

Alberta's Minor Injury Regulation: Automobile Insurance Profits, Premium Rates, and Costs

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Executive Summary

In October 2004, the Alberta government introduced legislation that, among other things, set a limit of \$4,000 on the damages that could be obtained for pain and suffering in “minor” injuries.¹ In this report, we analyze the impact that this limit, the *Minor Injury Regulation* (MIR), had on Alberta’s automobile insurance market. Specifically, we answer four questions about this legislation.

1. Impact on Profitability

First, we ask whether profits on automobile insurance were unusually low in Alberta in the years prior to the implementation of the *Minor Injury Regulation* (MIR); and we investigate the impact that the MIR had on profits in the years immediately following that implementation. We find that the rate of return on equity for Alberta automobile insurance (All Coverages) averaged 6 percent in the years 1998 to 2002; but that it rose dramatically, to over 20 percent in 2003 – *before* the introduction of the MIR – and remained at that elevated level in 2004, 2005 and 2006.

2. Trends in Costs of Claims

Second, because the legislative changes that were introduced in October 2004 were aimed primarily at reducing claims costs, we investigate whether the costs targeted by the *Minor Injury Regulation* had been increasing prior to its implementation. We find that, over the period 1996 to 2002, claims costs did not vary significantly as a percentage of either total expenses or total premiums. Between 2002 and 2004, however – that is, *before* the change in legislation – there was a dramatic *decrease* in the ratio of claims costs to premiums; and that ratio remained at this lower level in 2005 and 2006.

3. Automobile Insurance Premiums

Third, we ask whether automobile insurance premiums were rising before 2004; and, if so, whether that increase was due to rising claims costs or to other factors. We find that Bodily Injury and Property Damage claims each rose by approximately 20 percent (per vehicle) between 1996 and 2003; while premiums increased by almost 65 percent. Furthermore, this increase in premiums cannot be explained by changes in administrative costs or rates of return on insurers’

¹ The legislation also: altered the sharing of risk through risk sharing pools, placed controls on premiums, required insurers/ brokers to quote all consumers, introduced a diagnostic service treatment protocol regulation, required that net, rather than gross, income be used in the calculation of loss of earnings, and mandated that certain collateral benefits be deducted from personal damages.

investments. Rather, it appears that the increase was primarily a reaction to the five-year period of relatively low profits: 1998 to 2002.

4. Impact of Removal of Minor Injury Regulation

Finally we estimate what the impact on the average automobile insurance premium would be if the *Minor Injury Regulation* was removed permanently; and we ask what the impact would be on automobile insurance profits if the government was to require that premiums be held constant after the MIR was revoked. We find that average premiums would have to increase by \$111.76/year if profitability was held constant; and that profits from Basic Coverages would fall to approximately 12.2 percent annual ROE if premiums were held constant (16 percent for All Coverages) using 2006 data and assumptions (as noted in the body of the report).

Section 1- Profitability of Alberta Private Passenger Automobile Insurance²

1.1- Introduction

In the case of *Morrow v. Zhang* (2008), which challenged the constitutionality of the *Minor Injury Regulation*, the Insurance Bureau of Canada retained actuary Mr. Joe S. Cheng, F.C.I.A. to calculate the profitability of automobile insurance companies in Alberta (hereafter referred to as the “Cheng Report”). The Cheng Report presented figures for the five-year period 1998 to 2002.³

In this section, we apply the Cheng Report’s methodology exactly, but extend it to data for an eleven-year period: 1996 to 2006. (The methodology and calculations are explained in detail in the Appendix, Exhibits 1-3 and 5.)

Also, whereas the Cheng Report estimated profitability for All Coverages and Basic Coverages (Basic Coverages in an addendum), we also estimate profitability for Optional Coverages.

We have employed updated data which result in slightly different numbers than those in the Cheng Report. The updated data provide an improvement on the data available at the time of the Cheng Report. These differences are noted in the Appendix.

We make no claims with regards to the validity of the methodology employed in the Cheng Report.

1.2- All Coverages Combined

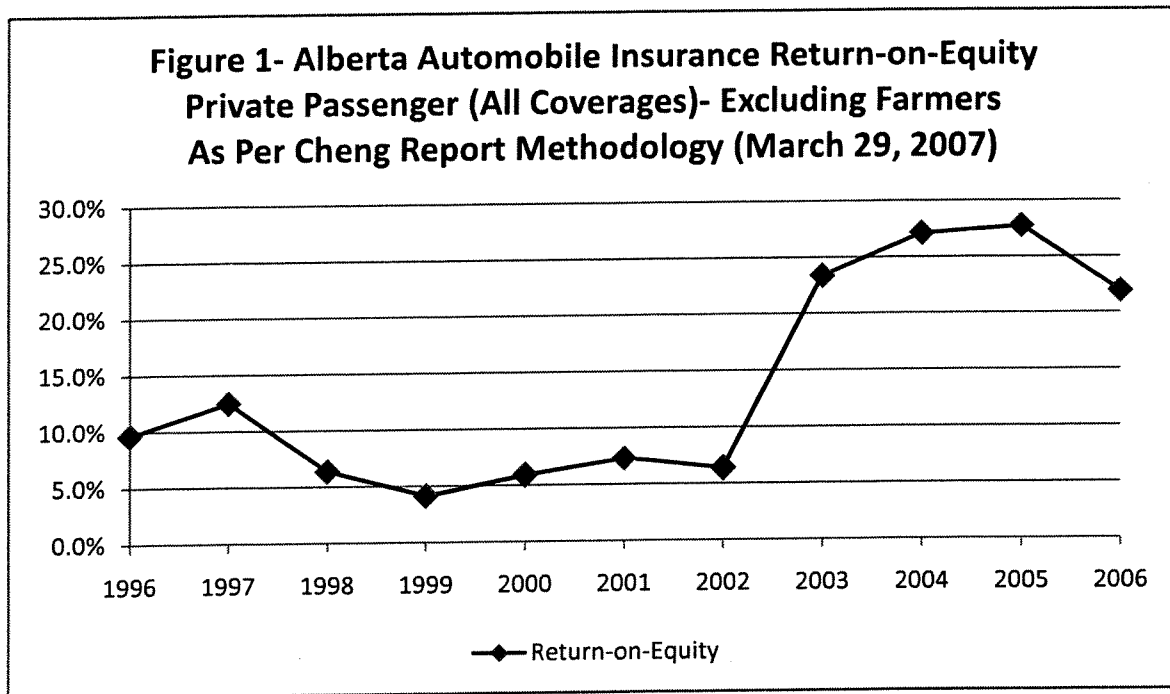
The most common measure of industry profitability (and the measure used in the Cheng Report), is after-tax “return on equity” (ROE) – that is, the industry’s after-tax profits divided by the value of the investments made in the industry. In Table 1 and Figures 1 and 2, we show that the Alberta automobile insurance industry has had a positive ROE – on total private passenger coverage (excluding farm coverage) - since at least 1996. Further, our calculations show that there have been two distinct periods in the eleven years studied: From 1996 to 2002, profits ranged from 4.1 to 12.5 percent. Following 2002, however, profits increased dramatically, to more than 20 percent in each year between 2003 and 2006.

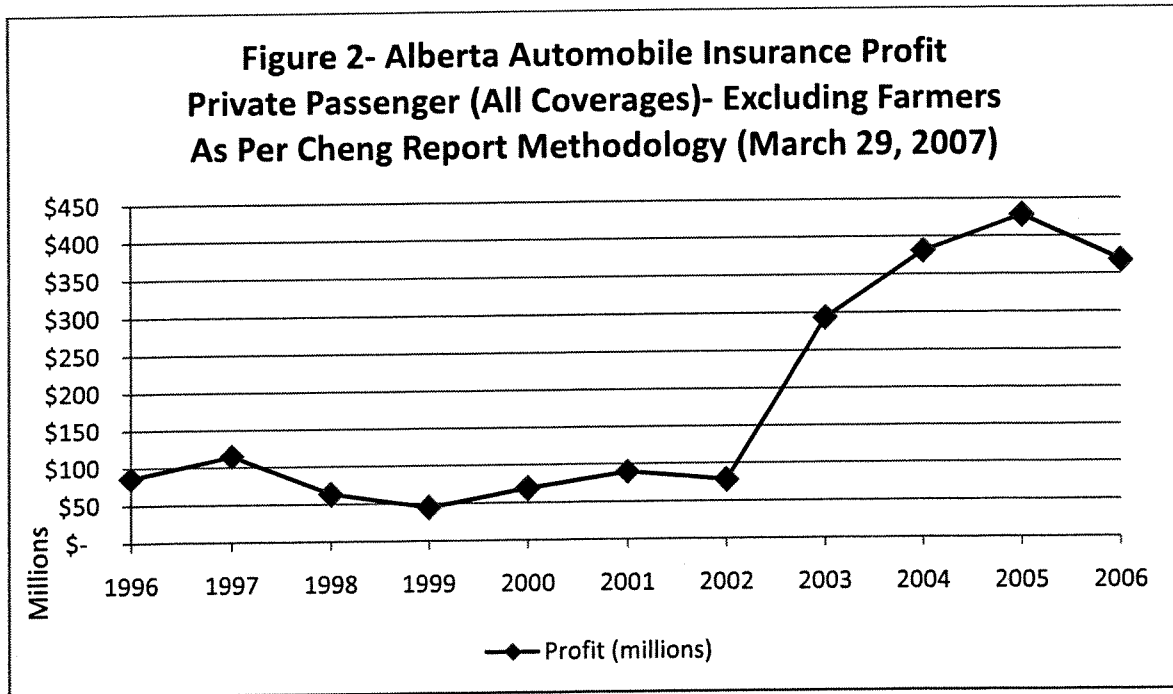
² excluding farmers

³ Mr. Cheng’s report, of March 29, 2007, was entitled “REPORT ON THE REVIEW of Insurance Reform-Premium and Claim Analysis By Gordon G. Smith and Theresa K. Reichert of Deloitte & Touche LLP.”

Table 1		
Alberta Automobile Insurance Profitability		
Private Passenger (All Coverages) Excluding Farmers		
As Per Cheng Report Methodology (March 29, 2007)		
(1)	(20)	(21)
Year	After-Tax Profit (millions) \$	After-Tax Return-on-Equity
1996	86	9.6%
1997	114	12.5%
1998	63	6.3%
1999	45	4.1%
2000	69	5.9%
2001	89	7.3%
2002	78	6.4%
2003	293	23.4%
2004	381	27.1%
2005	428	27.8%
2006	368	21.9%

From Appendix, Exhibit 1





1.3- Mandatory/ Compulsory Basic Coverages⁴

The rates of return reported in section 1.2 refer to All Coverages – that is, to all types of private passenger automobile insurance aggregated together. As the MIR only affected claims by third parties for bodily injury damages, it is also important to identify the profits that insurers were earning specifically on Third-Party-Liability coverage.

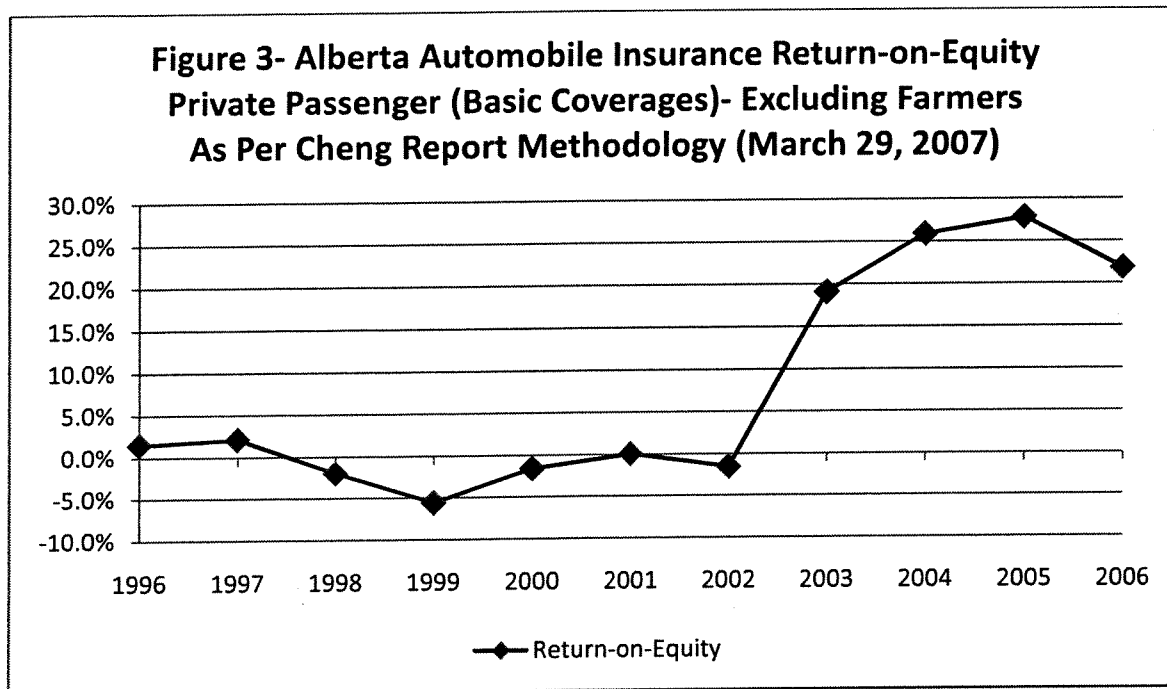
In Alberta, all motorists are required to have a minimum of \$200,000 in Third-Party-Liability coverage plus no-fault Accident Benefits insurance coverage. Our data do not allow us to identify the profits from this compulsory coverage exactly, but we are able to proxy it by combining all Third-Party-Liability coverage limits (\$200,000, \$500,000, \$1,000,000, etc.) and the Accident Benefits coverage together.

