, Regie - 5.5 to 5.75%.

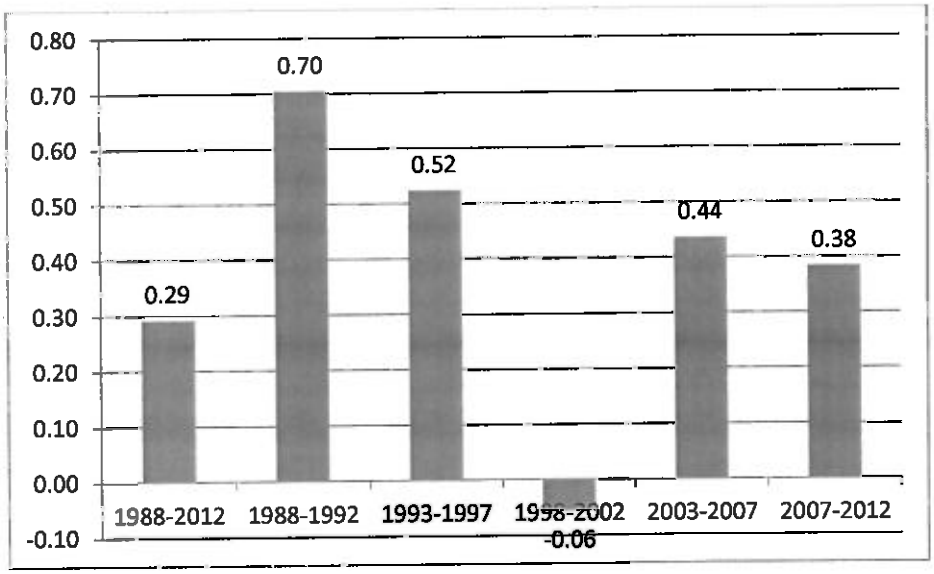
We now require a beta estimate to apply the CAPM. In its 2011 Decision, the Commission used a range of 0.50 to 0.65 for the average utility beta, very similar to the 0.50-0.63 range it used in 2009. Dr. Booth used the same of 0.45-0.55 range as in his 2009 testimony, which he based on long-term average beta estimates for Canadian utilities, going back to the mid-1980s. K&R provided a point estimate of 0.52,

which was based on regression analysis and rolling averages for utilities they examine. Finally, Ms. McShane suggested a range of 0.65-0.70 based on her own research. Other recent decisions, used betas in similar ranges: B.C. - 0.6 to 0.66; Newfoundland - 0.6; and, Regie - 0.5 to 0.55.

All of this suggests very clearly that unless conditions have changed significantly for utilities, long-term data as well previous Decisions (which are consistent with this data) support the use of betas in the 0.45 to 0.65 range. My own research below suggests that this is reasonable; but that current betas are slightly below the lower bound of this range. For example, Figure 16 reports the average betas calculated using monthly total return data for the TSX Utilities Index over the 1988 to 2012 period. The first reported beta estimate uses data for the entire 25-year period and is 0.29. The remaining betas are for distinct five-year periods, a commonly used time horizon for estimating betas with monthly data. The graph shows that betas for utilities have been in the 0.3 to 0.7 range, aside from the 1998 to 2002 period where betas for many industries, including utilities, were not meaningful due to the high technology boom and bust during that period. In the last two periods, we see that the recent utility index beta has been about 0.4, below the long-term average of 0.5, and at the lower end of the typical range used for utilities.

FIGURE 16

BETA ESTIMATES FOR THE CANADIAN UTILITY INDEX (1988-2012)



Data Source: CHASS database.

Table 8 provides beta estimates for several Canadian utilities as of December 20, 2013, based on 60 months of returns. The average is 0.21, below the 0.38 Utilities Index estimate over the 2007-2012 period. The average increases slightly to 0.22 if we drop TransAlta, which is now primarily a non-regulated utility. If we also exclude Canadian Utilities Ltd. and ATCO, which are holding companies that include interests in non-regulated assets, the average increases to 0.31. Finally, if we drop the smaller utility

companies (i.e., those with market capitalizations less than $2.5 billion), we end up with an average beta of 0.25.

TABLE 8

BETA ESTIMATES – DECEMBER 20, 2014

Firm	Beta
Fortis	0.31
Emera	0.21
TransAlta	0.22
Northland Power	0.21
Algonquin Power	0.25
ATCO	0.26
Cdn Utilities Ltd.	-0.01
Enbridge	0.16
TransCda	0.31
Average	0.21
Average excl. TransAlta	0.22
Average excl. TransAlta, CU, and ATCO	0.31
Average (Fortis, Emera, Enbridge, TransCda)	0.25

Source: FP Infomart, December 2013.

Based on the evidence in Figure 16 and Table 8, and combining with long-term evidence provided in previous decisions, it seems clear that a reasonable estimate of beta for a typical Alberta utility should lie within the 0.30 to 0.60 range. I will use the mid-point figure of this range of 0.45 as my best point estimate, which is slightly below the long-term average of around 0.50.

Government bond yields remain low by historical standards, and bond yield spreads are still sitting about 40 basis points above average today, just as they were at the start of 2013, as noted previously. While this spread is not anywhere near the record highs experienced during the financial crisis, it is still indicative of slightly heightened risk aversion. Researchers at the Bank of Canada indicate that much of this increased spread is due to liquidity problems, but some still reflects increased risk premiums for even low risk companies like Canadian Utilities.[9] Consistent with this research, I will add half of the "above average" yield spread or 0.20% to my CAPM estimate to account for this time varying risk premium for my 2013

[9] Refer to: A. Garcia and J. Yang, "Understanding Corporate Bond Spreads Using Credit Default Swaps," Bank of Canada Review, Autumn 2009.

estimate. I assume the abnormal spread will disappear by 2015 as conditions continue to normalize and as government yields increase gradually throughout 2014 and 2015, so I reduce the amount added on to 10 basis points in 2014, and to zero for 2015.

Finally, I add 50 basis points for financial flexibility (or flotation costs), which has been used in previous decisions, and is consistent with long-term estimates. Combining these items we get the following range of estimates for the required equity return for an average utility, which are reported in the table below. Based on these calculations my CAPM analysis suggests that 6.2% is reasonable ROE in 2013 (in the 4.6-7.8% range), 6.6% in 2014 (in the 5.1-8.2% range), and 6.7% in 2015 (in the 5.3-8.4% range).

TABLE 9

CAPM ESTIMATES – 2013-2015

Year	Estimate	RF (%)	MRP (%)	Beta	Spread Adjust. (%)	Financial Flex. (%)	Ke (%)
2013	Max	3.2	6.5	0.60	0.20	0.50	7.80%
	Min	2.4	5.5	0.30	0.00	0.50	4.55%
	Best Estimate	2.8	6.0	0.45	0.20	0.50	**6.20%**
2014	Max	3.9	6.0	0.60	0.20	0.50	8.20%
	Min	3.1	5.0	0.30	0.00	0.50	5.10%
	Best Estimate	3.5	5.5	0.45	0.10	0.50	**6.58%**
2015	Max	4.1	6.0	0.60	0.20	0.50	8.40%
	Min	3.3	5.0	0.30	0.00	0.50	5.30%
	Best Estimate	3.7	5.5	0.45	0.00	0.50	**6.68%**

Since these estimates are well below those in the 2011 Decision, they warrant further comment; although they do fall in the lower range of CAPM estimates of 6.4-9.0% used by the Commission. Ultimately, the driving force behind these lower estimates is the fact that RF turned out to be much lower than had been anticipated due to risks identified by parties that materialized and in most cases exceeded expectations in terms of the magnitude of their impact. I refer in particular to the Euro Zone crisis and the slower than expected recovery in the U.S., both of which exerted downward pressure on interest rates. For example, if we look at the estimates of Booth for 2011 and 2012 at that time, had an RF of 2.8% been used, his estimates would have fallen to 6.45% for both years from 7.75% and 8.15%, or an estimate of 7.15% for

both years using an RF of 3.5%. Similarly, the K&R estimate would have fallen from 6.9-7.4% to 6.0-6.9% using an RF of 2.8%, or to 6.7-7.6% using an RF of 3.5%. All of these figures are very consistent with the estimates provided in Table 9.

The discussion in the preceding paragraph suggests that the approach has been applied consistently, but one of the key inputs changed unexpectedly (i.e., RF). The 2013 RF input was particularly low and well below expected values, driving the low 2013 CAPM estimate. The 2014-15 estimates are closer to previous estimates, since they are based on RF inputs that are "falling into line." There is no evidence to suggest that the other parameters have changed significantly since 2011 (i.e., yield spreads – which have remained steady, MRPs, betas, etc.) – this is consistent with the fact that they have stabilized, and are certainly in much better shape than they were at the beginning of 2013. This has been the impetus for expectations that GDP growth, inflation, and ultimately long-term bond yields will continue their return to longer-term averages.

3.4 Discounted Cash Flow (DCF) Estimates

There has been much debate in previous Decisions regarding the usefulness of DCF approaches. In particular it has been questioned:

- whether or not it even made sense to apply the approach at the company/industry level – given the lack of a sufficient number of representative "pure-play" regulated utility companies in Canada; and,
- how to infer DCF results when they are made at the "market" level rather than for companies.

Despite this debate, the parties involved have provided various forms of DCF estimates. The Commission has taken this information into account in making their final ROE decisions, recognizing that the estimates provide some informational value, while recognizing some of the approach's limitations. As such, I am going to take two approaches and apply DCF approaches as at the start of 2013 and 2014 to:

1) find the implied rate of return for the overall market, which should be significantly higher than that for the average utility company which is much less risky than the "average" company in the market; and,

2) apply the models at the industry level using numbers that are "representative" of a typical publicly-traded utility company in Canada.

Since the model requires start of period market data, and since it is a model that is based on cash flows to infinity, it is difficult to apply the model as of the start of 2015. So I will use my 2014 estimate as my 2015 estimate as well.

