Alberta Insurance Rate Board
Public Hearing on

Issue #1
What should be the appropriate target ROE level for basic automobile insurance written in Alberta?
Issue #2
What are the appropriate levels of the components of the reconciliation between the profit provision (% of premium) and ROE?
Issue #3
What calculation techniques or models should be used to convert target ROE to an appropriate profit provision?
Issue #4
What will be the impact of impending changes to financial accounting?

Submission by: ING Canada Inc.

Presenting this submission will be:

Jetse deVries, Chief Operating Officer, Western Region, ING Canada
Martin Beaulieu, Senior Vice President, Personal Lines, ING Canada
Don Fox, Managing Director and Head of Financial Institutions, CIBC World Markets
Bill Premdas, Vice President and Actuary, Western Region, ING Canada

October 20, 2006

Jetse deVries:

Thank you for allowing us to present to the Alberta Insurance Rate Board. While I have been a resident of Alberta for only a few years, I take special pride in having the opportunity to present to you today. I have been fortunate to work and live in numerous countries while working at ING but have decided to make my family's permanent home here in Calgary as we have fallen in love with what this province offers my family for lifestyle and opportunities. Alberta has always had a lot to be proud of but I think that's never been more true than today. ING Canada has a long history in this province and as a market leader and major employer in this province; we have a clear interest in the future economic prosperity of the region. Our industry plays a crucial role in that economic development. Without insurance, no commerce can take place and no wealth can be created. And without insurance, individuals live in fear of what random chance can do to the assets they accumulate. While we are unlikely ever to be a popular industry, it is important for public policy that those who regulate us understand the valuable function we fulfill and appreciate the structure of our industry, the nature of the risks we assume and the financial realities that we live with as managers of economic capital.

That's why we have decided to participate as comprehensively in your review as we are today. I am joined by Mr. Don Fox, Managing Director and Head of Financial Institutions of CIBC World Markets, and two colleagues of mine from ING – Mr. Martin Beaulieu and Mr. Bill Premdas.

Alberta's drive forward is clearly described as the Alberta Advantage which is prominently displayed, communicated and advertised by this government to the residents of Alberta and the corporate sector to promote living and conducting business here. Some of the key features explained via the Alberta Advantage are:

- a strong commitment to innovation and knowledge-based progress
- a highly entrepreneurial and competitive business community
- a business-friendly province committed to responsible regulation

In addition, Alberta's positive business climate is promoted to include:

- A government committed to less regulation to enhance business competitiveness
- A fiscally responsible government that has eliminated its provincial debt, demonstrating to investors the business-like attitude of the government here

I think there is general agreement that Alberta's success is due, in large part, to a strong emphasis on attracting new business investment. Nowhere in the Alberta Advantage or on the Alberta government website is there a description of how the province proposes to regulate the profits of those who locate here. And at no point is there a promise to limit the potential returns of those who invest in the creation of jobs in Alberta. This is for good reason. Companies seeking to grow, seek opportunities in jurisdictions where such objectives are recognized and respected. Investors, including pension funds and everyday Albertans from all walks of life, seek to invest in companies and jurisdictions

where there is an opportunity for rewards correspondent to the risk assumed. Recognizing these facts, effective government policy has helped our province consistently grow faster than the country as a whole. Similar recognition by you, as a Board, would lead you to correctly conclude that it is in the interest of this province to seek ways to encourage investment by insurers in the province, in the interests of this industry to structure the regulatory environment in such a way as to encourage more capital to seek returns here, and in the interests of consumers and citizens to manage the product and the rate review process to ensure a competitive environment where innovation is rewarded.

Alberta is experiencing unprecedented growth in housing costs and rental costs to a point where Alberta Government Services were asked why Alberta does not have rent controls. The response from the government as provided on their website answered as follows:

> Experience shows that rent controls are harmful to the rental housing market over the long term. Rent controls discourage development of new rental housing and fewer units are available for rent. Some landlords reduce maintenance of property or provide fewer services as a method of reducing operating costs, therefore buildings start deteriorating.

I would argue that the same response should be applicable to basic automobile insurance premiums. No doubt, you hear from some areas that our industry should be treated as a regulated monopoly. And indeed in this province and elsewhere there are regulated monopolies where returns are circumscribed. As economists have shown over time, even in such cases, the disincentive to innovate or manage expenses can have negative consequences but I will leave that discussion for the Alberta government's review of monopolistic industries. Albertans also remember the impact that the National Energy Program had on the economy as regulation restricted returns in that industry. To this date, the provincial government fights to ensure a free market approach to this commodity.

I do not propose today to focus our discussion on the highly competitive industry which is the Alberta property & casualty industry – this has been more than adequately covered in the presentation from the Insurance Bureau of Canada. Instead, we propose to discuss specifically how a publicly traded insurer such as ING Canada, with shareholders around the globe thinks about where to invest its capital, how we allocate that capital based on the opportunities we identify and how our investors measure our success in performing these tasks on their behalf.

First, I would invite Mr. Beaulieu to give our view on estimating the cost of equity for automobile insurers operating in Alberta. Mr. Beaulieu will be referring to an independent document prepared for hearings recently held in New Brunswick when that government sought to answer the same question. The paper submitted as Appendix 1 was prepared by Dr. Abdul Rahman. Dr. Rahman is a world renowned business economist and consults for large global enterprises. He is also active in academia and is currently Associate Professor of Finance and Economics, School of Management at

University of Ottawa. (Please refer to Appendix 1 for Dr. Rahman's paper entitled "Estimating the Cost of Equity for Canadian Automobile Insurers."). Dr. Rahman unfortunately could not attend today but he has given us permission to use his report to support our views.