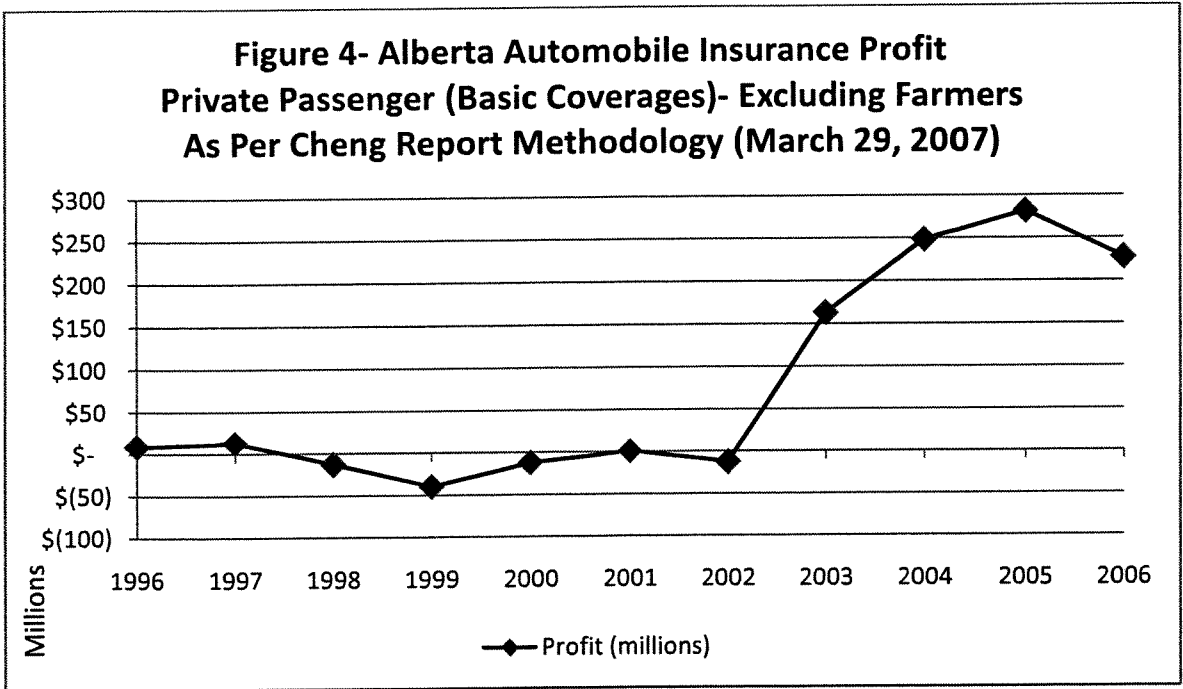
Again using the Cheng Report’s methodology, it is seen in Table 2 and Figures 3 and 4 that, prior to 2003, Basic Coverage was not very profitable, with an ROE ranging from -5.6 to +2.1 percent. In 2003, however, the return on Basic Coverage increased dramatically, to 19.1 percent, and rose above 20 percent in each of 2004, 2005, and 2006.

⁴ Third-Party-Liability & Accident Benefits coverages

Table 2		
Alberta Automobile Insurance Profitability		
Private Passenger (Basic Coverages) Excluding Farmers		
As Per Cheng Report Methodology (March 29, 2007)		
(1)	(20)	(21)
Year	After-Tax Profit (millions) \$	After-Tax Return-on-Equity
1996	8	1.5%
1997	12	2.1%
1998	(13)	-2.0%
1999	(40)	-5.6%
2000	(12)	-1.6%
2001	1	0.1%
2002	(13)	-1.5%
2003	163	19.1%
2004	248	25.9%
2005	282	27.8%
2006	227	21.8%

From Appendix, Exhibit 2



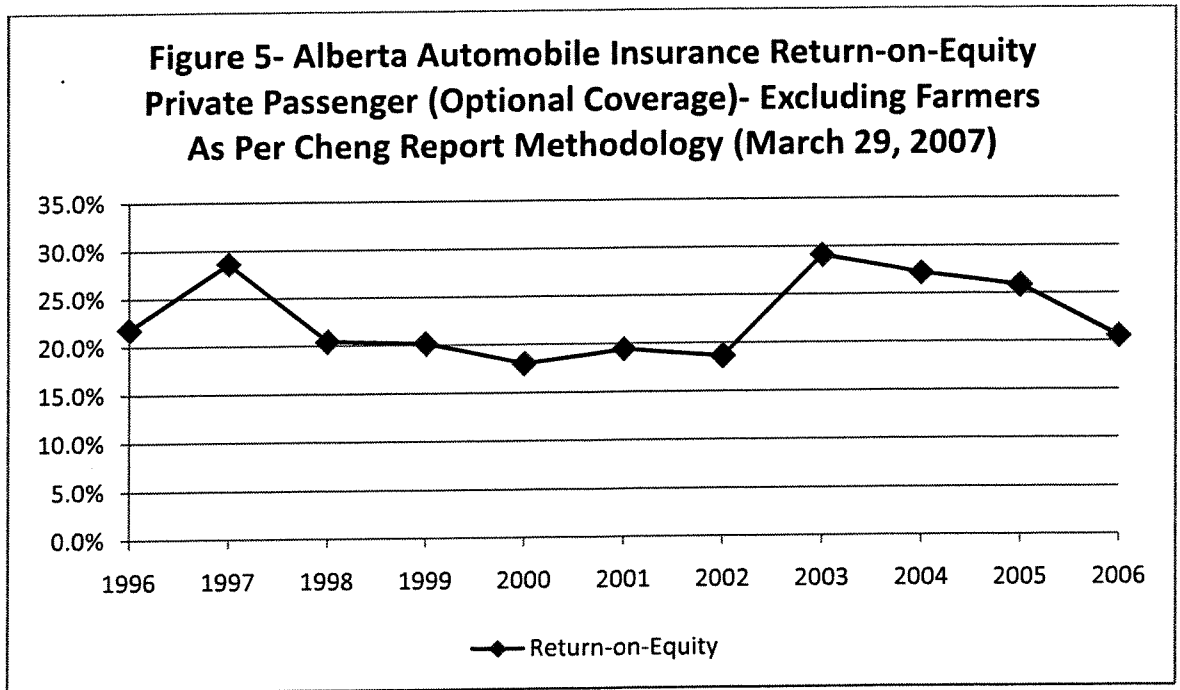


1.4- Optional Coverages

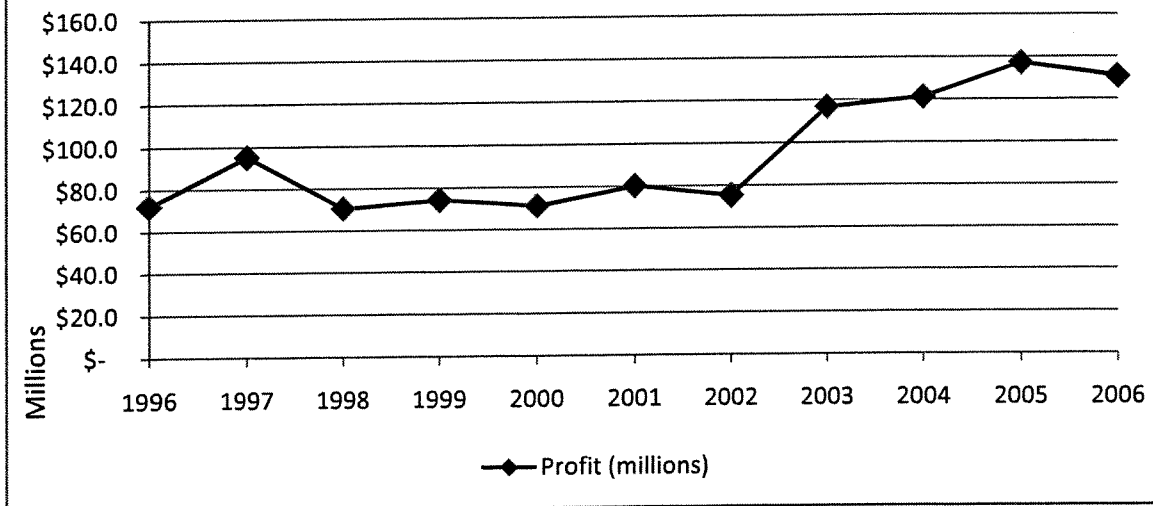
In Alberta, motorists are not required to purchase additional coverages beyond the mandatory \$200,000 in Third-Party-Liability coverage and the no-fault Accident Benefits insurance coverage. In section 1.3 we grouped all Third-Party-Liability and Accident Benefits together under the name Basic Coverages. In this section we consider the remaining coverages: collision, comprehensive, and “other.” We group these coverages under the name Optional Coverages. It is seen in Table 3 and Figures 5 and 6 that these lines were consistently very profitable in the entire 1996 to 2006 time period, with annual after-tax ROE between 18 and 29.1 percent over that time. Like the Basic Coverages, Optional Coverages experienced a significant increase in profitability between 2002 and 2003; but, unlike Basic Coverage, the ROE on Optional Coverages had fallen back to a lower level by 2006.

Table 3		
Alberta Automobile Insurance Profitability		
Private Passenger (Optional Coverages) Excluding Farmers		
As Per Cheng Report Methodology (March 29, 2007)		
(1)	(20)	(21)
Year	After-Tax Profit (millions) \$	After-Tax Return-on-Equity
1996	72	21.8%
1997	95	28.6%
1998	71	20.4%
1999	74	20.2%
2000	71	18.0%
2001	80	19.4%
2002	75	18.6%
2003	117	29.1%
2004	121	27.2%
2005	137	25.8%
2006	131	20.5%

From Appendix, Exhibit 3



**Figure 6- Alberta Automobile Insurance Profit
Private Passenger (Optional Coverages)- Excluding Farmers
As Per Cheng Report Methodology (March 29, 2007)**



Section 2 - Claims Costs

2.1- Introduction

The purpose of this section is to summarize the data concerning changes in the costs of claims per motorist relative to insurance companies' total costs per motorist and to the average premium per motorist.

2.2- Claims Costs Relative to All Costs

The data in Table 4 indicate that the cost of claims remained a relatively constant portion of insurance companies' total costs throughout the entire period 1996 to 2006. That is, the rate at which the costs of claims were rising was not appreciably different from the rate at which insurance companies' other costs – primarily the costs of administration – were rising.

Table 4	
Alberta Automobile Insurance Private Passenger-Excluding Farmers	
Year	Claims Costs Relative to All Costs
1996	79.7%
1997	79.7%
1998	79.7%
1999	79.6%
2000	80.2%
2001	80.8%
2002	81.8%
2003	81.7%
2004	80.4%
2005	81.2%
2006	81.3%

Source: calculated using IBC AU90-A.

2.3- Claims Costs Relative to Premiums

Tables 5, 6, and 7 investigate changes in claims costs per motorist relative to average premiums, for three categorizations of the various coverages: All Coverages, Basic Coverages, and Optional Coverages. What these tables indicate is that, until 2002, premiums tracked claims costs fairly closely. That is, each increase in claims costs per motorist was matched by a similar increase in insurance premiums, resulting in a ratio of costs to premiums that varied only slightly. For example, while the average claim for All Coverages was 86.3 percent of the average premium in 1996, that ratio was 83.0 percent in 2002 – because premiums rose by 29.7 percent over that period, while average claims rose by a similar amount, 24.8 percent.

In 2003 and 2004, however, premiums rose much more quickly than did claims costs, driving down the claims ratio. This was especially true of the average premium for Basic Coverages which rose by 19.3 percent between 2002 and 2004, while average claims actually *fell* by 21.9 percent.

Thus, it appears that the dramatic increase in profit rates over the 2003/2004 period was driven, in large part, by a sudden change in the relationship between the costs of Basic Coverage and the premiums that were charged for that coverage.

Table 5				
Alberta Automobile Insurance				
Private Passenger-Excluding Farmers				
All Coverages				
Year	Average Premium	Average Claim	Claims Costs Relative to Premiums	
1996	\$ 733	\$ 633	86.3%	
1997	\$ 765	\$ 636	83.1%	
1998	\$ 801	\$ 700	87.4%	
1999	\$ 815	\$ 706	86.6%	
2000	\$ 811	\$ 741	91.3%	
2001	\$ 845	\$ 729	86.2%	
2002	\$ 951	\$ 790	83.0%	
2003	\$ 1,092	\$ 736	67.4%	
2004	\$ 1,125	\$ 670	59.5%	
2005	\$ 1,037	\$ 619	59.7%	
2006	\$ 1,022	\$ 671	65.6%	

Source: IBC AU90-A

Table 6				
Alberta Automobile Insurance				
Private Passenger-Excluding Farmers				
Basic Coverages				
Year	Average Premium	Average Claim	Claims Costs Relative to Premiums	
1996	\$ 460	\$ 456	99.0%	
1997	\$ 495	\$ 489	98.8%	
1998	\$ 525	\$ 525	99.9%	
1999	\$ 537	\$ 549	102.1%	
2000	\$ 537	\$ 556	103.5%	
2001	\$ 563	\$ 546	97.1%	
2002	\$ 640	\$ 594	92.9%	
2003	\$ 750	\$ 541	72.1%	
2004	\$ 764	\$ 464	60.7%	
2005	\$ 658	\$ 385	58.5%	
2006	\$ 621	\$ 405	65.2%	

Source: IBC AU90-A

Table 7				
Alberta Automobile Insurance				
Private Passenger-Excluding Farmers				
Optional Coverages				
Year	Average Premium	Average Claim	Claims Costs Relative to Premiums	
1996	\$ 347	\$ 234	67.5%	
1997	\$ 340	\$ 196	57.7%	
1998	\$ 342	\$ 226	65.9%	
1999	\$ 341	\$ 208	61.1%	
2000	\$ 335	\$ 239	71.4%	
2001	\$ 342	\$ 232	67.7%	
2002	\$ 368	\$ 248	67.5%	
2003	\$ 400	\$ 243	60.7%	
2004	\$ 422	\$ 253	59.8%	
2005	\$ 443	\$ 283	63.9%	
2006	\$ 472	\$ 322	68.3%	

Source: IBC AU90-A. The values in this table account only for collision and comprehensive "Optional" coverages. These two coverages make up approximately ninety-percent of the entire "Optional" coverages. More is noted in the Appendix, Exhibit 3.