The Dividend Discount Model (DDM) is a commonly used DCF model that assumes common shares can be valued according to the present value of their expected future cash flows, as represented by dividends. The constant-growth (or single-stage growth) version of the DDM is a simplification of the broader model that holds if we assume that the growth in dividends (and earnings) is expected to occur at the same annual rate indefinitely. The constant-growth model can be represented as:

$$\text{Price} = D_0(1 + g) / (Ke - g) = D_1/(Ke - g)$$

Where,

Price is the firm's most recent common share market price

D_0 represents the dividends paid over the most recent 12-month period

g represents the expected long-term average growth rate in dividends and earnings

Ke represents the required returns by a firm's common shareholders.

The single-stage DDM is convenient in the sense that it can be easily arranged to solve for the implied rate of return on common shares, as follows if we know their current price and dividends, and can estimate a long-term consistent growth rate:

$$Ke = (D_0/\text{Price})\times(1 + g) + g$$

Table 1 showed that real GDP growth averaged 3.3% over the 1962 to 2012 period. This seems a reasonable growth rate to use in the single-stage model, since we would expect long-term growth for the overall market to gravitate towards this figure – this assumption is commonly made by financial analysts. Of course, we are trying to estimate a "nominal" required rate of returns, so we should use nominal GDP growth as "g." If we apply the 2% Bank of Canada inflation target (also the median inflation rate over the 1992-2012 period) to this real rate of growth we get the following estimate of g: $g = (1.033)(1.02) - 1 = 0.054$ or 5.4%

This seems reasonable and is line with those used by security analysts when they use single-stage growth models to value securities; albeit slightly on the high side (i.e., they usually use numbers in the 3-5% range "when" they use single period models).

The dividend yield for the market at the end of 2012 and at the end of 2013 was 3.0% - this is the "lagged" dividend yield (i.e., D0/Price) since it is estimated using dividends over the most recent 12-month period. Substituting these estimates into the equation above, we get the following estimate for the implied equity return for the market as a whole for both 2013-2015:

$Ke = (D0/Price)\times(1 + g) + g = (0.03)\times(1.054) + .054 = 0.0316 + .054 = .0856$ or 8.56%

Table 1 also showed that average real GDP growth has been lower at 2.60% since 1992. We could use this as a lower bound and repeat the process. This would imply a long-term nominal growth rate of 4.65% (i.e., $[1.0260 \times 1.02] - 1$). Substituting this growth rate into the Ke equation, and using the same dividend yield, we get: $Ke = (0.03) \times(1.0465) + .0465 = 0.0314 + .0465 = .0779$ or 7.79%.

Despite the limitations of the model, and with the simplifying assumption of constant growth indefinitely, these seem to be reasonable estimates. They are also in line with forecasts of future returns noted earlier in the 8-9% range, and with the long-term "real" stock return averages in the 6.3-7.5% range also noted previously.

We can overcome one limitation of the single-stage growth model by using a variation of the DDM, called the H-Model. The H-Model is a multi-stage growth version of the DDM, similar to those used by K&R and McShane in previous decisions. However, it assumes that growth in dividends moves in linear fashion from some current short-term growth rate (defined as g_S) toward some long-term growth rate (defined as g_L) over a specified period of time, defined as 2H, where H is hence defined as the "half-life." It also offers the advantage that, similar to the single-stage DDM, it can be rearranged to determine a finite solution for Ke, which is shown below:

$$Ke = (D_0/Price)\times[(1 + g_L) + H(g_S - g_L)] + g_L$$

The H-Model has great appeal today, if we consider that the Consensus Real GDP Growth forecasts for 2013 through 2015 as reported previously increase steadily from 1.71% to 2.27% to 2.50%, while the corresponding inflation forecasts were 1.04%, 1.54% and 1.96% respectively. If we combine these average figures to estimate expected nominal GDP growth rates for 2013-2015 we get 2.77%, 3.84% and 4.51% respectively. This suggests that expected GDP growth is currently below the 5.4% long-term level used previously, but that it can be expected to "gradually" return to such levels.

I will apply the model as of the beginning of 2013, using the estimated 2013 nominal GDP growth rate of 2.77% as g_S and the long-term expected growth rate of 5.4% as determined above for g_L. Assuming it takes us four years to get back to this long-term expected growth rate, I use H = 2, which provides an estimate for Ke of 8.40%. If we assume that this return to normal growth takes only two years, so that H =

1, we get an estimate for Ke of 8.48%. If we repeat the process as of the end of 2013, using the estimated 2014 nominal GDP growth rate of 3.84% as g_S and the long-term expected growth rate of 5.4% as determined above for g_L, we get estimates of Ke of 8.47% for H = 2 and 8.52% for H = 1.

Combining the results from the two models, we get 2013-2015 estimates for Ke for the market in the 7.8-8.6% range. I will use the averages of the models from the two models of 8.31% for 2013 and 8.34% for 2014 and 2015 as my best estimates. These seem very reasonable and in line with other estimates and historical returns. As noted previously, while DCF models will work better in aggregate than for Canadian utilities, we are still left with the issue of how to adjust these figures into a reasonable implied return for utilities, which possess considerably less risk than average. At minimum, we could say that market DCF estimates above suggest that utility returns should be lower than 8.3%.

I will now apply both of the DCF models discussed above to Canadian utilities. Of course determining the inputs here is somewhat trickier than for the broad market. A common way of estimating the growth rate for companies is to determine the company's sustainable growth rate, which can be estimated by multiplying the earnings retention ratio (which equals "1 – dividend payout ratio") by the return on equity (ROE), as shown below:

$g = (1 - \text{payout ratio}) \times \text{ROE}.$

The intuition behind the use of this formula is that growth in earnings (and dividends) will be positively related to the proportion of each dollar of earnings reinvested in the company multiplied by the return earned on those reinvested funds, which can be measured using ROE. For example, a firm that retains all its earnings and earns 8% on its equity would see its equity base grow by 8 percent per year. If the same firm paid out all of its earnings, it would not grow.[10] It should work quite well for utility firms that pay a significant proportion of their earnings out as dividends, and that possess relatively stable ROE figures.

Table 10 below includes summary statistics on dividend yield, payout ratios and ROE for the 9 Canadian utility firms included in Table 8. These data can then be used to estimate sustainable growth rates for 2013-2015, and ultimately the implied required rate of return using our two DCF models. Panel A reports the average, median maximum and minimum figures for all 9 utilities for dividend yield (DY), the payout ratio and for ROE for 2012, as of December 20, 2013, the average 5-year dividend yield, and averages for payout ratios and ROE over the 20013-12 period.[11] Panel B reports the same statistics after eliminating

[10] A weakness of this approach is its reliance on accounting figures to determine ROE, which may not accurately estimate the "true" return earned on reinvested funds.

[11] Payout ratios were "capped" at 100% to control the influence of extreme payouts on "averages" - this process obviously had no effect on the reported medians.

TransAlta, Panel C after eliminating TransAlta, ATCO and Canadian Utilities, and Panel D for only the four remaining utilities with market caps over $2.5 billion.

TABLE 10

DCF INPUT ESTIMATES – 2003-2013 FIGURES

	DY (End 2012)	DY (Dec 13)	5-year Avg DY	2012 Payout	Payout (Dec 13)	Avg Payout (03-12)	2012 ROE	ROE (Dec 13)	Avg ROE (03-12)
Average	3.96	4.48	4.79	55.51	76.37	72.38	5.21	11.50	10.16
Median	3.74	4.10	4.00	69.50	90.30	68.38	8.17	11.51	11.20
Max	7.67	8.60	10.60	100.00	100.00	100.00	16.56	24.56	15.98
Min	1.62	1.60	2.00	0.00	18.60	23.94	-24.88	1.59	3.62
Average excl TransAlta	3.50	3.96	4.69	62.45	73.41	68.93	8.97	12.74	10.81
Median	3.63	4.00	3.80	72.30	81.20	67.13	8.27	12.19	11.81
Max	5.78	7.00	10.60	100.00	100.00	100.00	16.56	24.56	15.98
Min	1.62	1.60	2.00	0.00	18.60	23.94	-2.04	1.84	3.62
Average excl TransAlta, CU, and ATCO	3.98	4.55	5.43	73.38	88.38	78.15	6.49	11.25	9.52
Median	3.83	4.35	4.05	85.40	95.15	71.12	8.09	10.18	10.62
Max	5.78	7.00	10.60	100.00	100.00	100.00	14.19	24.56	15.98
Min	2.63	2.90	2.90	0.00	67.90	60.77	-2.04	1.84	3.62
Average (Fortis, Emera, Enbridge, TransCda)	3.45	3.93	3.65	85.08	82.58	67.22	9.69	10.28	12.41
Median	3.63	4.00	3.80	85.40	81.20	67.13	8.27	10.18	11.81
Max	3.92	4.80	4.10	100.00	100.00	73.86	14.19	12.86	15.98
Min	2.63	2.90	2.90	69.50	67.90	60.77	8.01	7.89	10.04