Martin Beaulieu:

Dr. Rahman's report is based on the state of art methodology proposed by Cummins and Philips (2005), which you have already heard from the IBC presentation and forms the basis for much of the academia study around this issue. Their methodology modifies the traditional CAPM to incorporate infrequent trading, the Fama-French three factor model and valuation based on lines of business; he recommended that the ROE should range between 12.44% and 16.60% which is in line with the recommendation you heard from IBC earlier in these hearings.

His report also discusses the economic question as to whether consumers will receive the most advantaged price-offer insurance proposition if prices were regulated by way of setting ROE rather than if they were set by market forces. The presumption of price regulation is that the market equilibrium price will be too high for consumers to bear. Hence, by necessity, a regulated price is usually lower than the market equilibrium price. This leads to obvious consequences and while not experienced yet in Alberta has taken place in jurisdictions in the U.S. which you have heard about during the course of these hearings. For example, he concludes returns on equity that are set lower than the market-determined rate will likely lead to auto insurers exiting the market since they will not earn a fair risk-adjusted rate of return. With fewer firms in the market, the true economic price will increase leading to higher cost to consumers. In the end, consumers suffer from having a smaller set of choices and higher cost.

Dr. Rahman then goes on to explain that a fair market-determined rate of return on equity will lead to more choices as firms compete on product innovation and value-added features. He cautions using an averaging feature of overall firm risk as a biased estimate of the risk of any one line of business would occur. A recommendation is given that if the Board insists on regulating ROE for the basic automobile business, two underlying principles must be adhered to in order to be equitable to both consumers and firms. These are:

- Estimate the ROE for auto insurers based on a "line of business" approach;
- Note that ROE is subject to sources of volatility that emanate from changes in the risk-free rate and market risk premia. Hence a rational approach is to permit auto insurers to operate within a range of ROE for a given time period.

The fact that your Board is trying to determine an appropriate ROE formula shouldn't mean that you need to cast a number in stone. Competition does control this and you need to adapt to market conditions and could assess on a company by company basis.

Let me turn my discussion now towards ING. I would like to explain what is expected of ING and the goals we tell the investment community we strive to achieve. Not all

insurance companies have the same business model or shareholder expectations. At ING, we strive to:

- Create a sustainable, superior performance gap, as measured by ROE, relative to the Canadian P&C industry of not less than 500 basis points; plus
- Exceed the annual organic growth rate in direct premiums written of the Canadian P&C industry by at least 300 basis points.

It is these goals that our investors hold us accountable to and also which drive our desire to compete aggressively for Albertans' share of wallet. At ING, we have a commitment to reinvest a significant portion of our profits in order to:

- Continue to improve our service levels and ease of doing business for our customers and distribution partners; and
- Offer increased value to our customers through product innovation and differentiation

As a general rule in a free market system the objective of regulators must be to ensure the effective workings of a market to ensure a high level of competition in an environment which respects consumer rights and appropriate commercial practices. Fierce competition is generally understood - correctly in my view - to be the most effective guardian of the public interest. Such competition encourages product innovation, improved customer service as well as lower prices. In fact, over time such competition will tend to reduce returns on equity for investors as a higher share of the economic value must be offered to customers to attract and maintain their business. And what encourages fierce competition? The potential for higher returns. This is why we feel so strongly about the importance of the decision the Board makes on the topic you have invited us to discuss today.

Last year the Autorité des marchés financiers (AMF) in Quebec published its annual report on the performance of the automobile industry in that province. It reported that the Industry was functioning well, with high levels of competition ensuring affordability and accessibility for consumers. I think it is fair to say that the insurance "crisis" that has affected our province did not touch Quebec. I would suggest that as a new Board, the best practices applied by the Quebec regulators may be of interest to you. I would highlight that in fact the Quebec market is the least regulated of all provinces. No ROE limits. No take-all comers rule. No limits on underwriting segmentation. And no requirements for onerous rate filing approval processes.

Earlier, you heard from the IBC presentation which included evidence of other jurisdictions where too much regulation actually had a negative impact to competition, higher costs and less service available to consumers. Massachusetts and New Jersey are very good case studies. It is also of interest to note that when New Jersey introduced new reforms in 2003 to encourage more competition by lifting regulations around underwriting variables, etc, 17 new entrants have moved into the New Jersey marketplace to compete for insurance and the consumers have benefited with more choice and a lower average premium. In Alberta, we do not need to look far back into the past to see this type of activity. While no markets exited the province, there was clear evidence that when returns where not adequate for the marketplace, many competitors chose methods

to reduce or restrict their automobile writings in the province. Markets did not exit during the last crisis back in the 1980's as there was always the hope that returns will come back and the opportunity to earn profit was always there. This time, further constrictions on the markets ability or opportunity to make attractive returns could encourage a different result.

Jetse deVries:

Second, I would invite Mr Don Fox, a capital markets practitioner on Bay Street, to offer his perspective of the appropriate levels of ROE that an automobile insurer should earn in Alberta. Mr Fox is Managing Director and Head of Financial Institutions of CIBC World Markets, Inc. He has over 16 years of experience in advising financial services organizations on financing, M&A transactions, and strategic considerations. He is therefore very knowledgeable about what appropriate levels of returns that the financial market would look for in a company. (Please refer to Appendix 2 for Mr Fox's paper entitled "How the Capital Markets Would Estimate Cost of Equity for an Automobile Insurer Operating in Alberta".)