Section 3- Rising Automobile Premiums

3.1- Introduction

The price of automobile insurance – the premium – is affected by four components. First, there are the two costs of doing business: the claims costs (including adjustment expenses) and the administration expenses (broker's commissions, overhead, etc.). Third, insurers earn income from the investment of equity and reserves (premium revenue that will eventually be used to pay claims). Finally, a reasonable rate of profit must be added to net costs.

The question we address in this section is whether the increases in premiums between 1996 and 2004 can be attributed to changes in claims costs, or whether they can be attributed, at least in part, to changes in the other components.

3.2- Average Claims per Vehicle

In Tables 5 through 7, we showed that the cost of claims rose at approximately the same rate as the price of premiums over the period 1996 to 2002. Thus, if there was a need for increased premiums in 2003 and 2004, it was *not* because the ratio of claims costs to premiums had changed over the preceding six years. Furthermore, average claims costs for Basic Coverages and All Coverages declined in both 2003 and 2004. Average claims costs for Basic Coverages, for example, fell 9.0 percent between 2002 and 2003 and by a further 14.3 percent between 2003 and 2004 – *before* the introduction of the MIR.

Basic Coverages is composed of Third-Party-Liability and Accident Benefits. In turn, Third-Party-Liability (TPL) is composed of TPL-Property Damage and TPL-Bodily Injury, of which only the latter was affected by the *Minor Injury Regulation* (MIR). Thus, it is possible that even though claims costs for Basic Coverages did not increase in 2003 and 2004, there may yet have been an increase in the component that was affected by the MIR. To investigate this possibility, we report the data in Tables 8 and 9, and Figure 7.

Table 8 reports yearly percentage change in average claims. The Third-Party-Liability product is split between the Bodily Injury and Property Damage components.

Table 8								
Alberta Private Passenger (Excluding Farmers) Automobile Insurance								
Average Claims Per Vehicle (per Coverage-Type) & Percentage Change								
Year	Third-Party-Liability Claims				Accident Benefits	% Change	Other Coverages	% Change
	Bodily-Injury	% Change	Property-Damage	% Change				
1996	\$ 333		\$85		\$ 37		\$ 234	
1997	\$ 365	10%	\$86	0%	\$ 38	2%	\$ 196	-16%
1998	\$ 398	9%	\$89	4%	\$ 38	1%	\$ 226	15%
1999	\$ 419	5%	\$89	0%	\$ 41	8%	\$ 208	-8%
2000	\$ 415	-1%	\$98	10%	\$ 43	6%	\$ 239	15%
2001	\$ 410	-1%	\$95	-3%	\$ 42	-3%	\$ 232	-3%
2002	\$ 441	8%	\$109	15%	\$ 44	5%	\$ 248	7%
2003	\$ 402	-9%	\$101	-7%	\$ 38	-13%	\$ 243	-2%
2004	\$ 328	-18%	\$100	-1%	\$ 35	-7%	\$ 253	4%
2005	\$ 238	-28%	\$110	10%	\$ 37	4%	\$ 283	12%
2006	\$ 245	3%	\$122	11%	\$ 38	5%	\$ 322	14%

Data Source: IBC AU90-A. "Other Coverages" in this table account only for collision and comprehensive "Optional" coverages. These two coverages make up approximately ninety-percent of the entire "Optional" coverages. More is noted in the Appendix, Exhibit 3.

In Table 9 we adjust the data from Table 8 by the Alberta consumer price index (CPI)⁵. This provides a benchmark for comparing and analyzing the change in claims. It is seen that CPI-adjusted Bodily Injury claims rose from 1996 to 1999; and have fallen continuously since that time.

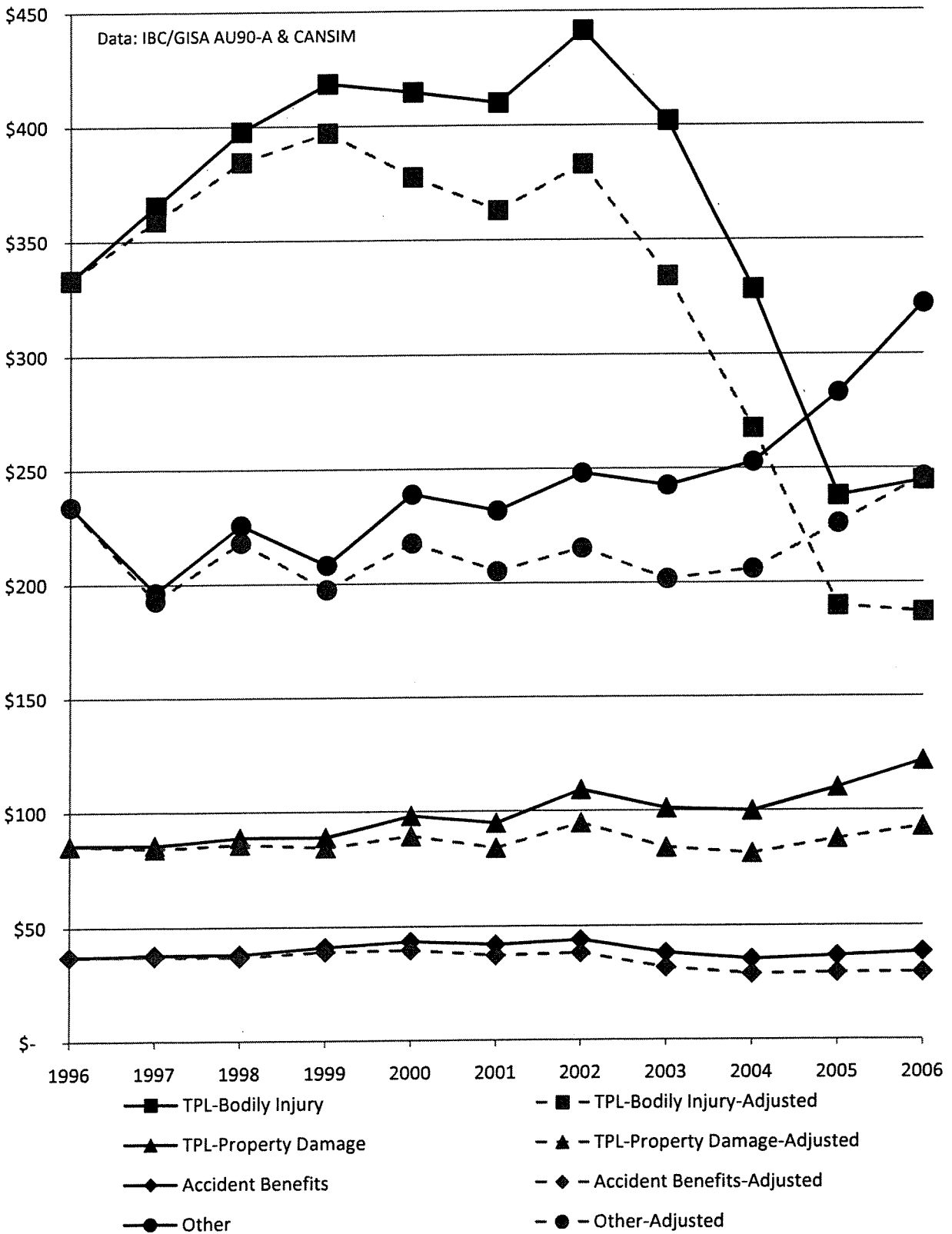
⁵ It should be noted that automobile insurance claims as a whole are not likely to track CPI as CPI is based on a basket of consumer goods whereas automobile insurance costs are related to the cost of fixing automobiles and indemnifying individuals for bodily injury-related damages.

Table 9								
Alberta Private Passenger (Excluding Farmers) Automobile Insurance								
Average Claims Per Vehicle (per Coverage-Type) & Percentage Change								
Adjusted for Alberta's Consumer Price Index								
Year	Third-Party-Liability Claims				Accident Benefits	% Change	Other Coverages	% Change
	Bodily-Injury	% Change	Property-Damage	% Change				
1996	\$ 333		\$ 85		\$ 37		\$ 234	
1997	\$ 359	8%	\$ 84	-2%	\$ 37	0%	\$ 193	-18%
1998	\$ 384	7%	\$ 86	2%	\$ 37	-1%	\$ 218	13%
1999	\$ 397	3%	\$ 84	-2%	\$ 39	6%	\$ 197	-9%
2000	\$ 378	-5%	\$ 89	6%	\$ 39	1%	\$ 218	10%
2001	\$ 363	-4%	\$ 84	-6%	\$ 37	-6%	\$ 205	-6%
2002	\$ 383	6%	\$ 95	13%	\$ 38	3%	\$ 215	5%
2003	\$ 334	-13%	\$ 84	-11%	\$ 32	-17%	\$ 202	-6%
2004	\$ 268	-20%	\$ 81	-3%	\$ 29	-9%	\$ 206	2%
2005	\$ 190	-29%	\$ 88	8%	\$ 29	2%	\$ 226	10%
2006	\$ 187	-1%	\$ 93	6%	\$ 29	0%	\$ 246	9%

Insurance Data Source: IBC AU90-A. Inflation Data Source: CANSIM. "Other Coverages" in this table account only for collision and comprehensive "Optional" coverages. These two coverages make up approximately ninety-percent of the entire "Optional" coverages. More is noted in the Appendix,

The data from Tables 8 and 9 are reproduced in Figure 7 below.

**Figure 7-Alberta Private Passenger (Excluding Farmers) Automobile Insurance
Average Claims Per Vehicle (Adjusted and Unadjusted by Alberta Consumer Price
Index)**



In Tables 8 and 9, and Figure 7, it is seen that the claims for TPL-Bodily Injury increased in proportion to the other components of Basic Coverage prior to the MIR. For example, whereas claims for Bodily Injury increased by 32.5 percent between 1996 and 2002, claims for Property Damage increased by a similar percentage, 27.8.

We are led to ask, therefore, whether a change in some other element of the cost of insurance can explain the sudden increase in premiums that was observed in 2003 and 2004. In sections 3.3, 3.4, and 3.5 we analyze administrative expenses, investment income, and return on equity.

3.3- Average Administrative Expenses

Table 10 reports that the ratio of administrative expenses to premiums (the expense ratio) decreased from 25.5 percent in 1996 to 23.8 percent in 2001. As average premiums increased only slightly over this period, the dollar value of expenses must have been decreasing or relatively stable. Furthermore, in the time period immediately prior to the introduction of the *Minor Injury Regulation*, 2002 and 2003, expense ratios fell further while premiums increased dramatically. It can be concluded, therefore, that changes in administrative expenses were not the source of the premium increases that occurred in 2002 and 2003.

Table 10	
Alberta Automobile Insurance	
Year	Expense Ratio
1996	25.5%
1997	25.5%
1998	25.5%
1999	25.7%
2000	24.7%
2001	23.8%
2002	22.3%
2003	22.4%
2004	24.4%
2005	23.1%
2006	23.0%

Data Source: Cheng Report for 1998-2002. 1996, 1997=1998. IBC Expense Survey for 2003. AIRB Rate Level Adjustment for years 2004-2006.

3.4- Investment Income Earned on Equity and Reserves

It is seen in Table 11 that the investment return insurers earned on their equity and reserves declined almost continuously over the period 1996 to 2001. Nevertheless, this decrease placed only limited upward pressure on premium rates.

Specifically, we estimate that to compensate for the decrease in return on investment (ROI) from 9.0 percent in 2000 to 6.2 percent in 2003, insurers would have needed a \$44 increase in the 2003 premiums on Basic Coverage⁶. In fact, those premiums increased by \$213, from \$537 to \$750 (Table 6). This confirms that decreasing ROI was not the main impetus for the premium increases in 2002 and 2003.

Table 11		
Alberta Automobile Insurance		
Basic Coverages		
Year	ROI Rate	ROI (millions)
1996	10.0%	\$ 160
1997	10.5%	\$ 177
1998	8.7%	\$ 163
1999	7.3%	\$ 143
2000	9.0%	\$ 194
2001	7.6%	\$ 178
2002	5.6%	\$ 138
2003	6.2%	\$ 169
2004	5.5%	\$ 165
2005	5.8%	\$ 179
2006	5.7%	\$ 173

Data Source: OSFI P&C-1 & P&C-2.

We examined the aggregate investment portfolio of Canadian property and casualty insurers over the time period 1996-2006 and found the composition of debt/equity to be fairly constant. The predominant investment holding was debt. The data are presented in the Appendix, Exhibit 4.

⁶ This calculation assumes that the expense ratio, premium leverage ratio, reserve to equity ratio, underwriting income tax rate, and investment income tax rate for 2003 would be the same as they were for 2000; and yields the same return on equity in both years.

3.5- Reasonable Rate of Profit

The shareholders of an insurance company expect a reasonable rate of return on their investment. This rate of return must take the risk of the investment into consideration.

A considerable amount of research has been conducted to identify the rate of return on equity (ROE) that is required to adequately compensate shareholders of insurance companies. We report some of the findings here for both the automobile insurance business in particular and the (larger) property and casualty industry in general.

Expert Opinions on Adequate Return-on-Equity for Property-Casualty Insurance

Dr. Richard Phillips has analyzed property and casualty insurance companies in the U.S. to estimate the required rate of return in that industry. In a study prepared for the Alberta Automobile Insurance Rate Board (AIRB),⁷ Dr. Phillips reported that if he was advising a U.S. property casualty insurer, with an average portfolio of risk (relative to the overall industry), he would recommend 15.4 percent to be a fair rate of return.

The federal Office of the Superintendent of Financial Institution's report to the Secretary of State (International Financial Institutions), dated September 19, 2003, noted that the average ROE for Canadian property casualty insurers (which includes all lines and not just automobile insurance) over the past fifteen years was 8.1 percent.

