



Principles-Based Approach: A Canadian Regulatory View

Allan Brender

IAA/SoA/CIA Meetings
June 18, 2008

Quebec City
Session 89



Canada

Towards a PBA (Life)

Prior to 1978:

- **Two financial reporting systems**
 - Statutory
 - GAAP
- **Valuation method fixed by legislation**
 - A modified NLP method
- **Fundamental valuation assumptions set by legislation/regulation**
- **Reserves had to make “good and sufficient provision” for contract liabilities**



Towards a PBA (Life)

Insurance legislation changed in 1978:

- **Valuation Actuary**

- Choose assumptions that make adequate provision and are appropriate to the circumstances of the company
- Assumptions could be changed as appropriate in the judgement of the actuary
- New valuation method, making use of additional assumptions (e.g. lapse) but still a modified NLP method
- Actuary prepares an annual report on the valuation



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Towards a PBA (Life)

Insurance legislation changed in 1978:

- **Same reserves required to appear in public and regulatory financial statements**
- **There were significant reductions in reserves and releases into surplus**
- **Led to the formulation of the Minimum Continuing Capital and Surplus Requirement (MCCSR)**



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Towards a PBA (Life)

The process resulted in a significant amount of work for the CIA:

- **Extensive standard setting process**
 - Recommendations
 - Valuation Technique papers
- **Developed Dynamic Solvency Testing (now known as Dynamic Capital Adequacy Testing)**
- **Professional discipline system**
- **Specialized educational meetings**



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Towards a PBA

A major change in legislation in 1992:

- **Valuation Actuary replaced by Appointed Actuary**
- **Whistle-blowing responsibilities**
- **Reporting on expected future financial condition (i.e. DCAT)**
- **All of the above applies for both life and P&C companies**
- **For valuation of life insurance liabilities, introduced Policy Premium Method**
 - Later replaced by Canadian Asset-Liability Method (CALM)
 - Introduced a stochastic modelling approach for valuing maturity and similar guarantees



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The Regulator's Approach

- **From the time of the introduction of the role of the Valuation Actuary, the Department of Insurance and OSFI have looked to the CIA**
 - Acceptance of the VA required the CIA's adoption of valuation standards
 - Lapse rates for Term to 100
 - Segregated fund maturity guarantees
- **OSFI seeks the CIA's assistance on other technical actuarial matters**
 - updating the MCCR
 - Improving DCAT



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The Regulator's Approach

- **OSFI receives annual reports**
 - on the AA's valuation of policy liabilities
 - on the calculation of the MCCR
 - on the company's DCAT study
- **OSFI conducts regular on-site examinations**
 - On the actuarial side, these concentrate on valuation methods and assumptions, not on calculations
- **OSFI requires regular peer review of the AA's work**
 - The primary audience is the company's board / audit committee and senior management



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OSFI's Supervisory Framework

“OSFI will continue to rely on external auditors for the fairness of the financial statements and will use their work to modify the scope of its reviews to minimize duplication of effort. Similarly, OSFI will continue to rely on appointed actuaries for the adequacy of policy liabilities and will use their work to modify the scope of its reviews.”



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The Regulator's Approach

- **If there is difficulty / disagreement with a specific company or actuary, OSFI deals with the individual company or AA**
- **If the difficulty is based upon a matter of actuarial principle or interpretation of professional standards, OSFI tends to deal with the CIA**
- **If OSFI perceives a problem is widespread and actuarial in nature, it works with the CIA for rectification**



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The Regulator and the CIA

- **OSFI actuaries sit as member of all CIA practice committees that affect OSFI's work**
- **The Senior Director of OSFI's Actuarial Division is responsible for managing our relationship with the CIA**
- **OSFI has its own advisory committee composed of leading Appointed Actuaries**
- **OSFI's senior executive meet several times each year with the CIA executive to discuss matters of common interest**



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Relationships

- **Since OSFI actuaries are active within the CIA, the profession is well-exposed to the regulatory point of view and has considerable sympathy for it**
- **Especially at the senior level, OSFI hires actuaries who are not only technically highly qualified but are also active and well-known in the profession**
 - Among OSFI's senior actuaries are two past-presidents of the CIA and two others who have served as vice-presidents



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Relationships

- **Trust**
- **Mutual respect**
- **Co-operation**
- **Culture**
- **Relatively small actuarial community**



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SESSION 89
Principles-Based Approach: The Canadian Experience

SOA/CIA Joint Meeting

Mike Lombardi

Quebec City
June 18, 2008

Agenda

- Introduction
- Canada vs. USA
- Regulatory Perspectives (Allan Brender)
- Appointed Actuary Perspectives (Mike Lombardi)