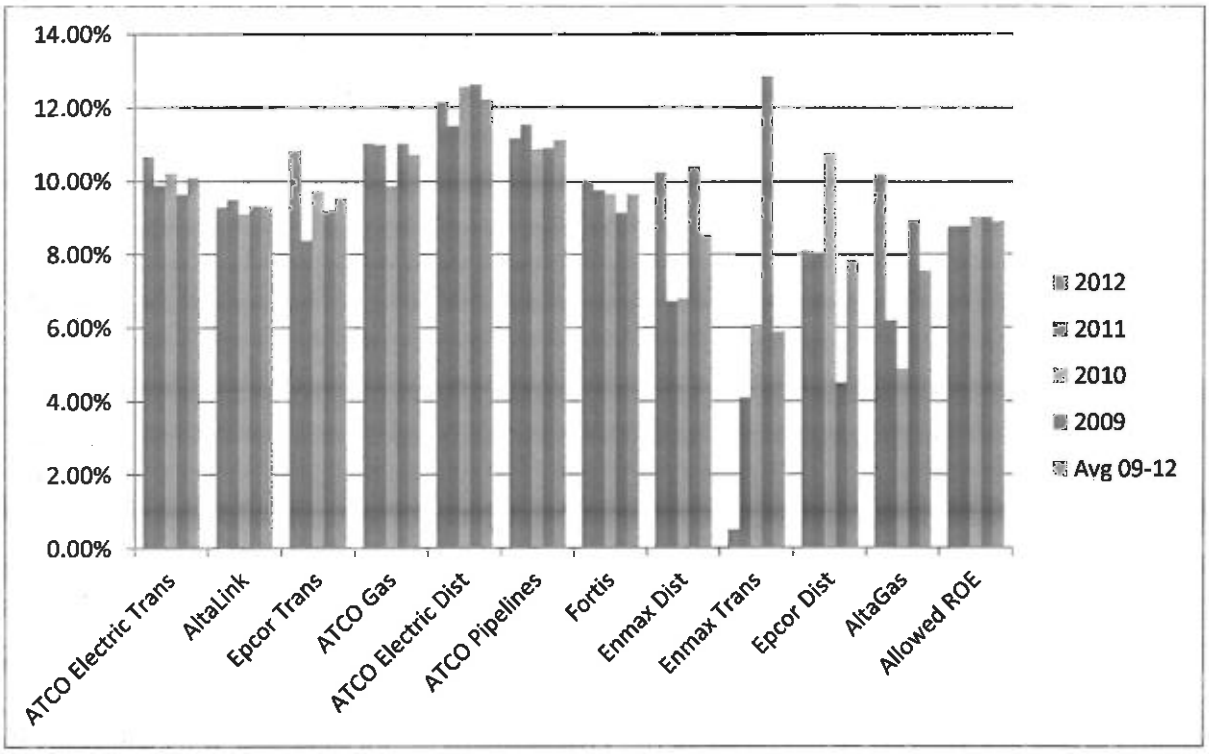
Data Source: Morningstar at www.morningstar.ca.

The summary statistics included above appear "reasonable" for a typical regulated and publicly-traded Canadian utility in several regards. Payout ratios between 60 to 80%, and gravitating toward an average of 70%, are in line with historical figures and also with the high dividend paying nature of such profitable, slow growing firms. Similarly, dividend yields in the 4-5% range are in line with that of the S&P/TSX Utilities Index, which was 4.8% at the end of 2012 and sat at 5.3% in the fall of 2013. The ROE numbers in the 9-12% range are similarly in line with 2009-2011 figures reported by the 11 Alberta utilities in their recent Rule 005 reports, as can be seen in Figure 17. The average ROE across all firms and all years

averaged 9.3%, with the 11-firm average remaining in the relatively narrow range of 8.77% in 2011 to 9.85% in 2009.

FIGURE 17

REPORTED ROES – ALBERTA UTILITIES 2009-2012



Data Source: Rule 005 reports.

U.S. utilities are not the best comparison to Alberta utilities for a variety of reasons, as noted in previous Decisions. For example, in the 2004 Decision, in consideration of U.S. evidence, the Board concluded that "limited weight should be placed on this evidence due to the differences in the regulatory, fiscal, monetary, and tax regimes in the two countries." This decision was upheld after lengthy discussion on the issue in the 2009 proceedings, and the underlying principle was applied in the 2011 Decision by applying minimal weights to U.S. evidence. Nonetheless, the Canadian numbers reported in Table 10 are within range of typical U.S. figures. For example, over 2008-2012, the average payout ratio for the 50 firms included in the S&P 1,500 index group was 66.15%. Over the same period, the average dividend yield high-low range was 5.22-3.58%, with an average mid-point of 4.4%. Finally, the ROE averaged 10.43% over this period, with a minimum annual average of 9.3% in 2012 and a maximum average of 11.9% in 2008.

As mentioned it is difficult to find "typical" or representative Canadian regulated publicly-traded utilities. However, using averages and medians (which offset to some extent the influence of extreme

observations) provides a useful starting point. Columns 2 and 3 of Table 11 provides estimates of sustainable growth rates (g) using the ROE and payout averages and medians reported in Table 10. These are calculated using the formula above (i.e., g = (1 – payout) × ROE). Column 2 uses the average and median ROE and payout figures for 2012, while column 3 uses the averages over the 2003 to 2012 period. The median and averages range from 1.18% to 4.07%, but are generally in the 2-3% range, which seems reasonable. These estimates are not as high as some of the growth estimates used in the 2011 proceedings, which caused the Commission some concerns, citing in particular "the potential upward bias in analyst estimates," which were used in some estimates to determine future growth rates.

TABLE 11

SINGLE-STAGE DDM ESTIMATES – 2013

2013 Ke Estimates	Implied g (Dec 12)	Implied g (03-12)	Implied Ke (12)	Implied Ke (03-12)
Average	2.32	2.81	6.37	7.73
Median	2.49	3.54	6.33	7.68
Max	0.00	0.00	7.67	10.60
Min	-24.88	2.75	-23.66	4.81
Average excl TransAlta	3.37	3.36	6.98	8.20
Median	2.29	3.88	6.00	7.83
Max	0.00	0.00	5.78	10.60
Min	-2.04	2.75	-0.45	4.81
Average excl TransAlta, CU, and ATCO	1.73	2.08	5.78	7.63
Median	1.18	3.07	5.06	7.24
Max	0.00	0.00	5.78	10.60
Min	-2.04	1.42	0.54	4.36
Average (Fortis, Emera, Enbridge, TransCda)	1.45	4.07	4.95	7.87
Median	1.21	3.88	4.88	7.83
Max	0.00	4.18	3.92	8.45
Min	2.44	3.94	5.14	6.95

The final two columns in Table 11 report the Ke estimates that are derived using the single-stage DDM and inputting the appropriate growth estimates from column 2 or 3 along with the corresponding dividend yield (reported in Table 10). Recall this formula can be represented as follows, when we begin with the dividend yield based on dividends over the previous 12 months:

Ke = $(D_0/Price)\times(1 + g) + g$. These estimates range from a low of 4.88% using 2012 median numbers in Panel D to a high of 8.20% using 2003-12 averages in Panel B. As mentioned, it is difficult to determine which group (i.e., Panel A, B, C or D) provides the most representative statistics, so it is useful to determine the average of all these estimates. The average of all 8 Ke estimates determined using averages is 6.94%, while the average of the 8 numbers calculated using the medians is 6.60%. This provides us with a reasonable range for the 2013 estimate using the single-stage growth DDM. I will assign a "best estimate" right in the middle at 6.77%, which is below the 2013 estimate for the market of 8.31%, so seems fairly reasonable in this sense. If we add 50 basis points for flotation costs, we end up with a range of 5.38%-8.70%, with a best estimate of 7.27%.

Table 12 repeats the same process as that provided in Table 11 using December 2013 numbers for dividend yield, payout ratios and ROEs instead of December 2012 figures. The information will be used to estimate the 2014-2015 implied DCF estimate of Ke using the single-stage DDM. The implied growth estimates are similar in magnitude to those reported in Table 11. The Ke estimates range from a low of 4.87% using 2013 median numbers in Panel C to a high of 8.20% using 2003-12 averages in Panel B. The average of all 8 Ke estimates determined using averages is 7.24%, while the average of the 8 numbers calculated using the medians is 6.64%. This provides us with a range for the 2014 best estimate of 6.64-7.24%, with a "best estimate" of 6.94%, which is below the 2014 estimate for the market of 8.34%. Once again, adding 50 basis points for flotation costs, we end up with a range of 5.37%-8.70%, with a best estimate of 7.44%.

TABLE 12

SINGLE-STAGE DDM ESTIMATES – 2014-2015

2014 Ke Estimates	Implied g (Dec 13)	Implied g (03-12)	Implied Ke (Dec 13)	Implied Ke (03-12)
Average	2.72	2.81	7.32	7.73
Median	1.12	3.54	5.26	7.68
Max	0.00	0.00	8.60	10.60
Min	1.29	2.75	2.91	4.81
Average excl TransAlta	3.39	3.36	7.49	8.20
Median	2.29	3.88	6.38	7.83
Max	0.00	0.00	7.00	10.60
Min	1.50	2.75	3.12	4.81
Average excl TransAlta, CU, and ATCO	1.31	2.08	5.92	7.63
Median	0.49	3.07	4.87	7.24
Max	0.00	0.00	7.00	10.60
Min	0.00	1.42	2.90	4.36
Average (Fortis, Emera, Enbridge, TransCda)	1.79	4.07	5.79	7.87
Median	1.91	3.88	5.99	7.83
Max	0.00	4.18	4.80	8.45
Min	2.53	3.94	5.51	6.95

Similar to the approach used above to estimate Ke for the market, I will now apply the H-Model to estimate the implied rate of return for a typical Canadian utility. This model requires two growth estimates – the short-term rate (g_S), and the long-term rate (g_L). For the 2013 estimate I will denote g_S as the implied growth rates determined using 2012 payout ratios and ROEs, which are reported in column 2 of Table 11. I then denote as g_L the implied growth rates using long-term averages for payout and ROE, which are reported in column 3 of Table 11 (and 12). The underlying rationale is that growth rates estimated over a longer period of time are more representative of those that can be expected in the long run. Similarly for 2014-2015, I denote g_S as the growth rates using December 2013 figures (in column 2 of Table 12) and denote g_L as the growth rates determined using long-term averages. The results of this analysis are reported in Table 13 below.