Expert Opinions on Adequate Return-on-Equity for Automobile Insurance

Dr. Norma Nielson and Dr. Mary Kelly, in a presentation to the Alberta AIRB October 20, 2006, recommended a cost of equity target in the range of 14.31 to 18.26 percent for the automobile insurance industry.

NERA Consulting Economists, in a report for the Newfoundland & Labrador Board of Public Utilities, October 13, 2004, recommended that an after-tax cost of equity in the range of 11 to 14 percent would be appropriate for automobile insurance in Newfoundland & Labrador. Based on NERA's report, Dr. Ronald R. Miller of Exactor Insurance Services Inc. recommended to the Newfoundland & Labrador Board of Public Utilities that an appropriate conservative estimate for return on equity would be 12.5 percent.

⁷ "Determining the Fair Rate of Return on Equity for Automobile Insurers" by Dr. Richard Phillips is dated October 18, 2006 and is available for download from Alberta Finance's website.

On November 1, 2004, Dr. Basil A. Kalymon, on behalf of the consumer advocate, recommended to the Newfoundland & Labrador Board of Public Utilities that a target return on equity for the setting of automobile insurance rates should be 9 to 10 percent.

The consumer representative to the Alberta AIRB, Ms. Merle Taylor, CMA, recommended in a November 9, 2006 document to the AIRB that the return on equity be higher than the risk free rate and higher than the allowable rate for utilities (at that time, 8.9 percent). She also stated that a 19.6 percent return-on-equity could be considered excessive. She did not recommend an exact number or range.

While providing testimony in *Morrow v. Zhang* (2008), actuary Joe S. Cheng, F.C.I.A. stated that a 12.5 percent return on equity was considered by many insurers to be in the low end of a reasonable range (p. 707, lines 39-41 of testimony) for automobile insurance. Further in his testimony, Mr. Cheng suggested that the high end of a reasonable range for return on equity might be 20 percent (p. 731, lines 11-12 of testimony).

The Alberta Automobile Insurance Rate Board (AIRB) currently considers a 5 percent premium loading to be adequate for the provision of profit; the AIRB also considers a 4.3 percent return on investment (on the investment of equity and reserves) to be a reasonable assumption.⁸ Using a 2 to 1 premium to equity ratio assumption and an income tax rate (overall) of 33.62 percent, this translates to a 9.5 percent after-tax return on equity (or 14.3 percent pre-tax).⁹ This suggests that the AIRB considers a 9.5 percent after-tax return on equity to be sufficient for Basic Coverages.

Excluding the report by Merle Taylor, which did not give an exact range or recommendation, the average of the six remaining expert's opinions on a reasonable return-on-equity for automobile insurance is 12.76 percent.¹⁰

⁸ As stated in the July 26, 2007 "Annual Industry-Wide Adjustment of Rates for Basic Coverages, Effective November 1, 2007, RE: Section 4 of the Automobile Insurance Premiums Regulation, Alberta Automobile Insurance Rate Board, Board Decision Report, Order No: 01-07," page 14, section 4.5.2, "Board Position."

⁹ The 2 to 1 premium to equity ratio assumption and the assumption of a 33.62 percent income tax rate are taken directly from page 18 of Oliver Wyman's May 31, 2005 "Actuarial Analysis for Industry-wide Rate Level Adjustment" effective November 1, 2005 prepared for the AIRB. The same method was used in Oliver Wyman's 2006 actuarial analysis for the AIRB (pages 21 & 23) as well as the 2007 actuarial analysis (pages 25 & 28).

¹⁰ For calculation, the average of the proposed ranges (for those experts who proposed ranges) was used. For example, Nielson and Kelly recommended a range of 14.31 to 18.26 percent, the average of which is 16.285 percent. Also note that although Dr. Ronald Miller's recommendation was based on NERA's consulting work, weight has been given to Dr. Miller's opinion. The standard deviation of this sample of expert's opinions is 3 percent, implying that about 68 percent of recommendations are within the range of 9.72 to 15.79 percent.

3.6- The Reason for Premium Increases

In the absence of regulatory premium controls or regulatory cost controls, premium rates and administrative costs are the prime variables that insurers have greatest control over. Insurers have limited control over claims payouts and adjustment expenses. Although they can also alter their capital structure, product mix, service level, distribution structure, and other variables, it is premium rates and administrative costs that are generally the easiest to change.

As indicated in the preceding sections, claims did not dramatically increase in the time period leading up to the *Minor Injury Regulation*.

As also shown above, administrative expenses did not increase but, rather, decreased in the time leading up to the *Minor Injury Regulation*.

Although investment returns decreased in the time leading up to the *Minor Injury Regulation*, their effect on the increase in premiums was minor.

ROE for Basic Coverages averaged -1 percent per year in the period 1996 to 2002 (7.4 percent for All Coverages). During this same period of time, average premiums for Basic Coverage only increased by 6 percent per year on average (4.5 percent per year on average for All Coverages). This premium deficiency (the difference between premium charged and premium required to reach a reasonable rate of return) appears to have been the primary impetus for the sharp increase in premiums that occurred in 2002, as the “soft” market ended and a “hard” market began.

We estimate that without the premium increases in 2002 and 2003, ROE on Basic Coverages would have been -3.8 percent (in 2003).

Section 4- Removing the Minor Injury Regulation: Premiums and ROE

4.1- Introduction

We have shown in this report that, by 2004, the automobile insurance industry in Alberta was earning an after-tax rate of return on equity that exceeded 20 percent. As experts state that a reasonable target rate of return for automobile insurance is between 9 and 20 percent, it does not appear that it was necessary to introduce government regulation to reduce costs. Furthermore, we have also shown that the costs of bodily injury claims did not rise significantly more rapidly than did the costs of other types of claims (in the time period analyzed). Accordingly, even if there had been an argument for controlling claims costs, it is not clear that the cost of bodily injury claims, particularly those involving soft-tissue injuries, should have been singled out for suppression.

In this light, we ask what the impact would be of maintaining the decision in *Morrow v. Zhang* (2008), in which the court struck down the *Minor Injury Regulation*. Specifically, we estimate what the effect of this decision would be: (a) on premiums, if the after-tax rate of return on equity was to be held constant¹¹; and (b) on profits, if premiums were to be held constant¹².

4.2- The Effect on Premiums if the Minor Injury Regulation is Removed

In Alberta, the Automobile Insurance Rate Board (AIRB) currently controls premiums for Basic Coverages and engages in an annual adjustment of these premium rates. Accordingly, we use the AIRB's methodology to estimate the effect that an increase in claims costs would have on premiums. In preparing this estimate, we make no claims with regards to the validity of the methodology used by the Alberta Automobile Insurance Rate Board and its consulting actuary, Oliver Wyman. Rather, we take the methodology as given and we use it to estimate what the "required" premium increase for Basic Coverages would be if the *Minor Injury Regulation* was removed permanently. We do not calculate the effect of removing any of the other reforms¹³ that were introduced in 2003/ 2004.

¹¹ This calculation uses the Alberta Automobile Insurance Rate Board's methodology of a 5 percent profit loading on premiums. Using the AIRB's calculations, this translates to a 9.5 to 10.1 percent after-tax ROE (depending on the investment return rate (ROI) assumed).

¹² This estimate makes use of both the AIRB's methodology and that of the Cheng Report.

¹³ The other major reforms to the Alberta automobile insurance market since 2003/2004 were the *Insurance Amendment Act, 2003 (no.2)*, the *Automobile Accident Insurance Benefits Regulation* (ABR) (Alberta Reg. 352/1972; amended 121/2004), and the *Diagnostic & Treatment Protocols Regulation* (DTPR) (Alberta Reg.

We use the assumptions and methodology found in the 2005, 2006, and 2007 Actuarial Analysis prepared for the AIRB. These reports analyze claims experience and make an estimate of the required annual premium change for Basic Coverages.

The AIRB adds a 5 percent profit loading to the Basic Coverages premium. It then makes a series of assumptions regarding ratios and investment returns to arrive at the conclusion that a 5 percent profit loading leads to approximately a 9.3 percent to 10.1 percent ROE (depending on the investment return assumption used).

Using the AIRB's methodology, and controlling for other reforms beside the *Minor Injury Regulation* (controlling for the *gross to net income* reform and the *collateral income* reform), we estimate that the required average premium increase for Basic Coverages, due to the removal of the *Minor Injury Regulation*, would be \$111.76/year. (The complete analysis is available in the Appendix, Exhibits 7, 8 & 9.)

We note a number of caveats to our estimate of \$111.76. The primary one is that some injured victims from the past (when the MIR was in place) may have been waiting to file claims and may now do so, potentially increasing claims from prior years. In a competitive market, insurers cannot re-coup these past losses from current premium increases.

Also, if claims were held off from being filed because claimants were waiting for the removal of the *Minor Injury Regulation*, the frequency of claims from prior years may not be accurate. As such, the frequency may actually have been larger and may be larger in the future. This suggests that the required premium increase could be higher than what we have calculated.

We also note that consumers will not bear the increase at the average level but will, rather, bear it in proportion to their risk profile. That is, higher-risk consumers will have a higher premium rate increase than lower-risk consumers. This is, however, subject to the regulatory control of the AIRB.

Lastly, our analysis assumes that the demand for insurance is inelastic and that consumers will still buy the same quantity of insurance both in the aggregate (number of people buying insurance) and at the individual level (quantity/ level of coverage) after a premium increase. We have also assumed that insurers will not alter their capital structure and that the assumptions and methodology of the Alberta Automobile Insurance Rate Board would remain unchanged.

122/2004). Further, there was a premium freeze order, a premium rollback, and other premium controls and reductions since 2003.

4.3- The Effect on Insurer Profits if the Minor Injury Regulation is Removed and Premiums are Held Constant

As the Alberta Automobile Insurance Rate Board (AIRB) regulates premium rates, it may also be of interest to estimate what insurer profitability would be if the AIRB was to hold premium rates constant at the same time that the *Minor Injury Regulation* has been struck down.

We used the AIRB's annual rate adjustment methodology to estimate the increase in average claims costs per vehicle and incorporated this additional cost (as calculated in the Appendix, Exhibit 10) into the data from 2006. We then used the Cheng Report methodology and ratios from that year to make an estimate of what insurer profitability would be.¹⁴

Using this methodology, we estimate that insurer ROE for Basic Coverages would be 12.2 percent if the *Minor Injury Regulation* was removed and premiums held constant (16 percent for All Coverages) – leaving the claims ratio at the 2006 rate plus an additional factor for the increase in claims.¹⁵ This assumes that the expense ratio, premium leverage ratio, reserve-to-equity ratio, yield rates, and tax rates are all on the same level as they were in 2006 (using the Cheng Report methodology). The complete analysis is available in the Appendix, Exhibits 10, 11 & 12.

¹⁴ We did not discount the estimated claims cost to 2006.

¹⁵ This is estimated by leaving the claims ratio at the 2006 rate plus an additional factor for the increase in claims.

Conclusion

The purpose of this report has been to provide objective evidence concerning the impact of the Alberta *Minor Injury Regulation* on the Alberta automobile insurance market. Our primary findings are:

- Insurer profitability from private passenger Alberta Basic Coverages (Third-Party-Liability and Accident Benefits coverage) was below target from 1996 through 2002; but above target from 2003 through 2006.
- Approximately 80 percent of all automobile insurance expenditure outflows went to claims and adjustment expenses during the years 1996 through 2006. This ratio was fairly constant.
- Prior to the implementation of the *Minor Injury Regulation*, rising average insurance premiums for Alberta private passenger Third-Party-Liability and Accident Benefits coverage (14 percent increase in 2002 and 17 percent in 2003) were likely as a result of a premium deficiency (insufficient premiums). That is, insurers raised premiums because their return on equity was below their target rate. We estimate that without the premium increases in 2002 and 2003, the average rate of return on equity would have been -3.8 percent in 2003 on Basic Coverages.
- Alberta private passenger Third-Party-Liability and Accident Benefits claims did not increase substantially in the period 2000 through 2003. During this time, (the period immediately *prior* to the introduction of the *Minor Injury Regulation*), Bodily Injury claims actually *decreased* from an average of \$415 per vehicle to \$402 per vehicle.
- Using the methodology of the Alberta Automobile Insurance Rate Board, we estimate that the average premium per vehicle for private-passenger automobile insurance will increase by \$111.76/year because the *Minor Injury Regulation* has been struck down.
- Alternatively, if the Alberta Automobile Insurance Rate Board forces insurers to hold premiums constant, we estimate insurer profits for Basic Coverages will fall to 12.2 percent return on equity (16 percent for All Coverages) using 2006 data, assumptions and the Cheng Report methodology as noted.

Appendix

To:

**“Alberta’s Minor Injury Regulation:
Automobile Insurance Profits, Premium Rates, and Costs”**

By:

Jason Strauss

&

Christopher Bruce

Economica Ltd.