Don Fox:

(Appendix 2)

Jetse deVries:

If I may bring the topic down from this high level and perhaps academic perspective to a more practical level, I would like to make a few comments from a pure insurance perspective. Our ability to deliver profitable results is rewarded with additional capital invested in our company and in turn we reinvest our performance advantage by developing innovative products, better customer service guarantees, easier methods of doing business with our company and the list goes on. Without profit, we cannot invest in strategies and ideas that make us stronger and better able to compete for your business. As you have already heard, there is clear evidence as to what can happen when regulation limits or eliminates the ability to deliver returns required by the investment community. In jurisdictions where we have a more positive regulatory environment, we have been much more aggressive with product development and innovation. Some innovative products that we currently have available elsewhere in the country like: Responsible Driver Guarantee/Crash Proof Policy, $0 Deductible Policy and the 2-Year Policy, have not been introduced into the Alberta marketplace as of yet while we continue to work within the new regulatory reality here.

Probably the single leading factor that is limiting competition is the uncertainty of premium rate adequacy caused by the industry-wide adjustment process. The Board has determined the price ceiling via the Grid mechanism and competition needs to flourish by permitting markets to compete beneath this with no restrictions as to how to deliver the best price/product offer. It would be prudent to review the premium regulations again to consider the annual adjustment process applying only to the Grid premium and allow the

market rate under this ceiling to operate effectively. We fear that if competition is stifled, market premiums will move towards the ceiling price. It is this opportunity to achieve profit that drives competition and markets should be permitted to and encouraged to move forward strategies that try to win customers.

In conclusion, let me summarize our 2 thoughts on this important topic on ROE as follows:

1) We feel there is no need to regulate ROE for the property and casualty industry for the following reasons:

- It is inconsistent with Alberta's proven model of success to impose limits on the potential ROE of investor's in this province;
- It is not in the public interest to restrict capital in any way – to the contrary, Alberta consumers' interests are best served by providing opportunity for superior returns relative to neighbouring provinces;
- A competitive market fuelled by attractive returns will attract more capital, enhance accessibility, and encourage innovation in segmentation and product development – all of which are expressly in the public interest – and all of which can be discouraged by inappropriate limits on returns to capital;

2) For the purpose of the annual rate adjustment and determining premiums, we recommend an ROE range of 13% to 17% as reasonable:

- The complex nature of capital markets and the global nature of these markets mean that insurance company managers are held to strict account for their capital allocation decisions. No single number can summarize this complex and dynamic market. If a target ROE model is to be imposed in Alberta it must respect this reality by accommodating a range of company specific potential returns.
- The strict federal regulation provided by OSFI includes regulatory oversight of insurers' capital. All provincial regulators must be aware that OSFI regards the risks associated with insurance activities and sets high standards for capital adequacy. Such standards protect the solvency of our industry. They also dictate higher returns on allocated capital. Provincial regulators who neglect this reality will inevitably find accessibility and pricing to be negatively affected.
- Generating a return that covers only the cost of capital is not reason enough for investors to invest in a company. Investors are looking for companies that will create value over time – companies that can generate returns in excess of cost of capital. For the capital markets to provide capital to automobile insurers in Alberta, these insurers will have to generate a return that is in excess of cost of capital. If the intent is to use this measure as a ceiling, we recommend the upper end in order to encourage all markets to compete and also recommend that the adjustment should apply solely to the Grid premium.

Next, I would like to introduce our actuary, Bill Premdas, to present to the Board the premium to surplus ratio that ING Canada would consider appropriate for Alberta.

Bill Premdas:

The methodology adopted by the Board in the July 2005 hearings to move from a loss cost to a premium was to take the loss cost, discount it for the time value of money, and then adjust this discounted loss cost for expenses and a profit provision. The selected profit provision was 5%, and the Board's actuary stated that this equated to a 10.1% ROE assuming 2 to 1 surplus ratio and a 5.2% investment yield. The Board has stated that it intends to maintain this methodology but is seeking input on the appropriate profit provision. The profit provision can be calculated once a target ROE and a premium to surplus ratio have been selected. We have already presented our thoughts on the appropriate target ROE. The next task is to select a reasonable premium to surplus ratio.

For the P&C industry, the actual premium to surplus ratio over the last eight years has varied from 1.00 to 1.37 with an average of 1.16. Looking only at Canadian companies, i.e. excluding branches of foreign companies, the average premium to surplus ratio has been higher at 1.37.

One could say that another approach would be to look at the minimum capital that Canadian regulators require insurance companies to maintain. This is determined by the Minimum Capital Test (MCT) ratio, which is mandated by OSFI. The regulator requires a company's MCT ratio to always exceed 150%. In fact, the regulator requires that a company exceed the 150% by some margin, which varies by insurer. This is not a public figure but the average target range is probably in the range of 170% to 210%. The Board may wish to confirm this information from OSFI. Using the profile of the Canadian P&C insurers, MCT ratio ranging from 170% to 210% would translate into premium to surplus ratios varying from 1.9 to 1.5.