TABLE 13

H-MODEL ESTIMATES – 2013-2015

Using all 9 Utillities	**2014**	**2014**	**2013**	**2013**
	H=2	**H=1**	**H=2**	**H=1**
Current D0/P0	0.0448	0.0448	0.0396	0.0396
gs (current sustainable g)	0.0272	0.0272	0.0232	0.0232
gL (5-year sustainable g)	0.0281	0.0281	0.0281	0.0281
H = 2 (i.e., 4-year transition from gs to gL)	2.0000	1.0000	2.0000	1.0000
Growth Pattern Under Assumptions				
g0	0.0272	0.0272	0.0232	0.0232
g1	0.0274	0.0276	0.0244	0.0256
g2	0.0276	0.0281	0.0256	0.0281
g3	0.0278	0.0281	0.0268	0.0281
g4	0.0281	0.0281	0.0281	0.0281
k = (D0/P0)*[(1+gL)+H(gs-gL)]+gL	0.0740	0.0740	0.0684	0.0686
Excl TransAlta				
Current D0/P0	0.0396	0.0396	0.0350	0.0350
gs (current sustainable g)	0.0339	0.0339	0.0337	0.0337
gL (5-year sustainable g)	0.0336	0.0336	0.0336	0.0336
H = 2 (i.e., 4-year transition from gs to gL)	2.0000	1.0000	2.0000	1.0000
Growth Pattern Under Assumptions				
g0	0.0339	0.0339	0.0337	0.0337
g1	0.0338	0.0337	0.0337	0.0336
g2	0.0337	0.0336	0.0336	0.0336
g3	0.0337	0.0336	0.0336	0.0336
g4	0.0336	0.0336	0.0336	0.0336
k = (D0/P0)*[(1+gL)+H(gs-gL)]+gL	0.0746	0.0745	0.0697	0.0697
Excl Transalta, CU and ATCO				
Current D0/P0	0.0455	0.0455	0.0398	0.0398
gs (current sustainable g)	0.0131	0.0131	0.0173	0.0173
gL (5-year sustainable g)	0.0208	0.0208	0.0208	0.0208
H = 2 (i.e., 4-year transition from gs to gL)	2.0000	1.0000	2.0000	1.0000
Growth Pattern Under Assumptions				
g0	0.0131	0.0131	0.0173	0.0173
g1	0.0150	0.0169	0.0181	0.0190
g2	0.0169	0.0208	0.0190	0.0208
g3	0.0189	0.0208	0.0199	0.0208
g4	0.0208	0.0208	0.0208	0.0208

k = (D0/P0)*[(1+gL)+H(gs-gL)]+gL	0.0666	0.0669	0.0612	0.0613
Fortis, Emera, Enbridge, TransCda				
Current D0/P0	0.0393	0.0393	0.0345	0.0345
gs (current sustainable g)	0.0179	0.0179	0.0145	0.0145
gL (5-year sustainable g)	0.0407	0.0407	0.0407	0.0407
H = 2 (i.e., 4-year transition from gs to gL)	2.0000	1.0000	2.0000	1.0000
Growth Pattern Under Assumptions				
g0	0.0179	0.0179	0.0145	0.0145
g1	0.0236	0.0293	0.0210	0.0276
g2	0.0293	0.0407	0.0276	0.0407
g3	0.0350	0.0407	0.0341	0.0407
g4	0.0407	0.0407	0.0407	0.0407
k = (D0/P0)*[(1+gL)+H(gs-gL)]+gL	0.0797	0.0806	0.0748	0.0757
AVERAGE	0.0737	0.0740	0.0685	0.0688

The Ke estimates lie within the range of 6.12% to 7.57% for 2013, and from 6.65% to 8.06% for 2014. The average estimate for 2014-2015 is 7.37% if we assume a 4-year transition in growth rates (i.e., H =2), and is slightly higher at 7.40% if we assume a 2-year transition. The 2013 average estimates are 6.85% and 6.88%. Combining these results with a 0.50% allowance for flotation costs, we get the following ranges and point estimates: 2013 – 6.62-8.07% with a best estimate of 7.37%; 2014-15 – 7.15-8.56% with a best estimate of 7.89%. The Ke estimates from the H-Model are slightly higher than the averages derived using the single-stage model. This is because the model implicitly assumes that growth rates will gravitate to longer term average rates, which were slightly higher than the implied rates at a particular point in time in 6 of 8 cases. I will weight the estimates from the constant-growth model and the H-Model equally in arriving at my final DCF estimates.

A summary of the DCF estimates determined above is provided in Table 14 for the market and for utilities. The DCF analysis suggests an 8.31% required return on the market in 2013 with a range of 7.79-8.56%, and an 8.34% return in 2014-15 with the same range. As discussed previously, these are in line with expectations and long-term "real" averages. For utilities, after including a 50 basis point flotation cost allowance, the results suggest a 7.32% required return in 2013 with a range of 5.38-8.70%, and a 7.67% return in 2014-15 with a range of 5.37-8.70%. These estimates are 1.2-1.5% below those for the market (if we also adjusted the market estimates 50bps for flotation costs), which is consistent with the below-average risk of utilities.

TABLE 14

DCF ESTIMATES – 2013-2015

Year	Model	Minimum	Maximum	Best Estimate	Flotation Costs Adj.	Range	Final Estimate
Panel A: Market Estimates							
2013	Single-Stage	7.79	8.56	8.18	0.50	8.29-9.06	8.68
	H-Model	8.40	8.48	8.44	0.50	8.90-8.98	8.94
	Combined	7.79	8.56	8.31	0.50	8.29-9.06	**8.81**
2014-2015	Single-Stage	7.79	8.56	8.18	0.50	8.29-9.06	8.68
	H-Model	8.47	8.52	8.50	0.50	8.97-9.02	9.0
	Combined	7.79	8.56	8.34	0.50	8.29-9.06	**8.84**
Panel B: Utility Estimates							
2013	Single-Stage	4.88	8.20	6.77	0.50	5.38-8.10	7.27
	H-Model	6.12	7.57	6.87	0.50	6.62-8.07	7.37
	Combined	4.88	8.20	6.82	0.50	5.38-8.70	**7.32**
2014-2015	Single-Stage	4.87	8.20	6.94	0.50	5.37-8.70	7.44
	H-Model	6.65	8.06	7.39	0.50	7.15-8.56	7.89
	Combined	4.87	8.20	7.17	0.50	5.37-8.70	**7.67**

3.5 Bond Yield Plus Risk Premium (BYPRP) Estimates

The bond yield plus risk premium (BYPRP) approach adds a risk premium (generally in the 2-5% range) to the yield on a firm's outstanding publicly-traded long-term bonds. This risk premium is not to be confused with the market risk premium used in CAPM, which represents the premium above government risk-free yields and expected market stock returns. It is depicted below:

Ke = Company's Bond Yield + Company Risk Premium

It is more widely used by analysts and CFOs than DCF approaches; albeit not used as much as the CAPM. In particular, evidence suggests this approach is used by 43 percent of financial analysts[12] and by over 50 percent of Canadian CFOs[13].

The intuition behind the approach is that we are able to use typical relationships between bond and stock markets, along with information that can be readily obtained from observable *market-determined* bond yields, to estimate a required rate of return on a firm's stock. In other words, since stocks are riskier than bonds, we know that investors will require a higher return to invest in a firm's stocks than its bonds. The riskier the company, the greater the difference between these required returns (i.e., the greater the risk premium).

While this approach appears to be somewhat "ad hoc" in nature, it does provide a useful reasonableness check on CAPM and other estimates, and employs solid intuition. For one thing, it overcomes technical issues that arise when beta estimates are suspect due to extreme market movements, such as those observed during the early 2000s. In fact, there is a relationship with CAPM in several ways. For example, the firm's yield on outstanding debt will be related to RF, as well as to yield spreads which will vary with market conditions, just as the MRP does in the CAPM. Also, we can "adjust" the risk premium applied to a particular firm according to its riskiness - one measure of which might be by making reference to its typical beta.

The first step is to obtain an estimate of the cost of long-term yields on a typical utility. In fact, we already provided a rough approximation earlier when we noted that December 2013 long-term government yields were 3.15% while the A-rated utility spread was 1.41% at that time, which was consistent with the 2013 average spread, as well as those in 2011 and 2012. This implies that 4.56% is a reasonable starting point for our 2014 BYPRP estimate. The average A-rated utility spread sat at 1.44% at the end of 2012, while long-term Canadas were yielding 2.37%, implying a 3.81% yield on the average A-rated utility at the beginning of 2013. Finally, for 2015 we assumed 30-year government yields would average 3.7% in 2015 and have also assumed that the A-rated utility spread will decline from 140 bps to 120 bps. If we assume that government yields are at 3.7% at the start of 2015, this implies that A-rated utility yields will equal 4.9% at that point in time.

We can confirm the appropriateness of these assumptions by referring to several Canadian utilities that issued public debt during the fall of 2013 and/or had bonds outstanding. Therefore, we can also look to

[12] Source: Model Selection from "Valuation Methods" Presentation, October 2007, produced by Tom Robinson, Ph.D., CFA, CPA, CFP®, Head, Educational Content, CFA Institute. Copyright 2007, CFA Institute.
[13] Source: H. Kent Baker, Shantanu Dutta and Samir Saadi, ,"Corporate Financial Practices in Canada: where do we stand" Multinational Finance Journal 15-3, 2011.

the market yields of these issues for comparison. Table 15 provides the details on some recent issues, as well as regarding some currently outstanding bond series. When the maturity date of the bonds differed significantly from 30 years, a "yield curve adjustment" was applied to the corporate yield. This involved using the prevailing spread at the time between Canada 30-year bonds and Canada yields of the corresponding term to maturity. The implied 30-year yields are very close to 4.56% for the utilities included in Table 15. Since one of the issues in the capital structure discussion of these proceedings is to determine an appropriate capital structure that will enable firms to maintain an A rating, this suggests the use of 4.56% for 2014 as a base yield is appropriate.