**Prepared April 21, 2008 for:
The Canadian Bar Association**

Alberta Automobile Insurance Calculation of Profit and Rate of Return-on-Equity (Pre and Post Tax) Private Passenger (Excluding Farmers) All Coverages

Employee methodology in report prepared by Joe S. Cheng, F.C.I.A. for Parlee Melias LLP- March 29, 2007
Title of Joe S. Cheng Report: "REPORT ON THE REVIEW of Insurance Reform-Premium and Claim Analysis By Gordon Smith and Theresa K. Reichart of Deloitte & Touche LLP"

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
Year	Premium Earned \$(millions)	Claims Ratio	Expense Ratio	Combined Ratio	Underwriting Profit (+) / Loss (-) \$(millions)	Premium Leverage	Allocated Capital/Equity \$(millions)	Reserves as % of Equity	Yield Rates Capital	OSFI Yield Rates Operations	Equity	Operations	Total Investment Income \$(millions)	Total	Pre-Tax Profit \$(millions)	ROE	Underwriting Investment	Investment	Total Profit Post-Tax \$(millions)	ROE	Year
1996	1,037	86.3%	25.5%	111.8%	(123)	1.16	892	1.86	10.0%	10.0%	89	166	255	132	14.8%	44.62%	40%	86	9.6%	1996	
1997	1,100	83.1%	25.5%	108.6%	(95)	1.16	946	1.75	10.5%	10.5%	99	174	273	178	19.4%	44.62%	39%	114	12.5%	1997	
1998	1,197	87.4%	25.5%	112.9%	(154)	1.15	1,041	1.74	8.7%	8.7%	91	158	248	94	9.4%	44.62%	40%	63	6.3%	1998	
1999	1,287	86.6%	25.7%	112.3%	(152)	1.10	1,116	1.66	7.3%	7.3%	109	135	217	65	6.0%	44.62%	41%	45	4.1%	1999	
2000	1,405	86.2%	23.8%	110.0%	(206)	1.06	1,214	1.68	9.0%	9.0%	109	184	293	87	7.5%	44.62%	38%	69	5.9%	2000	
2001	1,412	86.2%	23.8%	110.0%	(141)	1.13	1,203	1.82	7.6%	7.6%	95	173	268	127	10.3%	42.11%	36%	89	7.3%	2001	
2002	1,612	83.0%	22.3%	105.3%	(86)	1.34	1,308	2.04	5.6%	5.6%	67	137	205	119	9.7%	39.23%	36%	78	6.4%	2002	
2003	1,871	67.4%	22.4%	89.8%	191	1.43	1,504	2.02	6.2%	6.2%	81	164	246	437	34.8%	36.75%	30%	293	23.4%	2003	
2004	1,964	59.5%	24.4%	83.9%	315	1.31	1,504	1.92	5.5%	5.5%	83	160	244	559	39.8%	34.87%	28%	381	27.1%	2004	
2005	1,890	59.7%	23.1%	82.8%	325	1.19	1,582	2.07	5.8%	5.8%	92	190	283	608	39.4%	33.62%	25%	428	27.8%	2005	
2006	1,990	85.6%	23.0%	88.6%	226	1.12	1,776	1.81	5.7%	5.7%	102	183	285	511	30.4%	32.50%	24%	366	21.9%	2006	

Col. No.	Description	Source
(1)	Year in which accidents occurred and to which premiums were charged.	AU90-A, 1987-2006. Slightly different than Cheng Report due to updated data.
(2)	Premiums charged for specific Year for "All Coverages" for Private Passenger Alberta automobile insurance excluding farmers.	AU90-A, 1987-2006. Slightly different than Cheng Report due to updated data.
(3)	Claims expressed as % of premiums in column (2).	Cheng report for 1998-2002. Used 1998 for years 1997, 1996. Used IBC Expense Survey for Alberta for 2003. Used selection in AIRB Rate Level Adjustment report (effective November 1st of prior year) for years 2004-2006.
(4)	Insurer expenses (administrative, commissions, etc.) expressed as % of premiums in column (2).	Calculated
(5)	The combined ratio is the sum of the claims ratio and the expense ratio.	Calculated
(6)	Equals premiums less claims and expenses.	Calculated
(7)	Equals premiums less claims and expenses.	Calculated
(8)	This represents the Canadian "all lines ratio" of premiums to equity. It is used to allocate equity to Alberta "All Coverages" automobile insurance.	Cheng report (original source "IBC Perspective") for years 1998-2001. OSFI data for years 1998, 1997 & 2002-2006.
(9)	This uses column (8) to impute the equity employed by insurers to support the "All Coverages" Alberta automobile insurance risk.	Reserves have been estimated as a function of equity as per the Cheng Report. The ratio of reserves to equity is found from the OSFI data by taking the sum of unpaid claims and unearned premium reserve minus reinsurance unpaid claims (and adjustment expenses) minus reinsurance unearned premium reserve, all divided by the equity at year-end.
(10)	This is used to determine the premiums (less expenses) that are earmarked for claims but not yet paid hence available for investment.	Cheng report (original source "IBC Perspective") for years 1998, 1999, 2000, & 2002. OSFI data for years 1998, 1997, 2001, & 2003-2006. Investment yield rates calculated using OSFI data found from dividing total investment income over total investments.
(11)	Columns (11) and (12) present the actual investment return achieved by the Canadian industry for each year.	Calculated
(12)	See note for column (11).	Calculated
(13)	Columns (13), (14) and (15) present the investment income earned on equity (13), reserves (14), and total (equity and reserves) (15), respectively.	Calculated
(14)	See note for column (13).	Calculated
(15)	See note for column (13).	Calculated
(16)	Sum of pre-tax underwriting profit (loss), column (7), and investment income, column (15).	Calculated
(17)	Pre-tax ROE (return on equity) is the amount of pre-tax profit as a % of equity (the average of current and prior year equity).	Calculated as after-tax profit divided by the average of the current year's equity and the previous year's equity.
(18)	Columns (18) and (19) present the corporate tax rates for the two major operations of an insurance company.	Canada Revenue Agency & Alberta Finance for years 2000 through 2006. Cheng Report for years 1998 & 1999. 1996 & 1997-1998. There were a series of decreases in the Alberta corporate tax rate that occurred on April 1st of 2001, 2002, 2003, 2004 & 2006. A weighted average of the tax rates in place in those years was used.
(19)	See note for column (18).	Exhibit 5
(20)	Same as column (16) except after tax.	Calculated
(21)	Same as column (17) except after tax.	Calculated
(22)	Same as column (1).	Calculated

Some of the numbers are slightly different than those in the Cheng Report because of the use of updated data. Insurance data is updated as more information becomes available (as results become more certain). We have used updated information and, as such, some of our numbers are slightly different than those in the Cheng Report.

The numbers in this table are for "all coverages" which includes third-party liability, accident benefits, collision, comprehensive, and other coverages.

Column (19) presents effective tax rates on investment income which are slightly different than those arrived at in the Cheng Report even though the methodology in the Cheng Report was copied. See notes in Exhibit 5 for a thorough explanation.

**Alberta Automobile Insurance
Calculation of Profit and Rate of Return-on-Equity (Pre and Post Tax)
Private Passenger (Excluding Farmers) Basic Coverages Only (Third-Party-Liability & Accident Benefits)**

Employs methodology in report prepared by Joe S. Cheng, F.C.I.A. for Parlee McLaws LLP, March 29, 2007
Title of Joe S. Cheng Report: "REPORT ON THE REVIEW of Insurance Reform-Premium and Claim Analysis By Gordon Smith and Theresa K. Reichart of Deloitte & Touche LLP"

(1) Year	(2) Premium Earned \$(millions)	(3) Claims Ratio	(4) Expense Ratio	(5) Combined Ratio	(6) Underwriting Profit (+) / Loss (-) %	(7) Underwriting Profit (+) / Loss (-) \$(millions)	(8) Premium Leverage	(9) Allocated Capital/Equity \$(millions)	(10) Reserves as % of Equity	(11) Yield Rates Capital	(12) OSFI Yield Rates Operations	(13) Equity Operations	(14) Investment Income Operations \$(millions)	(15) Total Investment Income	(16) Pre-Tax Total Profit \$(millions)	(17) Post-Tax Total Profit \$(millions)	(18) Tax Rate	(19) Investment Income \$(millions)	(20) Total Profit Post-Tax \$(millions)	(21) ROE	(22) Year
1996	652	90.9%	25.5%	124.5%	-24.5%	(159)	118	560	1.86	10.0%	10.0%	56	704	160	1	1	44.62%	40%	8	1.5%	1996
1997	712	98.8%	25.5%	124.3%	-24.3%	(173)	118	612	1.75	10.5%	10.5%	64	712	177	4	4	44.62%	39%	12	2.1%	1997
1998	785	99.8%	25.5%	125.4%	-25.4%	(199)	115	683	1.74	8.7%	8.7%	59	785	163	(37)	(37)	44.62%	40%	(13)	-2.0%	1998
1999	810	102.1%	25.7%	127.8%	-27.8%	(223)	110	736	1.66	7.3%	7.3%	54	810	143	(62)	(62)	44.62%	41%	(40)	-5.6%	1999
2000	852	103.5%	24.7%	128.2%	-28.2%	(240)	106	804	1.68	9.0%	9.0%	72	852	194	(47)	(47)	44.62%	38%	(12)	-1.6%	2000
2001	935	97.1%	23.8%	120.9%	-20.9%	(196)	113	828	1.82	7.6%	7.6%	63	935	178	(17)	(17)	42.11%	36%	1	0.1%	2001
2002	1,085	92.9%	22.3%	115.2%	-15.2%	(165)	134	809	2.04	5.6%	5.6%	45	1,085	138	(27)	(27)	39.23%	30%	163	-1.5%	2002
2003	1,285	72.1%	22.4%	94.5%	3.5%	70	143	898	2.02	6.2%	6.2%	56	1,285	169	239	28.0%	36.27%	30%	163	19.1%	2003
2004	1,330	60.7%	24.4%	85.1%	14.9%	196	131	1,020	1.92	5.5%	5.5%	57	1,330	165	364	34.87%	28%	248	25.9%	2004	
2005	1,200	58.5%	24.1%	81.6%	18.4%	221	119	1,004	2.07	5.8%	5.8%	59	1,200	179	401	33.62%	25%	282	27.8%	2005	
2006	1,208	65.2%	23.0%	88.2%	11.8%	143	112	1,078	1.81	5.7%	5.7%	62	1,208	173	318	32.50%	24%	227	21.8%	2006	

Col. No.	Description	Brief Description of Each Column Including Data Source	Notes
(1)	Year in which accidents occurred and to which premiums were charged.		
(2)	Premiums charged for specific Year for "Basic Coverages" (Third-Party-Liability & Accident Benefits) for Private Passenger Alberta automobile insurance, excluding farmers.		AU90-A, 1987-2006. Slightly different than Cheng Report due to updated data.
(3)	Claims expressed as % of premiums in column (2).		AU90-A, 1987-2006. Slightly different than Cheng Report due to updated data.
(4)	Insurer expenses (administrative, commissions, etc.) expressed as % of premiums in column (2).		Cheng report for 1998-2002. Used 1998 for years 1997, 1996. Used IBC Expense Survey for Alberta for 2003. Used selection in AIRB Rate Level Adjustment report (effective November 1st of prior year) for years 2004-2006.
(5)	The combined ratio is the sum of the claims ratio and the expense ratio.		Calculated
(6)	Equals premiums less claims and expenses.		Calculated
(7)	Equals premiums less claims and expenses.		Calculated
(8)	This represents the Canadian "all lines ratio" of premiums to equity. It is used to allocate equity to Alberta "Basic Coverages" automobile insurance.		Calculated
(9)	This uses column (8) to impute the equity employed by insurers to support the "Basic Coverages" Alberta automobile insurance risk.		Calculated
(10)	This is used to determine the premiums (less expenses) that are earmarked for claims but not yet paid hence available for investment.		Reserves have been estimated as a function of equity as per the Cheng Report. The ratio of reserves to equity is found from the OSFI data by taking the sum of unpaid claims and unearned premium reserve minus reinsurance unpaid claims (and adjustment expenses) minus reinsurance unearned premium reserve, all divided by the equity at year-end.
(11)	Columns (1) and (12) present the actual investment return achieved by the Canadian industry for each year.		Cheng report (original source "IBC Perspective") for years 1998, 1999, 2000, & 2002. OSFI data for years 1996, 1997, 2001, & 2003-2006. Investment yield rates calculated using OSFI data found from dividing total investment income over total investments.
(12)	See note for column (11).		Calculated
(13)	Columns (13), (14) and (15) present the investment income earned on equity (13), reserves (14), and total (equity and reserves) (15), respectively.		Calculated
(14)	See note for column (13).		Calculated
(15)	See note for column (13).		Calculated
(16)	Sum of pre-tax underwriting profit (loss), column (7), and investment income, column (15).		Calculated as after-tax profit divided by the average of the current year's equity and the previous year's equity.
(17)	Pre-tax ROE (return on equity) is the amount of pre-tax profit as a % of equity (the average of current and prior year equity).		Canada Revenue Agency & Alberta Finance for years 2000 through 2006. Cheng Report for years 1996 & 1999, 1996 & 1997-1998. There were a series of decreases in the AB corporate tax rate that occurred on April 1st of 2001, 2002, 2003, 2004 & 2006. A weighted average of the tax rates in place in those years was used.
(18)	Columns (18) and (19) present the corporate tax rates for the two major operations of an insurance company.		Exhibit 5
(19)	See note for column (18).		Calculated
(20)	Same as column (16) except after tax.		Calculated
(21)	Same as column (17) except after tax.		Calculated
(22)	Same as column (1).		Calculated

Some of the numbers are slightly different than those in the Cheng Report because of the use of updated data. Insurance data is updated as more information becomes available (as results become more certain). We have used updated information and, as such, some of our numbers are slightly different than those in the Cheng Report.
The numbers in this table are for "basic coverages" which includes third-party-liability and accident benefits.
Column (19) presents effective tax rates on investment income which are slightly different than those arrived at in the Cheng Report even though the methodology in the Cheng Report was copied. See notes in Exhibit 5 for a thorough explanation.