However, not every line of business requires the same level of capital which is driven by the risk and the volatility of the business. If we use the MCT required capital formula as the basis to allocate capital between lines of business, the premium to surplus ratio is 40 points less for automobile mandatory coverages. This comes from the fact that the ratio of loss reserves to net written premium is significantly higher (170% versus 107% for all lines combined). The average MCT loss reserve loading is slightly lower for automobile mandatory coverages (10% versus 10.6% for all lines combined); otherwise the 40 point gap would be even greater.

Therefore, given the current leverage of the Canadian industry, the premium to surplus ratio for automobile mandatory coverages would be well below one and it would have to be around 1.3 for an MCT of 190%.

A target ROE of 17%, a premium to surplus ratio of 1.31 to 1 and using an investment yield of 5.5% results in a profit provision of 15.4%. This is significantly different from the 5% provision used in the recent rate hearings but reflects the discussion above. It is very important to note that the MCT ratio produced for the industry with this 5% provision and a 2 to 1 premium to surplus ratio for automobile mandatory coverages is approximately 130%, well below the minimum required by the federal regulator.

Most companies do not use this profit provision approach to determine their premium levels. Companies such as ours build a cash flow model that accounts for the timing of expense disbursements, receipt of premium, payment of losses, payment of taxes, and the commitment of capital. These cash flows are discounted in order to determine the appropriate premium. However, the simple model the Board has adopted incorporates many of these ideas.

The upcoming financial accounting changes towards fair value accounting should not have a direct effect on pricing. However, if companies feel the need to reduce the duration of their investment portfolios to better match the duration of their policy liabilities, this would reduce the investment yield and therefore require higher underwriting margin to generate the same return.

Jetse deVries:

Let me conclude by saying how much we appreciate the opportunity to discuss these important topics with you. We come in good faith, proud of the work we do in Alberta and committed to continuing to serve the people of this province as we have done for over 70 years. We have thought hard about how best to help this Board think through these topics and come to the optimal conclusion for the people of this province. We are pleased to answer any questions you might have.

Thank you.

Appendix 1

Estimating the Cost of Equity for Canadian Automobile Insurers Operating in New Brunswick

By

Abdul Rahman Ph.D.

Associate Professor of Finance and Economics
School of Management
University of Ottawa, Ontario, Canada K1N 2N5

Executive Summary

Using a Full Information Beta Model that augments the Fama-French Three Factor Model, we recommend that the appropriate return on equity (ROE) for automobile insurers in New Brunswick ranges from 12.44% to 16.60%. Our analysis is based on state of the art methodology proposed by Cummins and Phillips (2005).[1] In addition, we recommend that the appropriate rate of investment return that should be credited to policyholders in setting rates should be approximately 5.11% in today's economic environment. This is based on the 3-year government of Canada benchmark yield that approximates the return on 75% of the typical P&C insurer's investment portfolio and the remaining 25% expected to earn the historical long-term return from investing in Canadian equities.

Introduction

We contend that it may be inappropriate to utilize the return on equity (ROE) for a typical P&C insurer as a proxy for the fair rate of return for a particular line of business such as automobile insurance especially if the firm operates in a particular geographical location. The obvious bias that arises from such an approach is underscored by the observation that observable market-value beta for a firm with multiple lines of business may be viewed as a weighted average of the unobservable betas of the firm's underlying business lines. Hence while there is a diversification effect in this case, it is clearly not the case for a firm with a single line of business which then will incur idiosyncratic risk. While this bias may be mitigated by use of a sample of P&C insurers that are very active in a particular line of business, it does not remove it entirely.[2] The key point is that a particular line of

[1] Forthcoming in the Journal of Risk and Insurance.
[2] The NERA report to the Newfoundland Board of Commissioners of Public Utilities in 2004 contains a sample of firms (labeled Proxy Group II) that are very active in the Canadian auto market and hence may be a suitable proxy for this line of business. See Appendix A for a list of companies of insurers that write

business may be more risky and hence requires a larger return on equity than would be obtained using an *averaging* firm approach. For this reason, we utilize the Full Information Beta (FIB) Model that is based on the Fama and French Three Factor Model (FF3F). This state of the art methodology was proposed by Cummins and Phillips (2005) who found that that the fair rate of return on equity for the average US Automobile Insurers ranges between a low value of 12.6% as obtained from the Capital Asset Pricing (sum beta) Model to a likely high value 20.7% using the FIB FF3F sum beta model – reflecting a multiplier of 1.64. The FIB FF3F model is distinguished by the fact that it incorporates two additional risk factors (size and Tobin's q) apart from systematic market risk; includes the effect of infrequent trading that tends to underestimate the true beta value; demonstrates the potential mis-pricing that can occur from considering industry-wide rather than an average insurer; views the firm's cost of equity from a perspective of the lines of business that highlights the comparatively high risk of auto insurance. While no such empirical study is yet available for Canadian automobile insurers, and hence the size of the multiplier must be used with caution, it is suggested that the appropriate cost of equity is likely much higher than the traditional CAPM would suggest. Based on previous Canadian studies and employing the principles underlying the FIB FF3F Model, we recommend that the appropriate ROE for Auto Insurers in New Brunswick ranges from of 12.44% to 16.60%. While it may be correctly argued that a firm with multiple lines of business may benefit from the effects of diversification, a firm which is operating only in auto insurance in one geographical location is exposed to the total risk (i.e., including idiosyncratic risk).