Canada vs. USA

	Canada	USA
Population	33 Million	305 Million
Insurance companies	<ul style="list-style-type: none"> ■ 3 dominant players, about 30 in total ■ Mostly domestic plus 2-3 foreign subsidiaries ■ Top 3 domestics operate internationally ■ Few niche players ■ Few market entries ■ No domestic reinsurer 	<ul style="list-style-type: none"> ■ 2000+ insurers ■ Mostly domestic plus a few European subsidiaries ■ Very few operate internationally ■ Many niche players ■ Some market entries ■ Some domestic reinsurers
Actuarial Profession	<ul style="list-style-type: none"> ■ One organization ■ Recognized by statute 	<ul style="list-style-type: none"> ■ 5 separate organizations ■ Not recognized by statute

Canada vs. USA

	Canada	USA
Policy Form Filing	Not required	Required
Nonforfeiture Values	Not required	Required
Illustration Actuary	Not required	Required
Rating agencies	Not very important	Very important

Canada vs. USA

	Canada	USA
Accounting	<ul style="list-style-type: none"> ■ Canadian GAAP ■ same as Canadian statutory 	<ul style="list-style-type: none"> ■ US GAAP ■ separate US stat basis
Taxation	<ul style="list-style-type: none"> ■ Tax reserves generally same as GAAP ■ Deduction can be deferred indefinitely 	<ul style="list-style-type: none"> ■ Separate tax reserve basis ■ Deduction cannot be deferred indefinitely
Solvency	<ul style="list-style-type: none"> ■ Federal ■ MCCSR 	<ul style="list-style-type: none"> ■ State ■ RBC
Insolvency	<ul style="list-style-type: none"> ■ Assuris ■ private corporation 	<ul style="list-style-type: none"> ■ NOLGHA ■ government corporation

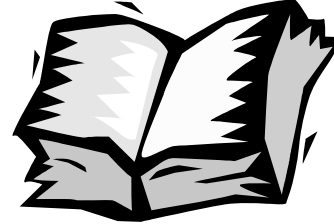
Canada vs. USA

	Canada	USA
Valuation of Liabilities	<ul style="list-style-type: none"> ■ CALM ■ General professional standards ■ supplemented by professional judgement 	<ul style="list-style-type: none"> ■ NAIC prescribed standards ■ Little room for professional judgement
Reporting to regulators	<ul style="list-style-type: none"> ■ AA Report ■ DCAT Report ■ MCCSR ■ PAR opinions 	<ul style="list-style-type: none"> ■ Cash Flow Testing memorandum

Professional Standards of Practice

CSOP – General Standards of Practice

- Applies to all actuarial work and all areas of practice
- Summarizes standards in such areas as:
 - Considerations in selecting assumptions
 - Accepting work
 - Reporting work

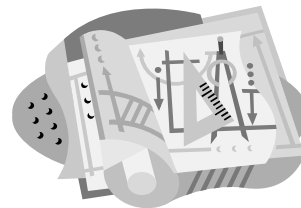


CSOP – Practice-Specific Standards of Practice

- Purpose is to narrow range of general standards by practice area
- Separate specific standards for the following:
 - Insurers (Life & P/C)
 - Pension Plans
 - Public Personal Injury Compensation Plans
 - Actuarial Evidence

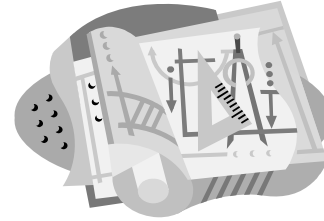
Principles of Canadian Valuation

- Method
 - Prospective valuation
 - All policy components are considered (gross premium, expenses, benefits)
 - No artificial minimum liability at policy issue (reserves can be negative)
 - Liabilities are linked to and depend on the assets selected
 - Provision for embedded options and guarantees via stochastic analysis
- Assumptions
 - Selected explicitly for all material contingencies (mortality, morbidity, lapse, expenses, etc.)
 - Based on emerging company or industry experience and represent the actuary's judgement with respect to "best estimate"
 - Not "locked", but reviewed periodically



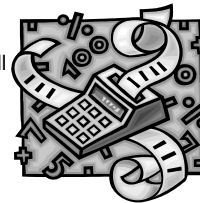
Principles of Canadian Valuation

- Margin for adverse deviation
 - Selected by the Appointed Actuary
 - Is included to allow for mis-estimation or deterioration of best estimate
 - Generally between +/- 5%-20% of best-estimate assumption
 - Application of margins must increase liabilities
- Complex products and the materiality of interest rate assumption has led to development of more sophisticated methods (The Canadian Asset Liability method, October, 2001)



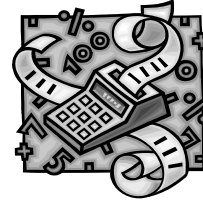
Overview of the Canadian Asset-Liability Method (CALM)

- Definition of CALM
 - For a given scenario, the amount of liabilities is defined as the statement value of the assets required at the valuation date that will generate a surplus (assets minus liabilities) of zero at the last projected liability cash flow
- Three steps
 1. Select the experience scenario which produces the liability without provisions for adverse deviations ("PfAD")
 2. Add PfAD for all but interest rate risk by applying margins to cash flow assumptions
 3. Add PfAD for interest rate risk through testing a minimum of 9 prescribed scenarios using the cash flows modified in Step 2
- Total liability is
 - amount determined in Step 3
 - It is at least as great as the highest liability from among the prescribed scenarios
 - The actuary may perform and consider additional scenarios, if appropriate