**Alberta Automobile Insurance
Calculation of Profit and Rate of Return-on-Equity (Pre and Post Tax)
Private Passenger (Excluding Farmers) Optional/ Additional Coverages Only (Collision, Comprehensive, other)**

Employs methodology in report prepared by Joe S. Cheng, F.C.I.A. for Parlee McInnis LLP - March 29, 2007
Title of Joe S. Cheng Report: "REPORT ON THE REVIEW of Insurance Reform-Premium and Claim Analysis By Gordon Smith and Theresa K. Reichart of Deloitte & Touche LLP"

(1) Year	(2) Premium Earned \$(millions)	(3) Claims Ratio	(4) Expense Ratio	(5) Combined Ratio	(6) Underwriting Profit (+) / Loss (-) \$(millions)	(7) Underwriting Profit (+) / Loss (-) %	(8) Premium Leverage	(9) Allocated Capital/Equity \$(millions)	(10) Reserves as % of Equity	(11) Yield Rates Capital	(12) OSFI Yield Rates Operations	(13) Equity Operations	(14) Investment Income \$(millions)	(15) Total \$(millions)	(16) Pre-Tax Total \$(millions)	(17) ROE Pre-Tax	(18) Underwriting Investment	(19) Tax Rate	(20) Total Profit Post-Tax \$(millions)	(21) ROE Post-Tax	(22) Year
1996	386	67.5%	25.5%	93.0%	27	7.0%	1.16	332	1.86	10.0%	10.0%	33	62	95	122	36.7%	44.62%	40%	72	21.8%	1996
1997	388	57.7%	25.5%	83.2%	16.8%	16.8%	1.16	334	1.75	10.5%	10.5%	35	61	96	162	48.6%	44.62%	39%	95	28.6%	1997
1998	411	65.9%	25.5%	91.4%	8.6%	8.6%	1.15	358	1.74	8.7%	8.7%	31	54	85	121	34.8%	44.62%	40%	71	20.4%	1998
1999	418	61.1%	25.7%	86.8%	13.2%	13.2%	1.10	380	1.66	7.3%	7.3%	28	46	74	129	35.0%	44.62%	41%	74	20.2%	1999
2000	435	71.4%	24.7%	96.1%	3.9%	3.9%	1.06	410	1.68	9.0%	9.0%	37	62	99	116	29.4%	44.62%	38%	71	18.0%	2000
2001	470	67.7%	23.8%	91.5%	8.5%	8.5%	1.13	416	1.82	7.6%	7.6%	32	56	89	129	31.3%	42.11%	36%	80	19.4%	2001
2002	527	67.5%	22.4%	89.9%	10.2%	10.2%	1.43	393	2.04	5.6%	5.6%	45	67	121	176	43.9%	36.75%	30%	75	18.6%	2002
2003	586	60.7%	22.4%	83.1%	16.9%	16.9%	1.43	410	2.02	6.2%	6.2%	25	52	77	178	39.8%	34.87%	28%	117	29.1%	2003
2004	631	59.8%	23.1%	84.2%	15.9%	15.9%	1.31	484	1.92	5.5%	5.5%	27	52	78	178	39.8%	34.87%	28%	121	27.2%	2004
2005	690	63.9%	23.1%	87.0%	13.0%	13.0%	1.19	578	2.07	5.8%	5.8%	34	70	103	193	36.4%	33.62%	25%	137	25.8%	2005
2006	782	68.3%	23.0%	91.3%	8.7%	8.7%	1.12	698	1.81	5.7%	5.7%	40	72	112	180	26.3%	32.50%	24%	131	20.5%	2006

Col. No.	Description	Brief Description of Each Column including Data Source
(1)	Year in which accidents occurred and to which premiums were charged.	Source
(2)	Premiums (millions) charged for specific Year for "Optional Coverages" (Collision, Comprehensive, Underinsured Motorist, Uninsured Motorist, Specified Perils, All Perils) for Private Passenger Alberta automobile insurance, excluding farmers.	AU90-A, 1987-2006.
(3)	(Collision & comprehensive average claim per vehicle) / (collision and comprehensive average premium per vehicle).	AU90-A, 1987-2006, Collision and Comprehensive coverage data.
(4)	Insurer expenses (administrative, commissions, etc.) expressed as % of premiums in column (2).	Cheng report for 1996-2002. Used 1998 for years 1997, 1996. Used IBC Expense Survey for Alberta for 2003. Used selection in AIRB Rate Level Adjustment report (effective November 1st of prior year) for years 2004-2006.
(5)	The Combined Ratio is the sum of the claims ratio and the expense ratio.	Calculated
(6)	Equals premiums less claims and expenses as % of premiums.	Calculated
(7)	Equals premiums less claims and expenses.	Calculated
(8)	This represents the Canadian "all lines ratio" of premiums to equity. It is used to allocate equity to Alberta "Optional Coverages."	Cheng report (original source "IBC Perspective") for years 1988-2001, OSFI data for years 1996, 1997 & 2002-2006.
(9)	This uses column (8) to impute the equity employed by insurers to support the "Optional Coverages" Alberta automobile insurance risk.	Reserves have been estimated as a function of equity as per the Cheng Report. The ratio of reserves to equity is found from the OSFI data by taking the sum of unpaid claims and unearned premium reserve minus reinsurance unpaid claims (and adjustment expenses) minus reinsurance unearned premium reserve, all divided by the equity at year-end.
(10)	This is used to determine the premiums (less expenses) that are earmarked for claims but not yet paid hence available for investment.	Cheng report (original source "IBC Perspective") for years 1998, 1999, 2000, & 2002. OSFI data for years 1996, 1997, 2001, & 2003-2006. Investment yield rates calculated using OSFI data found from dividing total investment income over total investments.
(11)	Columns (11) and (12) present the actual investment return achieved by the Canadian industry for each year.	Calculated
(12)	See note for column (11).	Calculated as after-tax profit divided by the average of the current year's equity and the previous year's equity.
(13)	Columns (13), (14) and (15) present the investment income earned on equity (13), reserves (14), and total (equity and reserves) (15), respectively.	Canada Revenue Agency & Alberta Finance for years 2000 through 2006. Cheng Report for years 1998 & 1999. 1996 & 1997-1998. There were a series of decreases in the AD corporate tax rate that occurred on April 1st of 2001, 2002, 2003, 2004 & 2006. A weighted average of the tax rates in place in these years was used.
(14)	See note for column (13).	Calculated
(15)	See note for column (13).	Calculated
(16)	Sum of pre-tax underwriting profit (loss), column (7), and investment income, column (15).	Calculated
(17)	Pre-tax ROE (return on equity) is the amount of pre-tax profit as a % of equity (the average of current and prior year equity).	Calculated
(18)	Columns (18) and (19) present the corporate tax rates for the two major operations of an insurance company.	Calculated
(19)	See note for column (18).	Calculated
(20)	Same as column (16) except after tax.	Calculated
(21)	Same as column (17) except after tax.	Calculated
(22)	Same as column (1).	Calculated

Some of the numbers are slightly different than those in the Cheng Report because of the use of updated data. Insurance data is updated as more information becomes available (as results become more certain). Note also that the Cheng Report did not estimate insurer profitability from Optional Coverages; the ratios such as "premium leverage" and "reserves as % of equity," used in this exhibit however, have been copied from the Cheng Report methodology.

Column (18) presents effective tax rates on investment income which are slightly different than those arrived at in the Cheng Report even though the methodology in the Cheng Report was copied. See notes in Exhibit 5 for a thorough explanation.

In the body of the report, the average premium for Optional Coverages only includes collision and comprehensive coverage. These two coverages make up approximately ninety percent of the entire other/ optional coverages (in terms of revenue). In this Exhibit 3 we have found the total premiums earned by subtracting Basic Coverages premiums earned from total coverages premiums earned (as aggregated by IBC in AU90-A). We have then imposed the claims ratio from collision and comprehensive coverages onto this earned premium. Although the total earned premium revenue from Optional Coverages plus Basic Coverages properly equals the total earned premium from All Coverages, the average premium (per vehicle) from Optional Coverages (as found in the body of the report) will not equal the average premium for All Coverages- this is because not all consumers purchase the optional coverage.

Canadian Property and Casualty Insurance Company Investment Portfolios

	Aggregation of P&C-1 (Canadian Insurers) Investment Portfolios, \$(thousands)										
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Bonds, Debentures, and Term Deposits	12,979,513	13,463,178	14,009,656	14,476,146	15,008,158	15,102,962	17,612,099	23,213,130	27,910,512	31,301,802	36,582,357
Preferred and Common Shares	4,413,809	5,427,315	5,817,127	5,908,801	6,261,652	6,533,320	6,353,372	6,443,567	6,960,589	7,500,527	9,132,212
Real Estate, Mortgage Loans, & All Other	792,353	679,967	784,118	1,306,365	1,206,340	864,028	958,466	1,103,664	1,388,667	1,167,473	1,331,295
Total	18,185,675	19,570,460	20,610,901	21,691,312	22,476,150	22,500,310	24,923,937	30,760,361	36,259,768	39,969,802	47,045,864

	Percentage Share of Investment Portfolio										
Bonds, Debentures, and Term Deposits	71.4%	68.8%	68.0%	66.7%	66.8%	67.1%	70.7%	75.5%	77.0%	78.3%	77.8%
Preferred and Common Shares	24.3%	27.7%	28.2%	27.2%	27.9%	29.0%	25.5%	20.9%	19.2%	18.8%	19.4%
Real Estate, Mortgage Loans, & All Other	4.4%	3.5%	3.8%	6.0%	5.4%	3.8%	3.8%	3.6%	3.8%	2.9%	2.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: OSFI P&C-1 Financial Data- Property and Casualty Insurance Companies. Does not include foreign property and casualty insurance companies.

Notes:

Equity was a larger portfolio component from 1996 to 2002 than it was from 2003 to 2006. This corresponds to the lower returns on investment in Table 11. The decrease in investment returns (Table 11 in report) corresponds to the decrease in North American financial markets which occurred in 2000, 2001, and 2002.

Effective Tax Rate on Investment Income

Row No.	Industry P&C 1, \$'000	1996	1997	1998	1999	2000
Underwriting Operations						
Premiums Written						
(1)	Direct	12,167,972	12,536,727	12,831,829	12,949,562	13,924,432
(2)	Reinsurance Assumed	2,233,905	2,081,584	2,106,297	2,408,274	2,596,973
(3)	Reinsurance Ceded	3,173,867	3,074,042	3,159,885	3,601,769	3,777,861
(4)	Net Premiums Written	11,228,010	11,544,269	11,778,241	11,756,067	12,743,544
(5)	Decrease (Increase) in Unearned Premiums	(178,258)	(157,688)	(216,921)	(139,701)	(493,508)
(6)	Net Premiums Earned	11,049,752	11,386,580	11,561,320	11,616,366	12,250,036
(7)	Service Charges	41,210	43,977	46,326	48,318	50,891
(8)	Other	9,425	(4,393)	(7,284)	(8,122)	(5,799)
(9)	Total Underwriting Revenue	11,100,387	11,426,164	11,600,362	11,656,562	12,295,128
(10)	Net Claims and Adjustment Expenses	7,924,749	7,924,345	8,285,089	8,282,561	9,307,525
Acquisition Expenses						
(11)	Commissions	1,675,160	1,767,288	1,812,116	1,851,319	1,847,222
(12)	Taxes	390,667	395,373	404,620	409,362	448,702
(13)	Other	631,124	728,526	722,132	652,399	659,804
(14)	General Expenses	809,268	799,699	981,180	999,733	1,008,673
(15)	Total Claims and Expenses	11,430,968	11,615,231	12,205,137	12,195,374	13,271,926
(16)	Premium Deficiency Adjustments	(2,153)	(746)	(1,379)	479	(884)
(17)	Underwriting Income (Loss)	(328,427)	(188,320)	(603,396)	(539,291)	(975,914)
Investment Operations						
(18)	Income	1,278,737	1,244,849	1,238,297	1,273,020	1,345,407
(19)	Realized Gains (Losses)	618,091	896,010	522,672	331,731	749,357
(20)	Expenses	35,337	39,277	40,792	44,883	56,305
(21)	Net Investment Income	1,861,491	2,101,582	1,720,177	1,559,868	2,038,459
Other Revenue and Expenses						
(22)	Income (Loss) from Ancillary Operations net of Expenses	4,321	2,842	3,636	3,905	5,750
(23)	Share of Net Income (Loss) of Subsidiaries and Affiliates	15,030	13,281	1,818	8,539	14,504
(24)	Gains (Losses) from Fluctuations in Foreign Exchange Rates	149	8,863	14,415	(9,991)	8,937
(25)	Other	48,876	61,976	35,696	29,327	8,294
(26)	Income (Loss) before Income Taxes and Extraordinary Items	1,601,440	2,000,224	1,172,346	1,052,357	1,100,030
Income Taxes						
(27)	Current	639,953	725,346	265,530	449,964	376,416
(28)	Future	(54,721)	37,422	99,918	(98,278)	28,485
(29)	Total Income Taxes	585,232	762,768	365,448	351,686	404,901
(30)	Extraordinary Items net of Income Taxes	0	130	-	-	-
(31)	Net Income (Loss) for the Year	1,016,207	1,237,586	806,898	700,671	695,129
(32)	Underwriting Margin	-3.0%	-1.7%	-5.2%	-4.6%	-8%
(33)	Effective Tax Rate on Underwriting Income	44.6%	44.6%	44.6%	44.6%	44.6%
(34)	Adjustment Factor	0.963	0.963	0.963	0.963	0.963
(35)	Calculated Tax	617,784	766,060	443,530	407,535	344,955
(36)	Capital Tax	17,044	18,815	20,008	22,228	22,853
(37)	Difference	49,597	22,107	98,090	78,077	(37,093)
(38)	Tax on Investment Income	764,328	850,088	712,765	648,059	780,212
(39)	Tax Rate on Investment Income	40%	39%	40%	41%	38%
(40)	assumption:	capital gain inclusion rate:		1996-1999=	75%	
				2000=	65%	
				2001-2006=	50%	

Row No.	Brief Description of Rows
(1)-(31)	From OSFI website, P&C-1 (Canadian) aggregate income statement
(32)	=(17)/(6)
(33)	Canada Revenue Agency & Alberta Finance for years 2000 through 2006. Cheng Report for years 1998 & 1999. 1996 & 1997=1998
(34)	Adjustment Factor to make the sum of (37) (across years 1996-2006) close to zero. -See note below.
(35)	=(33) x [(17) + (34) x (18) + (40) x (19) - (20) + (22) + (24) + (25)]
(36)	For years 1996 through 2003 =0.225% x (Total Capital, Surplus and Reserves = equity (from Industry P&C 1 Liability Statement)-10,000). For 2004=0.200% x (Total Capital, Surplus and Reserves = equity (from Industry P&C 1 Liability Statement)-50,000). For 2005=0.175% x (Total Capital, Surplus and Reserves = equity (from Industry P&C 1 Liability Statement)-50,000). For 2006=0% x (Total Capital, Surplus and Reserves = equity (from Industry P&C 1 Liability Statement)-50,000).
(37)	=(35)+(36)-(29)
(38)	=(35)-(33) x (17)
(39)	=(38) / [(26)-(17)]

Notes

For 2000, 2001, & 2002, it appears that the Cheng Report mistakenly used the 1998-1999 row (40) instead of the correct value. This has been corrected here.