Section 1

The objective of this paper is to evaluate the academic literature and make appropriate recommendations regarding two important questions. These questions are as follows:

---

auto insurance business in New Brunswick. This list is taken from Canadian Underwriters 2004 Statistical Issue and thus is based on 2003 data.

a) What should be the appropriate return on equity for automobile insurance companies doing business in New Brunswick?

b) What investments and related returns should be credited to the policyholders in setting rates?

Regulation of ROE- Is it efficient?

We first address a basic economic question that is central to efficient allocation of scarce capital and hence to efficient pricing. This is the question as to whether consumers will receive the most advantaged price-offer insurance proposition if prices are regulated by way of setting *a priori* rates of return on equity for auto insurers rather than if they are set by market forces. The presumption of price regulation is that the market equilibrium price will be too high for consumers to bear – an implication that providers of insurance are making positive economic profit. Hence by necessity, a regulated price will be lower than the market equilibrium price leading to obvious consequences. For example, returns on equity that are set lower than the market-determined rate will likely lead to auto insurers exiting the market since they will not earn a fair risk-adjusted rate of return. With fewer firms in the market, the true economic price will increase leading to higher non-pecuniary cost to consumers. In the end, consumers suffer from having a smaller set of choices and higher non-pecuniary cost.

On the other hand, a fair *market-determined* rate of return on equity will lead to more choices as firms compete on the basis product innovation and valued – added features. But the proper rate of return on equity should not be based on the risk-return dynamics of the overall firms especially if such firms have multiple lines of business. The averaging feature of overall firm risk will be a biased estimate of the risk of any one line of business. Hence, caution must be exercised in using a firm's risk profile for the risk of a particular line of business such as auto insurance.

Given our comments on regulation versus market-determined rates, we proceed under the assumption that if the Board insists on regulating ROE for the auto insurer operating in New Brunswick, then two underlying principles must be adhered to in order to be equitable to both consumers and firms. These are:

- Estimate the ROE for auto insurers based on a 'line of business' approach.

- Note that ROE is subject to sources of volatility that emanate from changes in the risk-free rate and market risk premia. Hence a rational approach is to permit auto insurers to operate within a range of ROE for a given time period.

We now address the two central questions raised above.

Section 2: Estimating the Return on Equity for Canadian Automobile Insurers[3]

The CAPM Approach

Finance theory provides a well-received approach in estimate the return on equity for traded firms. This is the popular Capital Asset Pricing Model (CAPM) which asserts, among other things, that investors do not expect any return for bearing diversifiable risks. Expected return is related only to systematic market risk (beta) according to the following specification:

(Model 1): $E(r) = r_f + \beta(E(r_m) - r_f)$

[3] There are four widely used approaches to estimating the ROE. **Comparable Earnings Method** is not preferred since it relies upon accounting conventions that are not uniformly applied across various industries. The **Risk Premium Model** attempts to estimate an appropriate equity risk premium above the risk free rate. This model is still in use (e.g. in the Newfoundland Board of Commissioners of Public Utilities in 2004 by Dr. Basil Kalymon) but its implementation can be largely ad hoc. The third model is the traditional **Capital Asset Pricing Model (CAPM)** that specifies that investors do not expect a return for bearing diversifiable risks. The final model is the **Discounted Cash Flow Model** which, in its application requires a constant growth assumption regarding earnings (or dividends) which is likely unrealistic. We will use the CAPM model and correct for its well-known deficiencies by resorting to the Cummins – Phillips (2005) methodology.

Essentially, expected return is comprised of two components – the risk free rate which is proxied by a long-term term government bond yield and a long-term market risk premium based on the difference between the historical long-term stock market return and the risk-free rate. Beta is the covariance between the periodic stock return for the selected company and the market return over the same period.

Some interesting results have been found for Canadian P&C insurers that are active in the auto market. For example, the NERA group in its report to the Newfoundland Board of Commissioners of Public Utilities (hereafter NBC/PU) obtained an ROE of 10.39% based on the CAPM using a sample obtained from A.M. Best Corporation ranking of the top 100 Canadian automobile insurers in 2003. The estimates of the parameters in the CAPM model were based on Canadian data using the Toronto Stock Exchange (TSE) composite index and a long-term equity premium based on the same index and long–term Canadian government bond yield. In particular, using a market adjusted beta of 0.84, a long-term equity risk premium[4] for Canada of 5.00% and a risk-free rate of 4.58 %, the CAPM provides a ROE of 8.78%.

Some researchers rely on the Equity Premium Model[5] that asserts that the required rate of return on equity is the risk free rate plus an equity risk premium. The implementation of this model can be *ad hoc*. For example, in the NBC/PU, Dr Kalymon obtained a required ROE as the sum of the 30-year Canadian Government bond yield (4.60%) and a long-term equity risk premium (5.03%) based on a beta of unity. This results in an ROE value of 5.03% + 4.6% = 9.63%. If we use the value of unity for beta, then our estimate for the base case ROE using the CAPM is 9.58%.

We will use this base case ROE estimate of 9.58% hereafter in this paper.

[4] From Ibbotson Associates: Canadian Risk Premium Over Time, 2004. We also used the Government of Canada long-term benchmark average bond yield for the week ending May 11, 2005 of 4.58%
[5] Clearly the CAPM prediction is a special case of the Equity Prediction Model.