TABLE 15

RECENT UTILITY YIELDS AND 30-YEAR YIELD ESTIMATES – DECEMBER 2013

Company	Date	S&P Rating	DBRS Rating	Maturity Date	Yield (%)	Yield Curve Adjustment	Implied 30-Year Yield (%)
PANEL A: Recent Issues							
Canadian Utilities Inc.	Nov 4	A (stable)	A (stable)	Nov / 53	4.558	0	4.56
Fortis	Dec 11 (to be completed Jan/14)	A- (stable)	A low (stable)	Jan / 24	4.00	+0.50	4.50
Enbridge	Sept 25	A- (stable)	A low (stable)	Sept / 23	4.123	+0.50	4.623
PANEL B: Selected Yields on Outstanding Bonds – December 20, 2013							
Canadian Utilities Inc.	Dec 20	A (stable)	A (stable)	Oct / 41	4.50	0	4.50
Emera	Dec 20	BBB+	BBB high	Dec / 19	3.29	1.35	4.63
Enbridge	Dec 20	A-	A low	Mar / 20	3.17	1.35	4.52
Hydro One	Dec 20	NA	A high	Sep / 41	4.51	0	4.51
Hydro One	Dec 20	NA	A high	Oct / 46	4.52	0	4.52

Having decided that 4.56% is a reasonable yield for 2014 to use in this approach, we now need to determine the appropriate risk premium to add to this. As mentioned, the usual range is 2-5%, with 3.5% being commonly used for "average" risk companies, and lower values for less risky companies. Given the low risk nature of Canadian regulated utilities, a low risk premium is appropriate, suggesting the use of a 2-3% range, with a best estimate of 2.5%. The use of the lower part of the range is further justified by the fact that yield spreads for A-rated utilities were still about 40 points above historical levels – this is reflected in the first estimate used in the BYPRP approach.

Combining this information, we get the following 2013-2015 estimates for Ke according to this approach:

2013:

Minimum: Ke = 3.71 + 2 = 5.71%
Maximum: Ke = 3.91 + 3 = 6.91%
Best Estimate: Ke = 3.81 + 2.5 = 6.31%
If we add 50 basis points for flotation costs, we end up with Ke estimates in the 6.2-7.4% range, with a best estimate of 6.81%.

2014 and 2015:

Minimum: Ke = 4.46 + 2 = 6.46%
Maximum: Ke = 4.66 + 3 = 7.66%
Best Estimate: Ke = 4.56 + 2.5 = 7.06%
Adding 50 basis points for flotation costs, we end up with Ke estimates in the 7.0-8.2% range, with a best estimate of 7.56%.

2015:

Minimum: Ke = 4.8 + 2 = 6.8%
Maximum: Ke = 5.0 + 3 = 8.0%
Best Estimate: Ke = 4.9 + 2.5 = 7.4%
Adding 50 basis points for flotation costs, we end up with Ke estimates in the 7.3-8.5% range, with a best estimate of 7.9%.

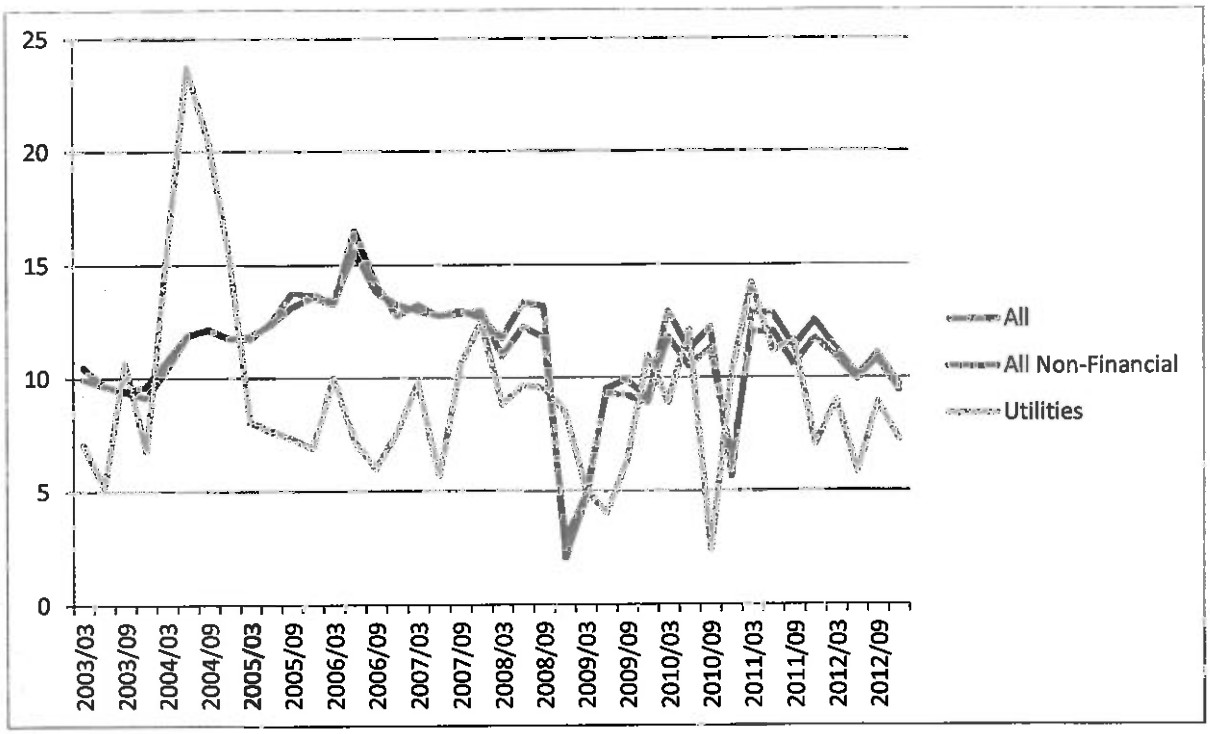
The estimates of 6.8% for 2013, 7.6% for 2014, and 7.9% for 2015 are above the CAPM estimates of 6.2%, 6.6%, and 6.7% but suggest that they are reasonable. The 2013 estimate is below the 2013 DCF estimate of 7.3%, while the 2014 and 2015 estimates are very close to the DCF estimate of 7.7% for both of those years. Again, these estimates suggest the DCF numbers are reasonable at an intuitive level.

3.6 ROES, Price-to-Book (P/B) Ratios and Past Returns

Figure 18 depicts annualized quarterly ROE data for Canadian firms and Canadian utilities from 2003 to 2012. Over this period, the average ROE for all companies was 11.0%, 11.3% for all non-financial companies, and 9.4% for utilities. We can see that it was generally a good period for all types of companies in terms of ROEs, which fell between 2.9 and 15.6% for all companies, 2.0 and 16.5% for all non-financials, and 2.4 and 23.7% for utilities.

FIGURE 18

CANADIAN ROES– 2003-2012



Data Source: CANSIM.

Table 16 provides similar positive results for Alberta utilities over the 2009 to 2012 period according to their Rule 005 reports with annual averages ranging from 8.77% to 9.86%, and always above the allowed ROE. The four-year overall average was 9.30%, slightly above the average allowed ROE of 8.88%. So overall, we can say that these utilities generate ROEs that are generally slightly above the allowed rates of 9% and 8.75%, and falling around the 9% mark, consistent with the overall stats provided in Figure 18 for Canadian utilities, and with those provided earlier in Table 10 of the DCF analysis.

TABLE 16

REPORTED ROES – ALBERTA UTILITIES 2009-2012

Company ROEs	2012	2011	2010	2009	Avg 09-12
ATCO Electric Trans	10.66%	9.87%	10.21%	9.63%	10.09%
AltaLink	9.28%	9.48%	9.10%	9.30%	9.29%
Epcor Trans	10.82%	8.36%	9.71%	9.20%	9.52%
ATCO Gas	11.01%	10.98%	9.86%	11.01%	10.71%
ATCO Electric Dist	12.14%	11.50%	12.57%	12.62%	12.21%
ATCO Pipelines	11.16%	11.53%	10.86%	10.88%	11.11%
Fortis	9.99%	9.73%	9.63%	9.13%	9.62%
Enmax Dist	10.22%	6.71%	6.79%	10.39%	8.53%
Enmax Trans	0.49%	4.08%	6.07%	12.84%	5.87%
Epcor Dist	8.10%	8.03%	10.76%	4.48%	7.84%
AltaGas	10.17%	6.19%	4.87%	8.94%	7.54%
Allowed ROE	8.75%	8.75%	9.00%	9.00%	8.88%
Average	9.46%	8.77%	9.13%	9.86%	9.30%
Median	10.22%	9.48%	9.71%	9.63%	9.52%
Max	12.14%	11.53%	12.57%	12.84%	12.21%
Min	0.49%	4.08%	4.87%	4.48%	5.87%
StdDev	0.031537	0.023711	0.022976	0.022423	0.017913

Data Source: Rule 005 reports.