The adjustment factor approach (Row (34)) is copied from the Cheng Report. The adjustment factor improves the "fit" of the calculated tax rate. It is arrived at via an iterative process whereby it is chosen such that the sum of the differences (row (37), across all years) is close to zero. The adjustment factor found here is different than the one used in the Cheng report because the current report makes use of more years of data. As such, the estimated effective tax rates on investment income are improved-upon from those originally estimated.

Effective Tax Rate on Investment Income

Row No.	Industry P&C 1, \$'000	2001	2002	2003	2004	2005	2006
Underwriting Operations							
Premiums Written							
(1)	Direct	15,485,238	19,218,040	21,899,319	22,874,209	22,907,732	24,324,924
(2)	Reinsurance Assumed	2,953,166	4,095,228	3,822,706	3,678,936	3,689,490	4,869,477
(3)	Reinsurance Ceded	4,851,395	6,291,825	6,616,395	5,335,402	5,376,788	6,421,122
(4)	Net Premiums Written	13,587,009	17,021,443	19,105,629	21,217,744	21,220,435	22,773,279
(5)	Decrease (Increase) in Unearned Premiums	(518,632)	(1,328,465)	(1,634,244)	(1,012,768)	(344,008)	(652,300)
(6)	Net Premiums Earned	13,068,377	15,692,978	17,471,385	20,204,975	20,876,427	22,120,978
(7)	Service Charges	59,284	70,326	89,899	108,757	110,426	104,225
(8)	Other	(8,370)	(301)	(2,452)	(2,126)	(2,699)	(3,865)
(9)	Total Underwriting Revenue	13,119,291	15,763,003	17,558,832	20,311,607	20,984,153	22,221,339
(10)	Net Claims and Adjustment Expenses	10,279,561	11,968,518	12,272,357	12,704,821	12,882,568	13,790,306
Acquisition Expenses							
(11)	Commissions	1,945,025	2,325,713	2,586,793	3,058,228	3,193,084	3,424,340
(12)	Taxes	478,425	542,928	641,284	710,145	727,820	768,039
(13)	Other	677,126	713,826	790,219	883,059	1,006,040	1,056,139
(14)	General Expenses	948,218	1,026,862	1,202,182	1,312,180	1,323,162	1,439,511
(15)	Total Claims and Expenses	14,328,355	16,577,847	17,492,835	18,668,432	19,132,674	20,478,336
(16)	Premium Deficiency Adjustments	480	1,222	(708)	(117)	-	-
(17)	Underwriting Income (Loss)	(1,209,544)	(816,066)	66,704	1,643,292	1,851,479	1,743,003
Investment Operations							
(18)	Income	1,348,661	1,303,463	1,405,823	1,559,662	1,708,134	1,943,275
(19)	Realized Gains (Losses)	406,261	(4,187)	422,834	405,688	784,649	959,922
(20)	Expenses	61,186	79,029	56,102	63,472	85,141	77,136
(21)	Net Investment Income	1,693,736	1,220,247	1,772,555	1,901,878	2,407,643	2,826,061
Other Revenue and Expenses							
(22)	Income (Loss) from Ancillary Operations net of Expenses	2,330	2,934	669	3,891	4,940	2,572
(23)	Share of Net Income (Loss) of Subsidiaries and Affiliates	(9,967)	33,564	77,384	152,111	240,978	205,794
(24)	Gains (Losses) from Fluctuations in Foreign Exchange Rates	4,050	(2,295)	(54,151)	(14,101)	(16,360)	(2,804)
(25)	Other	19,718	(109,998)	137	23,470	31,837	9,699
(26)	Income (Loss) before Income Taxes and Extraordinary Items	500,323	328,386	1,863,298	3,710,541	4,520,517	4,784,325
Income Taxes							
(27)	Current	93,921	103,393	584,825	1,271,858	1,374,509	1,530,521
(28)	Future	67,572	(32,136)	(7,258)	(109,899)	(21,174)	(2,985)
(29)	Total Income Taxes	161,493	71,257	577,567	1,161,959	1,353,335	1,527,536
(30)	Extraordinary Items net of Income Taxes	-	-	140	70	36	114
(31)	Net Income (Loss) for the Year	338,830	257,129	1,285,871	2,548,651	3,167,217	3,256,903
(32)	Underwriting Margin	-9.3%	-5.2%	0.4%	8.1%	8.9%	7.9%
(33)	Effective Tax Rate on Underwriting Income	42.1%	39.2%	36.7%	34.9%	33.6%	32.5%
(34)	Adjustment Factor	0.963	0.963	0.963	0.963	0.963	0.963
(35)	Calculated Tax	108,293	97,474	559,424	1,149,958	1,285,620	1,308,452
(36)	Capital Tax	23,447	24,212	27,252	29,212	29,024	-
(37)	Difference	(29,752)	50,429	9,109	17,211	(38,691)	(219,084)
(38)	Tax on Investment Income	617,512	417,372	534,914	576,942	663,153	742,063
(39)	Tax Rate on Investment Income	36%	36%	30%	28%	25%	24%
(40)	assumption:	capital gain inclusion rate: 1996-1999=			75%		
		2000=			65%		
		2001-2006=			50%		

Row No.	Brief Description of Rows
(1)-(31)	From OSFI website, P&C-1 (Canadian) aggregate income statement
(32)	=(17)/(6)
(33)	Canada Revenue Agency & Alberta Finance for years 2000 through 2006. Cheng Report for years 1998 & 1999. 1996 & 1997=1998
(34)	Adjustment Factor to make the sum of (37) (across years 1996-2006) close to zero. -See note below.
(35)	=(33) x [(17) + (34) x (18) + (40) x (19) - (20) + (22) + (24) + (25)]
(36)	For years 1996 through 2003 =0.225% x (Total Capital, Surplus and Reserves = equity (from Industry P&C 1 Liability Statement)-10,000). For 2004=0.200% x (Total Capital, Surplus and Reserves = equity (from Industry P&C 1 Liability Statement)-50,000). For 2005=0.175% x (Total Capital, Surplus and Reserves = equity (from Industry P&C 1 Liability Statement)-50,000). For 2006=0% x (Total Capital, Surplus and Reserves = equity (from Industry P&C 1 Liability Statement)-50,000).
(37)	=(35)+(36)-(29)
(38)	=(35)-(33) x (17)
(39)	=(38) / [(26)-(17)]

Notes

For 2000, 2001, & 2002, it appears that the Cheng Report mistakenly used the 1998-1999 row (40) instead of the correct value. This has been corrected here.

The adjustment factor approach (Row (34)) is copied from the Cheng report. The adjustment factor improves the "fit" of the calculated tax rate. It is arrived at via an iterative process whereby it is chosen such that the sum of the differences (row (37), across all years) is close to zero. The adjustment factor found here is different than the one used in the Cheng report because the current report makes use of more years of data. As such, the estimated effective tax rates on investment income are improved-upon from those originally estimated.

OSFI (Office of the Superintendent of Financial Institutions) Data
P&C-1 & P&C-2

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Year	Ownership	Assets	Liabilities	Equity	Income	ROE	Unpaid Claims	UEPR	UEFR	Reinsurance Claims	Total Reserves	Reserves/Equity	Total Invests	Inv Income	Yield Rate	NPW	Prem/Equity NPW
1998	Canadian	30,841,870	23,256,550	7,585,320	1,016,007	13.4%	14,570,423	6,451,986	1,021,632	3,187,596	23,907,677	1.86	18,185,675	1,861,461	10.8%	11,228,010	11,228,010
	Foreign	15,081,600	9,004,623	5,996,977	500,573	11.0%	6,128,562	2,642,433	385,736	1,531,553	23,907,677	1.86	9,307,901	2,730,049	10.0%	5,356,111	5,356,111
	Total	45,923,470	32,261,173	13,582,297	1,516,580	12.4%	20,698,985	9,094,419	1,407,368	4,719,149	47,815,354	1.86	27,493,576	4,591,510	10.0%	16,584,121	16,584,121
1997	Canadian	32,545,278	24,170,219	8,375,059	1,237,566	15.5%	15,401,369	6,762,732	1,145,569	3,521,813	24,782,043	1.75	19,570,460	2,101,582	10.5%	11,544,289	11,544,289
	Foreign	19,934,316	10,101,073	9,833,243	498,728	9.0%	6,992,968	2,770,459	409,897	1,555,557	24,782,043	1.75	10,103,771	903,153	10.5%	4,165,624	4,165,624
	Total	52,479,594	34,271,292	18,208,302	1,736,294	12.8%	22,394,337	9,533,291	1,555,466	5,077,370	49,564,086	1.75	29,674,231	3,004,735	10.5%	15,709,913	15,709,913
1998	Canadian	34,025,559	25,123,049	8,902,510	806,898	9.3%	15,959,530	7,047,499	1,199,483	3,635,246	25,782,286	1.74	20,610,901	1,720,177	8.5%	11,778,241	11,778,241
	Foreign	19,275,763	10,369,332	8,906,431	183,570	3.1%	7,251,903	2,270,934	496,251	1,505,990	25,782,286	1.74	10,419,574	852,794	8.5%	4,076,501	4,076,501
	Total	53,301,322	35,492,381	17,808,941	990,468	6.8%	23,211,433	9,318,433	1,695,734	5,141,236	51,564,572	1.74	31,039,475	2,572,971	8.5%	15,854,742	15,854,742
1999	Canadian	36,813,415	26,924,355	9,889,060	700,671	7.5%	16,983,934	7,509,190	1,384,202	4,191,416	26,803,569	1.66	21,691,312	1,599,668	7.4%	11,796,067	11,796,067
	Foreign	17,655,139	11,109,896	6,545,243	333,528	3.8%	7,270,459	2,422,407	472,448	1,447,657	26,803,569	1.66	11,053,033	814,089	7.4%	4,275,764	4,275,764
	Total	54,468,554	38,034,251	16,434,303	1,034,200	5.7%	24,254,393	9,931,597	1,856,650	5,639,073	53,607,168	1.66	32,744,345	2,374,957	7.4%	16,031,831	16,031,831
2000	Canadian	38,078,551	27,911,624	10,166,927	695,129	6.9%	17,543,157	8,105,959	1,439,442	4,284,998	28,162,368	1.68	22,476,150	2,038,459	8.8%	12,743,544	12,743,544
	Foreign	17,655,139	12,051,488	5,603,651	245,893	3.8%	7,270,459	2,422,407	472,448	1,447,657	28,162,368	1.68	11,545,892	914,894	8.8%	4,533,758	4,533,758
	Total	55,733,690	39,963,112	15,770,578	941,022	5.7%	24,813,616	10,528,366	1,911,890	5,732,655	56,324,736	1.68	34,022,042	2,953,343	8.8%	17,277,302	17,277,302
2001	Canadian	42,030,164	32,196,208	10,430,956	338,830	3.3%	19,886,704	9,536,937	2,117,040	5,933,686	30,403,171	1.82	22,500,310	1,693,736	7.6%	13,587,009	13,587,009
	Foreign	18,317,205	12,051,488	6,265,707	18,516	0.3%	8,551,861	2,338,551	442,742	1,417,424	30,403,171	1.82	11,739,339	912,252	7.6%	5,550,253	5,550,253
	Total	60,347,369	44,247,696	16,696,663	357,346	2.1%	28,438,565	11,875,488	2,559,782	7,351,110	60,806,342	1.82	34,239,649	2,605,988	7.6%	19,137,262	19,137,262
2002	Canadian	47,555,894	36,784,907	10,770,987	257,129	2.4%	22,144,902	11,298,544	2,455,115	6,604,627	35,100,759	2.04	24,923,937	1,220,247	5.5%	17,021,443	17,021,443
	Foreign	23,028,581	15,469,310	7,559,270	14,874	-0.2%	9,824,183	2,952,753	524,480	1,932,833	35,100,759	2.04	13,842,740	791,086	5.5%	6,561,474	6,561,474
	Total	70,584,475	52,254,217	18,330,257	272,003	1.4%	31,969,085	14,251,297	2,979,595	8,537,460	70,601,518	2.04	38,766,677	2,011,333	5.5%	23,582,917	23,582,917
2003	Canadian	53,541,743	41,419,768	12,121,975	1,285,871	11.2%	24,787,927	12,927,988	2,458,893	6,983,538	39,787,752	2.02	30,780,361	1,772,555	6.2%	19,105,629	19,105,629
	Foreign	23,028,581	15,469,310	7,559,270	912,973	13.0%	10,600,102	3,267,194	608,195	1,792,833	39,787,752	2.02	18,243,458	887,799	6.2%	7,294,863	7,294,863
	Total	76,570,324	56,889,078	19,681,245	2,198,844	11.9%	35,388,029	16,215,182	3,067,088	8,776,371	79,575,504	2.02	47,023,819	2,660,354	6.2%	26,400,492	26,400,492
2004	Canadian	61,094,101	46,438,183	14,655,918	2,548,651	19.0%	28,137,260	13,789,160	2,135,722	7,171,661	44,903,008	1.92	36,259,768	1,901,878	5.5%	21,217,744	21,217,744
	Foreign	24,845,342	16,171,024	8,674,319	8,674,319	18.9%	11,436,867	3,208,758	563,048	1,792,606	44,903,008	1.92	18,403,660	910,314	5.5%	6,878,033	6,878,033
	Total	85,939,443	62,609,207	23,330,237	17,348,970	19.0%	39,574,127	16,997,918	2,698,770	8,964,267	89,806,016	1.92	54,663,428	2,812,192	5.5%	28,095,777	28,095,777
2005	Canadian	65,833,916	49,198,877	16,635,039	3,167,217	20.2%	30,357,867	14,179,135	2,190,952	7,649,494	48,757,051	2.07	41,281,394	2,407,643	5.8%	21,220,435	21,220,435
	Foreign	27,764,970	18,680,699	9,084,271	875,820	9.9%	13,962,159	3,253,939	571,562	2,583,941	48,757,051	2.07	20,613,205	970,910	5.8%	6,809,572	6,809,572
	Total	93,600,446	67,879,576	25,719,310	4,043,037	17.3%	44,320,026	17,433,074	2,762,514	10,233,435	97,514,062	2.07	61,894,599	3,385,113	5.8%	28,030,007	28,030,007
2006	Canadian	72,987,354	54,066,176	18,901,178	3,256,903	18.3%	33,780,433	15,238,022	2,257,362	7,922,362	50,358,172	1.81	47,045,864	2,312,308	5.7%	22,773,279	22,773,279
	Foreign	29,900,382	19,345,988	10,554,396	2,277,176	23.2%	14,083,792	3,356,012	617,946	3,043,878	50,358,172	1.81	21,956,906	1,066,756	5.7%	6,863,843	6,863,843
	Total	102,887,736	73,412,164	29,455,574	5,534,079	20.5%	47,864,225	18,594,034	2,875,308	10,966,240	100,716,344	1.81	69,002,770	3,439,069	5.7%	29,637,122	29,637,122