The Fama-French Three Factor Model

Both these approaches have fundamental flaws that bias the ROE downwards. For example, it is well known that in the presence of infrequent trading, the estimated beta is too low leading to a negative bias in the ROE. For this reason, the CAPM beta is estimated by the so-called *sum beta* approach introduced by Scholes and Williams (1977). This model states that for the ith firm, the augmented regression that is estimated is:

(Model 2): $r_{it} - r_{ft} = \alpha_i + \beta_{i0}(r_{mt} - r_{ft}) + \beta_{i1}(r_{m,t-1} - r_{f,t-1}) + \varepsilon_{it}$

The total beta is the sum of its contemporaneous and lagged components[6].

The second and potentially more serious problem is a reliance on the traditional CAPM where only the systematic market risk is priced. Fama and French (1992, 1993, and 1997) have shown that three factors are priced. Hence there are additional risk premia apart from the systematic risk – the only factor in the CAPM. In particular, the additional factors are size and Tobin q (proxied by the ratio of book equity to market equity, BE/ME). The size (or market capitalization) factor controls for the empirical evidence that small capitalization stock tend to have higher cost of capital. The second factor accounts for the evidence that firms with high growth prospects (i.e., lower BE/ME) tend to obtain lower cost of capital.

This model states that:

(Model 3): $E(r) = r_f + \beta_0(E(r_m - r_f) + \beta_1(\pi_s) + \beta_1(\pi_q)$

In this model, π_s is the expected market risk premium for firm size; π_q is the expected market risk premium for BE/ME and the respective coefficients are the firm's 'beta' coefficients. Failure to incorporate these two risk factors as well as accounting for

[6] It is customary for Bloomberg to adjust the 'raw beta value' as follows: adjusted beta = 0.33 + 0.67 * (raw beta value).

infrequent trading will likely bias the cost of equity downwards.

It is noted that the average size premium for Canadian P&C companies that write auto insurance in New Brunswick is approximately 2.86%. If this additional risk premium is added to the traditional CAPM model, then we obtain a mean ROE estimate of 9.58% + 2.86% = 12.44%.

Finally, there is the issue of estimating the cost of equity for firms with multi-lines of business and using this estimate for a particular line of business. While the NERA group does try to lower the negative effects of this problem by selecting a Proxy Group II based on firms with a higher level of auto writing in 2003, yet it is an important issue that the risk of a particular line of business with be biased under this procedure. This where the Cummins and Phillips (hereafter CP, 2005) procedure becomes very useful. While we do agree that the empirical results are based on US data only, yet the similarity of results by NERA for Proxy Group II and Proxy Group I suggests that the CP results are extended to the Canadian markets. More importantly, the econometric approach is sound and accounts for the flaws stated above. In particular, the CP study does incorporate the Scholes-Williams *sum beta* approach to correct for infrequent trading; incorporates the two additional factors – size and Tobin q – from the Fama-French Three Factor (FF3F) Model; and considers an estimation procedure that permits the ROE of a particular line of business. In particular, it permits the estimation of the ROE for auto insurance more directly.

While recognizing that a similar Canadian does not yet exist, there is additional logic why the US results obtained by CP may offer a suitable comparison for Canadian case. This is because the NERA group in testimony to the NBC/PU recommended that the cost of equity be set in the range of 11% to 14%, an average 12.5%. In the same hearing, the IBC/EXACTOR states that a conservative estimate of the return on equity is 12.5%. These recommendations were based on the traditional CAPM and a discount dividend model[7] . We have suggested a base case estimate of ROE using the CAPM estimate plus

[7] This model is stated as follows: RoE = Expected Dividend Yield + Expected Growth Rate.

a mean size premium giving rise to a value of 12.44%. When compared to the US results for the CAPM *sum beta* model, CP obtained 12.6% for an average automobile insurance firm which is significantly higher than the corresponding value for industry-wide case (10.3%) – indicating that using a 'lines of business' approach will lead to different pricing implications.

So we have similar base cases for the US and Canada.

This leads to believe that the US results for the full information beta – Fama and French three factor model (FIB FF3F) may also give similar results, at least in a qualitative sense. For the US case, CP reports that the ROE for the average automobile insurer is a hefty 20.7%, which is higher than all other lines of business for the sample of P&C firms considered – 18 .0% for worker's compensation and 18.6% for all others. Hence the range for ROE for US auto insurers is 12.6% to 20.7%.

While we are convinced of the reasonableness of the lower bound based on the Canadian studies stated above, it is not clear where the upper bound for Canadian auto insurers should lie.

We recommend a midpoint of US range and state that an appropriate range for the ROE for automobile insurers in New Brunswick is 12.44% to 16.60%. Our recommendation incorporates the important observation that the volatility of cash flow of automobile insurance is relatively high when compared with other lines of business in the P&C industry and that using industry-wide estimates underestimates the ROE for individual firms. While firms operating in multiple lines of business may reduce this range by a diversification discount, others with only automobile insurance in a particular geographical location will not benefit similarly.

The second question deals with the appropriate rate of return that should be credited to policyholders.

Section 3: The Appropriate Investment Return to be Credited to Policyholders in Rate Setting

In principle, the investment return should reflect the composition of the investment portfolio and expected returns for each asset class. In other words, the expected return that should be credited to policyholders in setting rates is the weighted average of the expected return on each asset class. The P&C has traditionally followed the "prudent person rule" and given the "short-tailed" nature of claims – meaning that premiums earned are required very soon to pay claims. Hence the investment policy of the P&C insurer is biased towards to more predictable income streams.