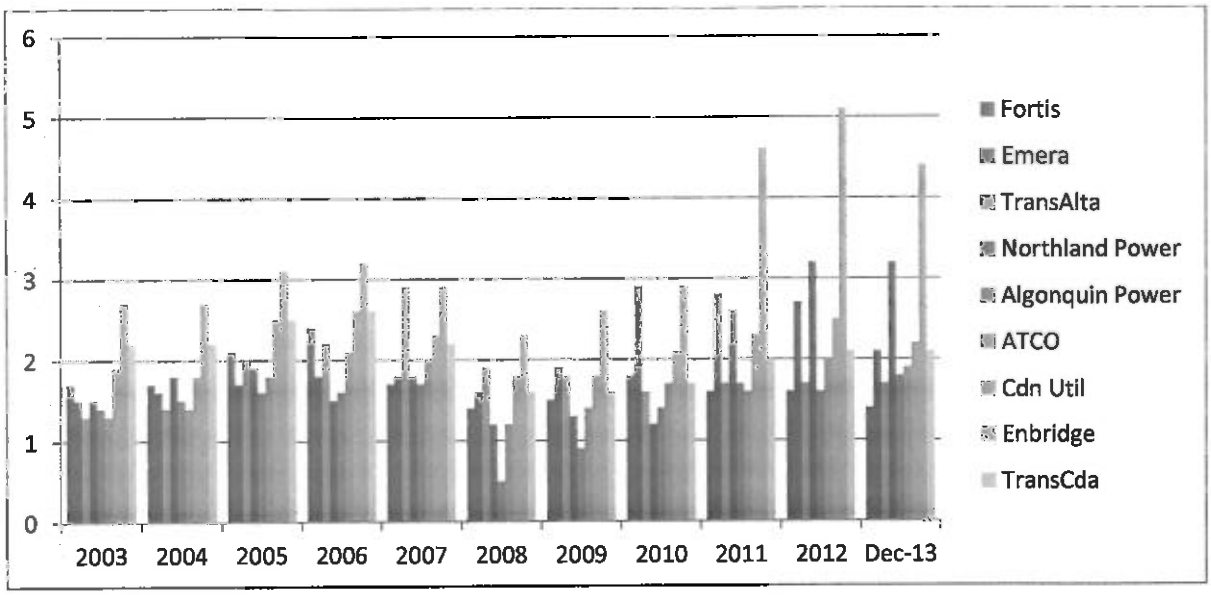
ROE data suggest that utilities have earned almost as much as the average Canadian company, yet we know that they are less risky than average. In fact, ROE numbers are above the required return estimates for 2013 determined using CAPM, DCF and BYPRP approaches, with best estimates of 6.2%, 7.3% and 6.8% and which ranged from 4.6% to 8.7%. All of this suggests that they would make attractive investments. Certainly from an investor's point of view, low-risk utilities that have regulated returns that exceed "required" rates of return based on their risk level are attractive. For example, assume an investor used CAPM to determine his required rate of return for an average regulated utility and arrived at the 6.2% figure that was determined above. If the utility earned the prescribed ROE of 8.75%, then that investor would surely be pleased. Of course, this does not mean that the actual return on the stock was 8.75%; however there is an obvious relationship between the two. I will examine this relationship by reference to price-to-book (P/B) ratios and stock returns.

I begin by considering the P/B ratios for the utilities discussed previously in the DCF analysis. The individual P/B ratios for the firms are presented in Figure 19. It is obvious that almost all of the ratios are above 1 throughout the entire period, and have risen on average over the period, and are now generally close to 2. The summary statistics provided in Table 17 show that the average P/B ratio has generally

averaged over 2, and is presently approximately 2.3 to 2.5, depending on which sub-set of firms is considered.

FIGURE 19

UTILITY P/B RATIOS – 2003-2013



Data Source: Morningstar at www.morningstar.ca.

TABLE 17

P/B RATIO SUMMARY STATISTICS – 2003-2013

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Dec-13
Average	1.72	1.79	2.13	2.22	2.14	1.50	1.64	1.92	2.32	2.50	2.31
Median	1.50	1.70	2.00	2.20	2.00	1.60	1.60	1.70	2.00	2.10	2.10
Max	2.70	2.70	3.10	3.20	2.90	2.30	2.60	2.90	4.60	5.10	4.40
Min	1.30	1.40	1.60	1.50	1.70	0.50	0.90	1.20	1.60	1.60	1.40
Average excl TransAlta	1.78	1.84	2.15	2.23	2.05	1.45	1.63	1.96	2.40	2.60	2.39
Median	1.60	1.75	2.00	2.25	1.90	1.50	1.55	1.75	2.15	2.30	2.10
Max	2.70	2.70	3.10	3.20	2.90	2.30	2.60	2.90	4.60	5.10	4.40
Min	1.30	1.40	1.60	1.50	1.70	0.50	0.90	1.20	1.60	1.60	1.40
Average excl TransAlta, CU, and ATCO	1.83	1.92	2.15	2.18	2.02	1.43	1.63	1.98	2.55	2.72	2.50
Median	1.60	1.75	2.00	2.10	1.80	1.50	1.55	1.75	2.30	2.40	2.10
Max	2.70	2.70	3.10	3.20	2.90	2.30	2.60	2.90	4.60	5.10	4.40
Min	1.40	1.50	1.60	1.50	1.70	0.50	0.90	1.20	1.60	1.60	1.40
Average (Fortis, Emera, Enbridge, TransCda)	2.03	2.05	2.35	2.50	2.15	1.73	1.90	2.33	2.75	2.88	2.50
Median	1.95	1.95	2.30	2.50	2.00	1.60	1.75	2.35	2.40	2.40	2.10
Max	2.70	2.70	3.10	3.20	2.90	2.30	2.60	2.90	4.60	5.10	4.40
Min	1.50	1.60	1.70	1.80	1.70	1.40	1.50	1.70	1.60	1.60	1.40

Data Source: Morningstar at www.morningstar.ca.

Generally speaking, higher P/B ratios indicate greater future growth opportunities, and firms that have P/B ratios greater than one are earning rates of return that are at least "fair," if not above fair. This is consistent with the Commission's statement in the 2011 decision.

The constant-growth DDM can actually be rearranged to show that the appropriate P/B ratio can be expressed as:[14] $P/B = (ROE - g) / (Ke - g)$

This expression implies that P/B ratios will be greater than one if actual ROE > Ke, will equal one if Ke = ROE, and will be less than one when ROE < Ke. This is consistent with the discussion above. If we "plugged" the average 2004-2012 utility index ROE of 9.4% into the equation, as well as the current average P/B ratio of 2.4 (or so), and then used a 3% long-term growth rate, we would get an implied Ke of 5.67%. If we added 50 basis points for flotation costs to this to get 6.17%, the number is very close to

[14] This is true if we use the following sustainable growth rate for "g" in the DDM: g = (1 – payout) × ROE.

the 2013 CAPM estimate provided above, and not far off those for 2014 and 2015. While I will not assign any weight to this estimate for purposes of determining Ke, the bottom line of this discussion is that the P/B ratios for utilities reported above indicate that Canadian utilities appear to be earning a satisfactory (or more than satisfactory) ROE, and have done so for quite some time.

Finally, we can turn to actual stock returns. Table 18 shows that the average returns on the Utilities' Index have generally exceeded those on the overall market. This is consistent with the observation that utilities have much lower risk than the average company, yet they earn ROEs that are fairly close to that of the average company. This superior stock performance is also reflected in their P/B ratios, as discussed above.

TABLE 18

STOCK RETURN AVERAGES – 1998-2012

	Return Utilities (%)	Return TSX (%)
Annual Avg (88-12)	11.02	9.47
Annual Avg (08-12)	5.28	2.32
Annual Avg (03-07)	18.58	18.88
Annual Avg (98-02)	7.38	3.40
Annual Avg (93-97)	18.62	18.33
Annual Avg (88-92)	5.98	5.51
Annual Average 03-12	11.75	10.31

Data Source: CHASS database.

3.7 Summary of ROE Calculations

Normally, I would choose to rely more heavily on my CAPM estimates over DCF estimates in determining the appropriate ROE. CAPM is much more heavily relied upon in practice due to its conceptual advantages. For example, returning to the previous studies that were cited with respect to DCF approaches, they were used by[15]:

- only 15% of U.S. CFOs - versus over 70% for CAPM (Graham and Harvey, 2001)
- about 12% of Canadian CFOs - versus close to 40% for CAPM (Baker et al, 2011)

These advantages also make CAPM more intuitive from the point of view of a utility hearing. In particular, it has a direct relationship to financing costs (i.e., RF and MRP). The CAPM also makes a direct adjustment for the risk of utilities relative to the market, unlike DCF models, since it has a direct

[15] DCF estimates of Ke were not used by any of the analysts in the Robinson (2007) survey, in which 68% used CAPM. This is because the focus was on which discount rate would be used "in" DCF models, so the use of a discount rate determined by such models would be inappropriate, since it lead to a "circular argument."

measure of risk (i.e., beta) included in the model. In addition, there are uncertainties associated with determining some of DCF input estimates for pure play regulated Canadian industries discussed earlier. However, I have chosen to give all three model estimates equal weighting, based on the fact that the CAPM estimates are lower than typical due to low RFs. I also gave equal weighting to the BYPRP approach. Despite its ad hoc nature, this approach is more widely used than DCF approaches due to its intuitive nature, and because it does adjust for both borrowing rates and risk, even if not in a detailed manner. It also provides a useful check on the reasonableness of other estimates derived from more complicated models.

Based on an equal weighting of the three approaches, I determine the following best estimates for the 2013-2015 ROEs:

2013: Ke = (1/3)(6.20) + (1/3)(7.32) + (1/3)(6.81) = 6.78%

2014: Ke = (1/3)(6.58) + (1/3)(7.67) + (1/3)(7.56) = 7.27%

2015: Ke = (1/3)(6.68) + (1/3)(7.67) + (1/3)(7.90) = 7.42%

These numbers lie centrally in the estimate ranges for the three models, which are depicted in Figures 20, 21 and 22 below.