The Canadian Asset-Liability Method (CALM)

- Advanced topics (not discussed further today)
 - Valuation of participating insurance products (“with profits”)
 - Stochastic testing requirement for segregated fund maturity guarantees
 - Determination of income tax reserves and deferred income tax provision
 - Allocation of total aggregate reserves to individual policies



Appointed Actuary Perspectives

- Practical issues
- Dealing with management
- Dealing with external organizations
- Lessons learned

Insurance companies face several challenges in adopting principles-based approach (PBA) for the first time

Data	Administration and valuation systems do not provide appropriate data. May need to review policy terms and conditions.
Assumptions	Mortality and lapse experience data may not exist or is not credible. A major investigation is sometimes required to develop unit expense and other best estimate assumptions
Modelling systems	Building an accurate projection model take time and much planning Linking assets and liabilities is an additional challenging
Skilled resources	It is often difficult to find sufficient qualified staff
Company processes	Many aspects of company processes such as investment, underwriting, and claims need to be thoroughly understood before assumptions can be established

Insurance companies face several challenges in adopting principles-based approach (PBA) for the first time (cont'd)

- A project plan is essential
- Requires regular input and active participation from experts in different areas of company (accounting, investment, underwriting, pricing)
- Approach depends on resources, tools available and degree of materiality
 - Seriatim actuarial models
 - Spreadsheets
 - Company capabilities and sophistication often evolves over time
 - Developing a guiding principles and methodology document at the beginning is highly recommended
- Ongoing management support is critical.
- Will resources and budget be there when needed?
 - Internal staff
 - software tools
 - external consultants

Assumptions - Operating Experience

- Best estimates of the future
 - Mortality
 - Morbidity
 - Lapse
 - Expenses
- Also need criteria for when to change assumptions and margins

Assumptions - Economic Assumptions

- Economic parameters need to be established at the highest level as they must be applied throughout the company valuation.
- Assumptions
 - Unemployment
 - Fixed income returns
 - Equity returns
 - Inflation
 - Asset defaults
 - Treatment of existing capital gains/losses
 - Treatment of problem assets
- Company practice
 - Asset segmentation
 - Investment strategy

Assumptions – Other Corporate Assumptions

- “R&D”-type investments
- Expense projection and allocation
- Taxation (divisional level vs. total company)
- Inter-segment transactions

Checks and Validation

- The valuation models must be a reasonable representation of the company's business
 - Static validation on initial amounts
 - number of policies
 - premiums in force
 - total face amount
 - Dynamic validation of revenue account items
 - premiums
 - expenses
 - benefits

Checks and Validation (cont'd)

- More time should be taken in selecting assumptions and reconciling valuation models to avoid time consuming reworking at a later stage
- Aggregation of product level results (watch for omissions)
- Reconcile projection results to previous period's results
- Check results against market norms for each product

Presentation and Reporting

- Prepare PowerPoint presentation for senior management team
- Support any presentation with documentation of methods, calculations and results
- Check unusual results with the responsible business leader before presentation to management team!
- A well prepared and informative presentation will help management better understand your company's results

Dealing with Management

- Internal communication
- Relationship with other executives/departments
 - Board
 - CEO
 - CFO
 - Pricing actuary
 - Key departments
 - Investment
 - Underwriting
 - Claims

Dealing with External Organizations

- Regulators
- Auditors
- Rating Agencies
- Investment Analysts
- Software Vendors
- Consultants

Experience

- Initial compliance efforts were difficult
- Large investment of time and effort to
 - Create projection models
 - Validate projection models
- Now,
 - More realistic assumptions
 - More sophisticated models

Lessons learned

First Time	Ongoing
<ul style="list-style-type: none">■ Planning<ul style="list-style-type: none">■ Don't underestimate the effort■ Expertise<ul style="list-style-type: none">■ obtain help when outside your area of expertise■ Communication<ul style="list-style-type: none">■ Know your audience■ Have details ready, but don't communicate unless needed	<ul style="list-style-type: none">■ Models<ul style="list-style-type: none">■ Continuous balance between complexity vs. simplicity■ A proven software package or upgrade is often better than building your own■ Relevance<ul style="list-style-type: none">■ Make sure your experience studies are performed regularly and your assumptions remain current

Impact on the actuarial function

- Increased status and responsibilities for the Appointed Actuary
 - Involvement in corporate planning process
 - Frequent communication with the board of directors
 - Company planning models have become an integral part of management, it is “the way we manage our business and make decisions”
 - The discipline of developing the models and assumptions has improved integration among different departments

Impact on company culture

- Improved analytic capabilities
 - Companies able to easily analyze the short and long term impact of decisions:
 - operational
 - investment
 - financial
- More informed strategic decisions

Questions