Clearly, since ROE is set on the basis of observed risk, then internal consistency requires that investment return be similarly based. IBC data supplemented from A. M. Best shows that approximately 85% of invested assets are in government and corporate bonds and preferred shares with most of the rest in common shares with relatively lower risk than the over all stock market. Based on this approximate portfolio weights, we assume that 75% of the portfolio of the type (average quote of 3.35% provided by Bank of Canada for the 3-year yield for the government of Canada benchmark bond for period 5 – 11 May, 2005). The other 25 % is expected to earn less than the market rate of return (TSE Composite) of 10.4% (Geometric average as reported by Ibbotson and Associates, 2005). This gives an investment return of .75 *3.35% + .25 * 10.4% = 5.11%.

This is our recommendation: The appropriate investment return based on an (75%) overweighted portfolio in the short end of the yield curve reflecting a 3-year government of Canada benchmark bond yield and the remainder with an expected return that is equal to the market return on common equities.

Summary:

Based on the state of art methodology proposed by Cummins and Philips (2005), which modifies the traditional CAPM to incorporate infrequent trading, the Fama-French three factor model and valuation based on lines of business, we recommend that the ROE for auto insurers in New Brunswick should range between 12.44% and 16.60%. This methodology highlights the comparative riskiness of the automobile insurance business segment and shows that using industry-wide estimates are biased downwards.

In addition, based on the principle that investment return should be based on observed risk as does ROE, we recommend that the investment return that should be credited to policyholders should be approximately 5.11%. This is based on the 3-year government of Canada benchmark yield that approximates the return on 75% of the typical P&C insurer and 25% expected to earn the historical long-term return on equities.

Appendix 2

How the Capital Markets Would Estimate Cost of Equity for an Automobile Insurer Operating in Alberta

By

Donald A. Fox
Managing Director and Head of Financial Institutions
CIBC World Markets Inc.

My name is Don Fox. I have worked for 26 years in various financial positions, including over 19 years in the investment banking business. I am currently a Managing Director and the Head of Financial Institutions Investment Banking at CIBC World Markets Inc.

The views expressed in this paper are derived from my personal experience working within the capital markets and are not necessarily those of CIBC World Markets Inc. I have not been paid to prepare this paper, although CIBC World Markets does, from time to time, receive compensation from ING and its affiliates for investment banking and other financial services.

I have analyzed the implied cost of capital for publicly-traded property and casualty ("P&C") companies in both the United States ("U.S.") and Canada. In addition, I have utilized the public market data in an attempt to approximate the cost of capital for P&C insurers in the Province of Alberta.

Outlined below is my view of how the capital markets would estimate the cost of equity for an automobile insurer operating in Alberta. My analysis is a variation of the Capital Asset Pricing Model ("CAPM") that also takes into account the size of the firm in question.

P&C Cost of Equity Analysis – Description and Methodology

$$E(R) = r_f + \beta \left[E(R_M) - r_f \right] + size\ premium$$

$E(R) = \exp ected\ return$
$r_f = risk - free\ rate$
$\beta = market\ beta$
$E(R_M) = \exp ected\ market\ return$

Risk-Free Rate

The risk-free rates utilized in my analysis are the 30-year U.S. government bond (U.S. P&C) and 30-year Canadian government bond (Canadian P&C). The risk-free rates were obtained from Bloomberg Financial Markets on October 12, 2006 and were **4.90% and 4.21%** for the U.S. and Canadian long bond benchmark, respectively, on this date.

Beta

The U.S. P&C and Canadian P&C publicly-traded comparables currently have **average adjusted beta's of less than one**. This suggests that on average, these comparable groups tend to display less market volatility, or less systematic risk, than the overall public markets (S&P 500 for U.S. P&C and S&P/TSX 300 for Canadian P&C comparables). U.S. P&C and Canadian P&C insurers have average adjusted betas of **0.95 and 0.74** respectively. I calculated the individual adjusted beta's for each Company in the sample by utilizing the following equation:

$$Adjusted\ \ Beta = (2/3 \times Raw\ Beta) + 1/3$$

The raw beta data is obtained from Bloomberg Financial Markets. The adjustment was made to the historical data contained within the raw beta to reflect the assumption that a security's beta gravitates toward the market average over time. In these cases, the overall effect of the adjustment resulted in a slight increase to the security's raw beta.

Public Canadian P&C Companies		
	Raw Beta[1]	Adjusted Beta
ING Canada	0.41	0.61
Fairfax Financial	0.91	0.94
Northbridge Financial	0.45	0.63
Kingsway Financial	0.67	0.78
EGI Financial Holdings	0.07	0.38
Mean[2]	**0.61**	**0.74**

(1) Source: Bloomberg.

(2) Excludes EGI Financial Holdings as there are not enough historical data points to derive an accurate beta.

Public U.S. P&C Companies		
	Raw Beta[1]	Adjusted Beta
Allstate	0.72	0.81
St-Paul Travelers	1.17	1.12
Chubb	0.84	0.89
Progressive	0.63	0.76
CNA Financial	1.00	1.00
WR Berkley	1.46	1.30
Safeco	1.08	1.06
Markel	0.53	0.69
American Financial Group	1.03	1.02
Erie Indemnity Company	0.40	0.60
Mercury General	0.93	0.95
Philadelphia Consolidated	1.21	1.14
Commerce Group	0.76	0.84
Ohio Casualty	1.18	1.12
21st Century Insurance	0.78	0.85
State Auto Financial	0.87	0.92
Harleysville Group	1.35	1.23
Infinity Property & Casualty	1.12	1.08
Direct General	0.55	0.70
Mean	**0.93**	**0.95**

(1) Source: Bloomberg.