FIGURE 20

ROE ESTIMATE RANGES – 2013

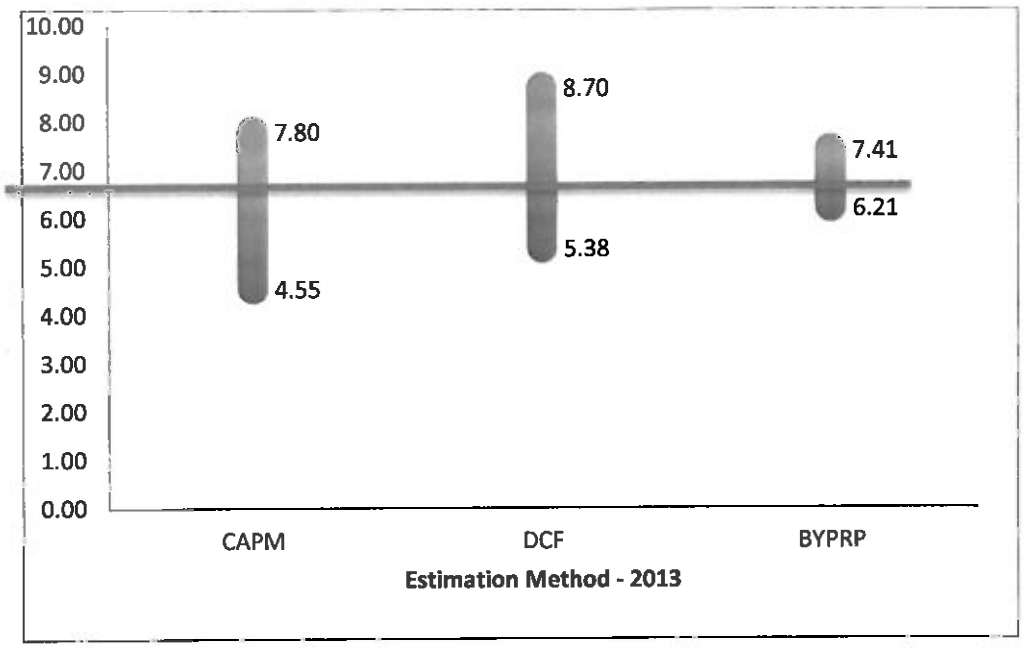


FIGURE 21

ROE ESTIMATE RANGES – 2014

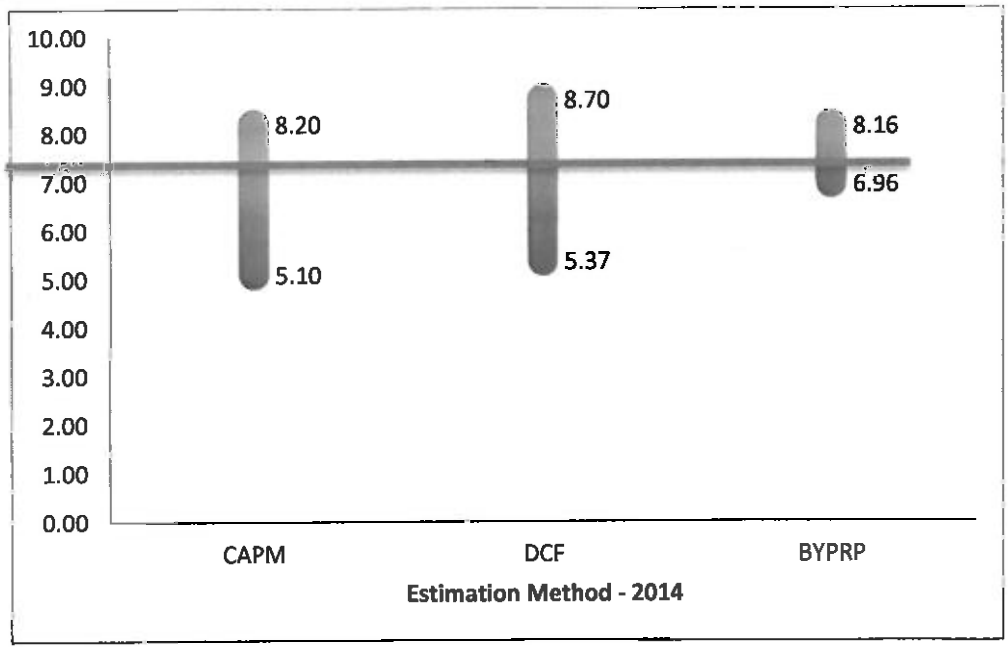
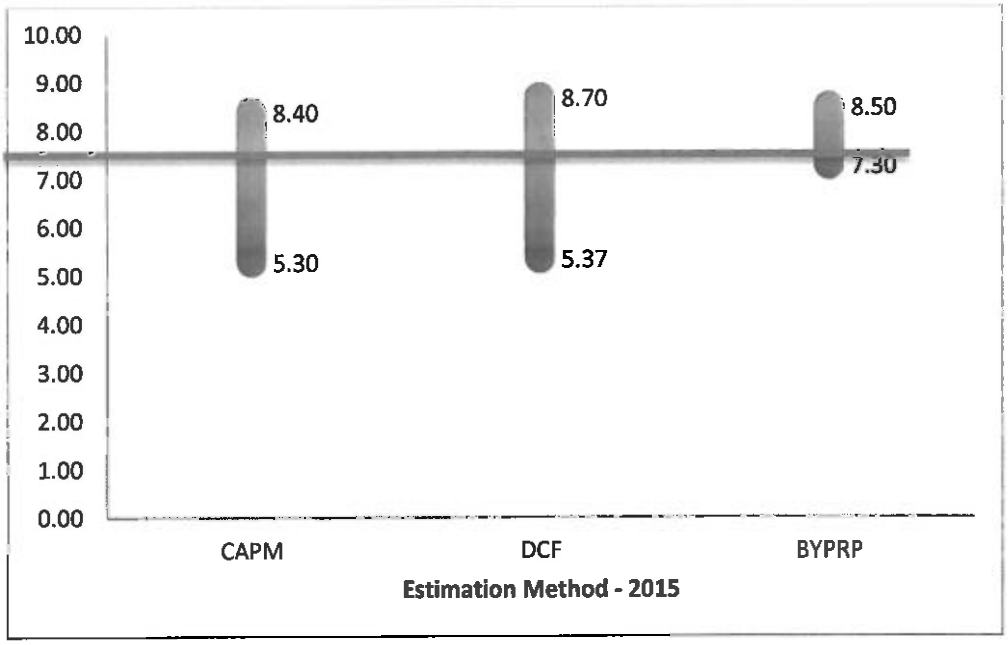


FIGURE 22

ROE ESTIMATE RANGES – 2015



These estimates are very reasonable when compared to expected long-term overall stock market returns around 8-9%, when we consider the low-risk nature of regulated utilities. It is important to recognize that overall stock market conditions have changed over the last three decades and double digit "nominal" returns are unlikely to be the norm, given 2% long-run inflation expectations. The estimates are lower than in previous decisions; although well within the range of 6.4% to 9.5% considered in the 2011 decision. They are also consistent with our current low interest rate environment, which can be expected to change only gradually over the next two to four years.

4. COMMENTS ON AN ROE AUTOMATIC ADJUSTMENT MECHANISM (AAM)

I would not advocate the use of an AAM for long periods of time, since it would be difficult to envision one that would adjust to changing capital market conditions over an extended period of time. In a "perfect world" rates should be determined on an annual basis to reflect market and company situations – however this is obviously impractical in the real world. Hence the logistics dictate that regular hearings are a necessary burden. The trade-off is to determine intervals that consider the costs involved in such hearings versus not allowing too much time to elapse in between. Given the intervals will be every two to four years, it makes sense to implement an "interim" (but not long-term) AAM. While not ideal, it is better

than assuming conditions will "not" change, or trying to forecast capital market and business risk conditions too far into the uncertain future.

The AAMs recently instituted in B.C., Ontario and Quebec offers some benefits over previous ones in the sense in the sense that they adjust for changes in bond yields, and *also* for changes in yields spreads. This represents an improvement over previous AAMs, which only adjusted for changes in Canada yields and which may not truly reflect a change in a firm's financing costs. For example, if government yields decreased by 50 basis points due to enhanced economic uncertainty, previous AAMs would reduce the allowable ROE. However, economic uncertainty will often cause yield spreads to widen, so it is quite possible that they could increase. If in this example, yield spreads widened by 80 basis points, the firm's borrowing costs would have actually increased by 30 basis points despite lower government yields. Yet the allowed ROE would have been reduced, rather than increased, as should be the case.

In some sense we can view the more recent AAMs as making adjustments to the CAPM estimates as market conditions change. For example, changes in bond yields represent changes in RF. Changes in yield spreads will be related to changes in the market risk premium (MRP). The simplicity of using yield spreads is that they are easily "observable," unlike the MRP, which is somewhat subjective. However, yield spreads tend to widen during periods of uncertainty, just as MRPs will tend to increase at such times. So there is some consistency in using this approach since CAPM is heavily relied upon in determining generic ROEs. Also, by focusing on government yields and yields spreads, the AAM is closely related to a firm's borrowing costs, which are in turn related to their equity costs – the relationship of which is made clear in the BYPRP approach.

If we are to rely on CAPM estimates as one of the major considerations in determining allowable ROEs, it makes sense to allow this rate to go up or down in very close tandem with changes in RF (i.e., 30-year government yields). Hence, I would add 75% of the change in RF to the base ROE, as was initiated in Quebec. Adding 50% of the change in yield spreads is also very intuitive in the sense that it is like a 0.50 adjustment of the MRP, and long-term utility betas lie close to 0.5. It is also consistent with the approach I used in determining my CAPM estimate of adding in 50% of an "abnormal" yield spread. Unfortunately, the floor of 3.8% used in B.C. causes an implementation issue. If government yields fell below 3.8% there would be no downward adjustment in ROE in relation to that factor. However, if yield spreads widened during the period, then the ROE would increase even though the cost of debt to firms may not have risen, since it is a function of both factors. Hence, I would not support a minimum value. My recommended AAM can be expressed as:

ROE (adj.) = ROE (base) + 0.75×[RF (now) – RF (base)] + 0.50×[Yield Spread (now) – Yield Spread (base)]

For reference purposes, I will demonstrate how this AAM would have worked for 2012 based on the 2011 ROE decision of 8.75%. The decision was made at a time when the estimated 30-year yields for 2011 and 2012 were 3.8% and 4.3% respectively and the A-rated utility yield spread was 1.41%. However, in 2012, government yields ended up averaging only 2.4% due to economic uncertainties, while the average yield spread during the year remained relatively unchanged at 1.46%. Rather than the awarded ROE of 8.75%, the AAM would have determined that the ROE should be as calculated below:

ROE 2012 = 8.75% + [0.75 × (2.4 – 3.8)] + [0.50 × (1.46 – 1.41)] = 8.75 – 1.05 + 0.025 = 7.73%.

In retrospect, this number would have made more sense given the low prevailing government yields and similar yield spreads, which imply that utility borrowing costs were much lower than had been forecast. While not perfect, it does represent an improvement.