Col. No. Description
 (7) ROE as stated here is for all OSFI-regulated P&C insurers and includes profitability and equity from/for all lines and all provinces including alberta automobile insurance.
 (12) = (8)-(9)-(10)-(11)
 (13) = (8)+(9)-(10)-(11)/(5)
 (16) = (15)/(14)
 (18) = (17)/(the average of (5) from current year and (5) from previous year)

Projected Loss Cost Calculation- Third Party Liability Bodily Injury Coverage

Alberta Private Passenger (Excluding Farmers)												
Post Morrow v. Zhang (2008) Court of Queen's Bench Decision												
Using the Methodology of the Alberta Automobile Insurance Rate Board's 2007 Actuarial Analysis as Reported in the July 16, 2007 Addendum												
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Year	Earned Cars	Incurred Losses & ALAE	Reported Losses & ALAE per Car	LDF	ULAE	TOTAL Reform Adjustment	Collateral & Gross-to-Net Factor	Adjusted Ultimate Losses & LAE per Car	Past Trend to Nov. 1, 2008	Future Trend to Nov 1, 2008	Projected Ultimate Losses & LAE per Car	Weights
2002	1,695,040	\$ 622,988,354	\$ 367.54	1.0280	1.0890	1,000	0.953	\$ 392.29	0.827	1.059	\$ 343.56	5%
2003	1,713,591	\$ 548,871,534	\$ 320.30	1.0520	1.0930	1,000	0.953	\$ 351.14	0.899	1.059	\$ 334.30	10%
2004	1,745,207	\$ 432,841,503	\$ 248.02	1.1170	1.1030	1,200	0.953	\$ 349.74	0.976	1.059	\$ 361.49	15%
2005	1,823,006	\$ 311,635,327	\$ 170.95	1.1870	1.0974	1,431	0.953	\$ 303.73	0.998	1.059	\$ 321.00	30%
2006	1,945,938	\$ 305,300,305	\$ 156.89	1.2710	1.0865	1,431	0.953	\$ 295.52	1	1.059	\$ 312.95	40%

Weighted Average: \$ 326.31

Brief Description/ Source Information	
(1)	Year Identifier
(2)	Number of Earned Cars
(3)	From 2007 Alberta Automobile Insurance Rate Board Actuarial Analysis (original source IBC/ GISA)
(4)	= (3) / (2)
(5)	From 2007 Alberta Automobile Insurance Rate Board Actuarial Analysis
(6)	From 2007 Alberta Automobile Insurance Rate Board Actuarial Analysis (original source IBC/ GISA)
(7)	The inverse of the "Reform Adjustment" used in the 2007 Alberta Automobile Insurance Rate Board Actuarial Analysis- altered to reflect the removal of the three reforms.
(8)	Represents the savings from the Collateral and Gross-to-Net income changes. -From Exhibit 8.
(9)	= (4) x (5) x (6) x (7) x (8)
(10)	From 2007 Alberta Automobile Insurance Rate Board Actuarial Analysis
(11)	From 2007 Alberta Automobile Insurance Rate Board Actuarial Analysis
(12)	= (9) x (10) x (11)
(13)	From 2007 Alberta Automobile Insurance Rate Board Actuarial Analysis

Notes

The "Weighted Average" of \$326.31 is found by multiplying the numbers in Column (12) by the corresponding weights in Column (13) and then summing over all five years.

Collateral & Gross-to-Net Income Reform Savings

Using the 13 December 2004 KPMG "Costing Analysis of 2004 Auto Reform" Report Methodology			
(1)	(2)	(3)	(4)
	Pre Reform	Post Reform	Factor
BI out of Province	\$ 9.20	\$ 9.20	
BI In Province			
BI Non Minor Injury	\$ 237.22	\$ 215.63	
BI Injury Minor Injury	\$ 213.84	\$ 213.84	
Total BI	\$ 460.10	\$ 438.67	0.953

Col. No.	Description	Notes
(1)	BI (Bodily Injury) components as categorized in KPMG Report 1 "Costing Analysis of 2004 Auto Reform."	
(2)	From KPMG Report 1 "Costing Analysis of 2004 Auto Reform."	
(3)	From KPMG Report 1 "Costing Analysis of 2004 Auto Reform," with the exception that "BI Injury Minor Injury" has been left equal to "Pre Reform" number.	
(4)	= Total BI from Column (3) divided by Total BI from Column (2).	
Notes		
The Factor of 0.953 implies that the savings from the "Collateral" and "Gross-to-Net Income" reform measures was approximately 4.7% (on the TPL-Bodily Injury component).		

Indicated Average Premium for Third-Party-Liability Bodily Injury Coverage

Alberta Private Passenger (Excluding Farmers)							
Using the Methodology of the Alberta Automobile Insurance Rate Board's 2007 Actuarial Analysis As Reported in the 16 July 2007 Addendum							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Projected Average Loss Cost	Present Value Discount Factor	Premium Delay Factor	Expense	Health Levy	Profit Provision	Indicated Average Premium
TPL-BI (with Minor Injury Regulation)	\$ 237.16	0.854	1.0099	20.5%	5.7%	5.0%	\$ 297.30
TPL-BI (without Minor Injury Regulation)	\$ 326.31	0.854	1.0099	20.5%	5.7%	5.0%	\$ 409.06

Difference: \$ 111.76

Column Number	Description
(1)	The first row represents the Alberta Automobile Insurance Rate Board's Indicated Average Premium prior to the Morrow v. Zhang Court of Queen's Bench decision. The second row represents the Indicated Average Premium from Exhibit 7 which is post Morrow v. Zhang.
(2)	\$237.16 taken directly from the 2007 Alberta Automobile Insurance Rate Board's Actuarial Analysis (16 July 2007 Addendum to Report).
(3)	From 2007 Alberta Automobile Insurance Rate Board Actuarial Analysis (16 July 2007 Addendum to Report).
(4)	From 2007 Alberta Automobile Insurance Rate Board Actuarial Analysis (16 July 2007 Addendum to Report).
(5)	From 2007 Alberta Automobile Insurance Rate Board Actuarial Analysis (16 July 2007 Addendum to Report).
(6)	From 2007 Alberta Automobile Insurance Rate Board Actuarial Analysis (16 July 2007 Addendum to Report).
(7)	From 2007 Alberta Automobile Insurance Rate Board Actuarial Analysis (16 July 2007 Addendum to Report).
(8)	$=(2) \times (3) \times (4) / [1 - (5) - (6) - (7)]$

The "Difference" of \$111.76 is equal to \$409.06 minus \$297.30. This represents the indicated average premium increase from the removal of the *Minor Injury Regulation*.

Present Value of Projected Loss Cost Calculation- Third-Party-Liability Bodily Injury Coverage

Alberta Private Passenger (Excluding Farmers)			
Using the Methodology of the Alberta Automobile Insurance Rate Board's 2007 Actuarial Analysis As Reported in the 16 July 2007 Addendum			
(1)	(2)	(3)	(4)
	Projected Average Loss Cost	Present Value Discount Factor	Indicated Average Premium
TPL-BI (with <i>Minor Injury Regulation</i>)	\$ 237.16	0.854 \$	202.53
TPL-BI (without <i>Minor Injury Regulation</i>)	\$ 326.31	0.854 \$	278.67

Difference: \$ 76.14

Column Number	Description
(1)	The first row represents the Alberta Automobile Insurance Rate Board's Indicated Average Premium prior to the Morrow v. Zhang Court of Queen's Bench decision. The second row represents the Indicated Average Premium from Exhibit 7 which is post Morrow v. Zhang.
(2)	\$237.16 taken directly from the 2007 Alberta Automobile Insurance Rate Board's Actuarial Analysis (16 July 2007 Addendum to Report). \$326.16 from Exhibit 7.
(3)	From 2007 Alberta Automobile Insurance Rate Board Actuarial Analysis (16 July 2007 Addendum to Report).
(4)	= (2) x (3)

Notes

The "Difference" of \$76.14 is equal to \$278.67 minus \$202.53. This represents the present value cost from the removal of the *Minor Injury Regulation*.

**Alberta Automobile Insurance
Estimation of Return-on-Equity from Removal of Minor Injury Regulation if Premiums Held Constant
Private Passenger (Excluding Farmers) Basic Coverages Only (Third-Party-Liability & Accident Benefits)**

Employs methodology from both the Alberta Automobile Insurance Rate Board (Column (3)), as well as that in the report prepared by Joe S. Cheng, F.C.I.A. for Parlee McLaws LLP, March 29, 2007
Title of Joe S. Cheng Report: "REPORT ON THE REVIEW of Insurance Reform-Premium and Claim Analysis By Gordon Smith and Theresa K. Reichart of Deloitte & Touche LLP"

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
Year	Premium Earned \$(millions)	Claims Ratio	Expense Ratio	Combined Ratio	Underwriting Profit (+) / Loss (-) \$(millions)	Pre-tax Profit as % of Equity	Allocated Capital/Equity \$(millions)	Reserves as % of Equity	OSFI Yield Rates Capital	Equity Operations	Investment Income Operations	Total Pre-Tax Profit \$(millions)	ROE	Underwriting Investment	Tax Rate	Total Profit Post-Tax \$(millions)	ROE	Year			
2006	1,208	77.4%	23.0%	100.4%	-0.4%	1.078	1.12	1.31	5.7%	82	111	173	16.1%	32.5%	127	12.2%	2006				

Col. No.	Description	Source
(1)	Year in which accidents occurred and to which premiums were charged.	AU90-A, 1987-2006.
(2)	Premiums charged for specific "year for Basic Coverages" (Third-Party-Liability & Accident Benefits) for Private Passenger Alberta automobile insurance excluding Farmers.	The claims ratio in this exhibit is altered from that found from the original data source: AU90-A, 1987-2006.
(3)	Claims expressed as % of premiums in column (2). This column value of 77.4% differs from that in Exhibit 2 because it includes an additional amount in the numerator equal to \$26.14 (from Exhibit 10) multiplied by the number of accidents with a premium liability.	Used selection in AIRB Rate Level Adjustment report (effective November 1st of prior year).
(4)	Insurer expenses (administrative, commissions, etc.) expressed as % of premiums in column (2).	Calculated
(5)	The combined ratio is the sum of the claims ratio and the expense ratio.	Calculated
(6)	Equals premiums less claims and expenses as % of premiums.	Calculated
(7)	Equals premiums less claims and expenses.	Calculated
(8)	This represents the Canadian "all lines ratio" of premiums to equity. It is used to allocate equity to Alberta "Basic Coverages" automobile insurance.	OSFI data
(9)	This uses column (8) to impute the equity employed by insurers to support the "Basic Coverages" Alberta automobile insurance risk.	Calculated
(10)	This is used to determine the premiums (less expenses) that are earmarked for claims but not yet paid hence available for investment.	Reserves have been estimated as a function of equity as per the Cheng Report. The ratio of reserves to equity is found from the OSFI data by taking the sum of unpaid claims and unearned premium reserve minus reinsurance unpaid claims (and adjustment expenses) minus reinsurance unearned premium reserve, all divided by the equity at year-end.
(11)	Columns (11) and (12) present the actual investment return achieved by the Canadian industry for each year.	OSFI data
(12)	See note for column (11).	Calculated
(13)	Columns (13), (14) and (15) present the investment income earned on equity (13), reserves (14), and total (equity and reserves) (15), respectively.	Calculated
(14)	See note for column (13).	Calculated
(15)	See note for column (13).	Calculated
(16)	Sum of pre-tax underwriting profit (loss), column (7), and investment income, column (15).	Calculated
(17)	Pre-tax ROE (return on equity) is the amount of pre-tax profit as a % of equity (the average of current and prior year equity).	Calculated as after-tax profit divided by the average of the current year's equity and the previous year's equity.
(18)	Columns (18) and (19) present the corporate tax rates for the two major operations of an insurance company.	Canada Revenue Agency & Alberta Finance. There was a decrease in the Alberta corporate tax rate that occurred on April 1st of 2006. A weighted average of the tax rates in place has been used.
(19)	See note for column (18).	Exhibit 5
(20)	Same as column (16) except after tax.	Calculated
(21)	Same as column (17) except after tax.	Calculated
(22)	Same as column (1).	Calculated

The numbers in this table are for "basic coverages" which includes third-party-liability and accident benefits.
Column (19) presents effective tax rates on investment income. See notes in Exhibit 3 for a thorough explanation.