Risk Premiums

The market risk premium is defined as:

$$E(R_M) - r_f$$

Historical risk *premia* for the **U.S. and Canada are 7.1% and 5.2%**, respectively. The risk *premia* utilized in my analysis were obtained from the "Risk Premia over Time Report" produced by Ibbotson Associates, Inc.

Size Premium

Ibbotson Associates tracking of investment returns demonstrate that for the period from 1926 to 2005, common shares in small companies outperformed common shares in large companies but with a greater standard deviation in returns. As such, I have adjusted the traditional CAPM model calculation to include an **adjustment for firm size**. This adjustment, or size premium, was obtained from Ibbotson Associates and is applied to the respective industry averages or individual securities as appropriate.

Cost of Equity Results and Considerations

Based on the CAPM and the aforementioned inputs, the cost of equity for P&C insurers in the **U.S. ranged from 9.8% to 15.2%** and in **Canada ranged from 10.1% to 18.9%.**

There are a number of considerations that should be taken into account when interpreting the results of my analyses. Some of these considerations include:

- The majority of publicly-traded firms tend to represent the largest segment of any given industry and may not accurately depict the appropriate size premiums for the P&C auto industry in Alberta;
- Most publicly-traded firms tend to be diversified multi-line, multi-geography insurers as opposed to merely P&C auto insurers; and
- The calculated costs of equity from my analyses are based on publicly-traded companies with ready access to the public capital markets versus the lesser access of private companies.

Additional Alberta P&C Auto Preliminary Analysis

In an effort to adjust for the size of companies operating in the P&C auto industry in Alberta, I performed the following cost of equity analysis.

Step 1: I obtained the book value figures for all insurers participating in the Alberta P&C auto market from Canadian Underwriter and MSA Research. Please note, that the book value figures obtained were for the respective operating companies only. The average book value for an auto P&C insurer in Alberta was **approximately $220 million and the median book value was approximately $96 million**.

Step 2: Using the average and median book value levels, I calculated appropriate size premiums for the P&C auto insurance industry in Alberta using Ibbotson Associates. The calculated size premiums were **2.76% for the average results and 9.83% for the median results**. Please note, the average Canadian P&C insurance publicly-traded book value multiple (average price / book value ratio of 1.48x as at October 12, 2006) was used to derive the size premiums.

Step 3: The cost of equity estimates for the P&C auto insurance in Alberta were calculated using:

- Publicly-traded P&C insurance adjusted betas;
- Canadian 30-year government bond as the risk-free rate;

- Canadian risk premium; and
- Appropriate size premiums calculated in step 2 above.

Canadian P&C Companies

(In $000s,unless otherwise indicated)

	Average	Median
Shareholders' Equity [1]	$219,742	$95,617
Average Cdn. P&C Price/Book Value [2]	1.48x	1.48x
Implied Public Market Capitalization (C$)	$324,884	$141,367
C$/US$ Exchange Rate (1.133)	$1.133	$1.133
Implied Public Market Capitalization (US$)	$286,697	$124,750
Size Premium	2.76%	9.83%

Assumes Average Market Capitalization	Mean	Min.	Max.
Average P&C Adjusted Beta [3]	0.67x	0.61x	0.94x
Risk-Free Rate[4]	4.21%	4.21%	4.21%
Canadian Risk Premia[5]	5.20%	5.20%	5.20%
Size Premium[5]	2.76%	2.76%	2.76%
Cost of Equity	10.5%	10.1%	11.9%

Assumes Median Market Capitalization	Mean	Min.	Max.
Average P&C Adjusted Beta [3]	0.67x	0.61x	0.94x
Risk-Free Rate[4]	4.21%	4.21%	4.21%
Canadian Risk Premia[5]	5.20%	5.20%	5.20%
Size Premium[5]	9.83%	9.83%	9.83%
Cost of Equity	17.5%	17.2%	18.9%

(1) Source: Shareholders' equity from MSA Reports; As at December 31, 2005.
(2) CIBC World Markets. As at Oct. 12, 2006.
(3) Source: Bloomberg.
(4) 30-Year Canada Risk-Free Rate as at Oct. 12, 2006.
(5) Source: IbbotsonAssociates, "Risk Premia Over Time Report".

Results: My analysis yielded results ranging **between 10.1% and 18.9%**. When I used the average book value levels my cost of equity calculations ranged **between 10.1% and 11.9%** and when I used median book value levels my cost of equity calculations ranged **between 17.2% and 18.9%**. The aforementioned assumes applying an average Canadian P&C insurance publicly-traded book value multiple as described earlier (1.48x as at October 12, 2006).

Additional Observations: I have not attempted to estimate adjustments to reflect whether insurers operating in the Alberta P&C auto sector have the geographic or product diversity of the publicly-traded comparables (upon which these analyses are based), nor have I attempted to estimate adjustments which consider that many of the private insurers in the Alberta P&C auto sector do not have ready access to the public capital markets. Therefore, the range of required returns for P&C auto insurers operating in Alberta could be higher than the cost of capital ranges identified within these analyses.