Similarly, I will apply it to determine the 2014 ROE estimate, using my 2013 estimate of 6.78% as the base. This rate was determined based on a 2013 estimated long-term government yield of 2.8%. If long-term rates end up being 3.5% in 2014 as expected, and the change in yield spreads declines 20 basis points, also as expected, we would get the following adjustment:

ROE 2014 = 6.78% + [0.75 × (3.5 – 2.8)] + [0.50 × (-0.20)] = 6.78 + 0.525 - 0.10 = 7.205%.

This is very close to the 2014 estimate of 7.27%.

5. CAPITAL STRUCTURE ISSUES

5.1 Context

I have approached the issue of appropriate capital structures for Alberta utilities at the aggregate level, using previous decisions as the starting point. This is appropriate given the evolution of this issue following the 2004 Decision, and in light of changes in circumstances related to market and/or business risk since then. In the 2011 proceedings, the Commission stated that "none of the expert witnesses put forward evidence which would indicate materially changed business risks for the utility sectors since Decision 2009-216, with the exception of ATCO Pipelines in light of the integration with Nova Gas Transmission Ltd. (NGTL)."

Examining recent decisions, recent rating reports, as well as utility analyst reports, it is reasonable to assume the statement above regarding utility business risk at the aggregate level would also apply to

Alberta utilities in today's environment. Credit rating agencies and analysts consider the business risk of the Alberta utilities above to be low, and it is considered one of their strengths in terms of the rating process. For example, Fortis Inc., AltaLink and CU Inc. were all rated "Excellent" in terms of business risk by S&P in their most recent ratings reports, while Enmax was rated as "Strong." Hence, I will focus my attention on discussing financial issues in terms of general market conditions, and then examine factors pertaining to debt ratings, and the importance thereof.

5.2 Financial and Economic Influences on Appropriate Capital Structures

In the 2011 Decision, the general consensus was that the financial crisis was over – and this is certainly even more true today than it was then; although it took us longer to bounce back fully than many expected. The low points of 2008-2009 were well-documented in the 2011 evidence, and can be seen in some of the evidence reported in Section 2.1 of this report. For example, we saw that over the 2008 to 2009 period, A-rated utility yield spreads exceeded 300 basis points, stock market losses of more than 30% occurred in Canada and the U.S., while volatility index values exceeded 70. In contrast, at the start of 2014, A-rated utility yield spreads were around 140 basis points, Canadian and U.S. stock markets had experienced 2013 returns of 13% and 32% respectively, while the January 29, 2014 closing value of the Montreal volatility index was 13.5. It is improved market conditions such as these that prompted Vincent Delisle of Scotiabank to dub 2014 a "normalization" year in terms of his expectations for the future in a December 2013 forecast.

One thing that remains abnormal is interest rate levels – both short and long-term rates remain extremely low. This has been driven by slower than expected growth recovery and the resulting low inflationary pressures, coupled with the slower than expected unwinding of the U.S. QE program. However, yield spreads have remained steady since the 2011 decision at around 140 basis points over 2011-2013, or approximately 40 basis points higher than long-term average spreads. The result has been continued low borrowing costs for Canadian utilities.

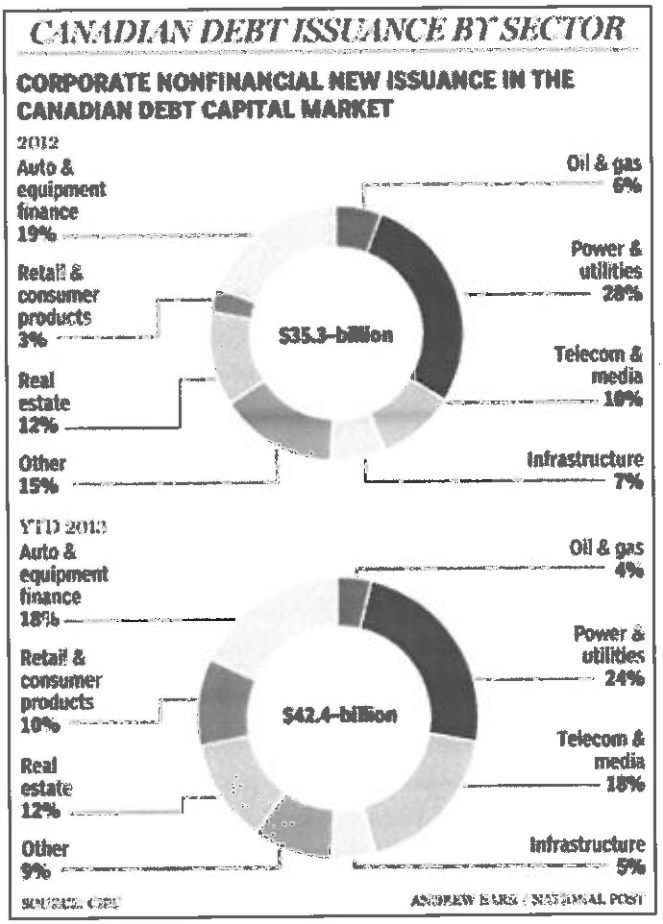
In 2011, K&R noted that demand for utility debt was strong in 2010. This remains the case today, with demand hitting new highs for corporate debt offerings in Canada and the U.S. Canadian evidence to this regard can be seen in Figure 23, which shows corporate debt offerings reaching a record high of $42.4 billion for the period ending October 31, 2013. The article also discusses how much of the record high can be attributed to utility offerings. In particular, the article notes that "borrowing actions of the power and utilities sector are the key reason for this year's record issuance."[16] The result of all this is very

[16] Source: http://business.financialpost.com/2013/12/10/corporate-debt-issuance-soars-to-record-in-2013-power-and-utility-borrowers-lead-the-charge/, December 10, 2013.

favorable financing conditions for Canadian utilities – low rates and strong demand for their debt issuances. Hence, the financial market reasons that contributed to the 2009 equity bump of 2% no longer hold weight.

FIGURE 23

CANADIAN DEBT ISSUANCE – 2013



Source: http://business.financialpost.com/2013/12/10/corporate-debt-issuance-soars-to-record-in-2013-power-and-utility-borrowers-lead-the-charge/, December 10, 2013.

5.3 Credit Rating Considerations

In a separate report, witnesses for the UCA used the model employed by the Commission in 2011 along with some reasonable assumptions to show that utilities have significant slack in terms of their existing equity ratios to satisfy the credit metric requirements considered by the Commission in 2011. It is also

interesting to note that K&R argued in both 2011 and in 2009 that ratings are not determined mechanically through a pure "formula" approach; although ratio analysis is obviously a key input. They provide examples of utility firms that possessed A ratings, but that do not meet the "cut-offs" for all three metrics considered by the commission – i.e., EBIT coverage > 2; FFO coverage > 3; and, FFO/Debt between 11.1 and 14.3%. For example, AltaLink L.P. maintained an A rating (stable) when rated by DBRS in December 2009 while not meeting the EBIT coverage or FFO coverage ratios, and maintained an A- (stable) rating from S&P when rated in November 2010 despite having an EBIT coverage ratio of only 1.8. Fortis Inc. maintained an A- (stable) rating from S&P in December 2010 despite not making any of the three metric cut-off points, and maintained this rating through 2012 when they also did not meet the metrics. Obviously it is desirable to meet all three metrics if possible, but this evidence suggests it is possible to maintain an A rating even if the firm does not meet all three metrics at a particular point in time.

The discussion above is consistent with information provided by S&P regarding "proposed credit criteria" for global regulated utilities.[17] The proposed amendments relate to three areas: (i) competitive position, as related to the business risk profile; (ii) cash flow/leverage, in the financial risk profile; and, (iii) liquidity. While areas (ii) and (iii) clearly can be related to ratio analysis, the emphasis regarding item (i) relates to a number of items that cannot be measured, or are difficult to measure, by ratios including: (a) assessing regulatory advantage; (b) scale, scope and diversity; and, (c) operating efficiency. Similarly, DBRS considers the following factors in utility ratings: (1) industry factors – (a) regulatory factors, (b) competitive environment, and (c) supply/demand considerations; and, (2) company specific factors – (a) regulated versus non-regulated activities, (b) domestic versus foreign operations, (c) capital spending program, (d) coverage ratios, and (e) qualitative factors.[18]

In 2011, K&R noted that demand for utility debt was strong in 2010, even debt in the BBB-rated range, while in the U.S. there were more BBB-rated utilities than A-rated ones, and there was ample appetite for their offerings. It is evidence like this that prompted B.C. to take less of a hard line on maintaining the A-rating status in their May 2013 decision, stating: "The Panel supports the maintenance of an "A" category credit rating but only to the extent that it can be maintained without going beyond what is required by the Fair Return Standard." I certainly am not advocating the disregard for the A-rating status, as I believe it is a valid concern. The point is merely that a BBB rating is not catastrophic - several Canadian utilities have BBB ratings and still manage to raise debt as necessary.

[17] Source: "Request for Comment: Key Credit Factors for the Global Regulated Utility Industry," Standard & Poor's, June 26, 2013.
[18] Source: "Rating Utilities (Electric, Pipelines & Gas Distribution)," Dominion Bond Rating Service, www.dbrs.com, December 15, 2013.

5.4 Capital Structure Conclusions

The discussion above suggests that the extreme financial pressures resulting from the 2008-2009 crisis that warranted an across the board 2% equity ratio bump in 2009 have abated. Conditions have stabilized, but have left us with low base interest rates for the time being. Combining this with yield spreads that remain only slightly elevated, but well below crisis level highs, suggests the present conditions provide them with very low cost long-term borrowing. An examination of credit metrics provided by UCA witnesses suggests that, at current equity ratios, utilities have slack in terms of meeting acceptable (i.e., A-rating) cut-off ranges. Further, it is not clear that falling below one or more criteria is grounds for an automatic downgrade to BBB status, or that this would be a catastrophic event.