CANADIAN VISION FOR
LIFE INSURER SOLVENCY ASSESSMENT

MCCSR ADVISORY COMMITTEE

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DRAFT FOR COMMENT

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Vision

This paper has been prepared by the Minimum Continuing Capital and Surplus Requirements (MCCSR) Advisory Committee (or MAC) to outline a vision for new principles-based solvency financial requirements for Canadian life insurers. These requirements are intended to encourage the use of improved risk-based business decisions and better reflect each company's risk profile and risk management practices.

Key stakeholders in the Canadian life insurance industry are working together through MAC to:

- establish high-level principles for the development of a new Canadian life insurance solvency framework
- provide strategic guidance on techniques to be used
- assess recommendations on the new solvency framework made by technical groups involved in the process
- build consensus on the new framework.

The MAC is co-chaired by a member of the Canadian Institute of Actuaries (CIA) and a representative of the Office of the Superintendent of Financial Institutions (OSFI). Its members are senior representatives from the Canadian Life and Health Insurance Association (CLHIA), CIA, Assuris, the Autorité des marchés financiers (AMF), and OSFI, as well as representatives from large and small insurers and the reinsurance industry.

Core Concepts

MAC proposes that future Canadian life insurer solvency financial requirements should:

- take into account all credit, market, underwriting and operational risks
- recognize all of the cash flows from all of the assets and liabilities
- value the cash flows consistently and realistically
- reflect the risk mitigation strategies used by the insurer
- consider the dependencies within risks and between risks and recognize when appropriate and measurable
- ensure that insurer assets are sufficient, with a high degree of confidence, to withstand adversity emerging over a defined regulatory control time horizon (e.g. might be deemed to be one year)
- ensure that there are sufficient assets at the end of the defined time horizon to provide for the:
    - transfer of the remaining obligations to another insurer or
    - run-off of the remaining obligations.

These core concepts of the vision result in a regulatory asset requirement which delivers a realistic view of the financial position of an insurer.

This principles-based solvency framework is not dependent on the current Canadian financial reporting regime and will apply regardless of the ultimate direction of Canadian accounting standards.

Regulatory Target and Minimum Requirements

Each insurer will calculate its regulatory asset requirement on two bases, at a target level (i.e., Target Asset Requirement or TAR) and at a minimum level (i.e., Minimum Asset Requirement or MAR).

Regulators will set the TAR at a high confidence level representative of the threshold for investment grade securities. As its working hypothesis, MAC is using a confidence level of 99% Conditional Tail Expectation (CTE) over 1 year. At the end of the year, there must be sufficient assets to run off or sell the business.

Insurers will likely choose to manage their business to higher levels of confidence than TAR to achieve strength targets desired by their stakeholders.

The MAR is the level at which the regulator is expected to take control of the insurer or to take other appropriate action. Of course, the regulator is not precluded from earlier intervention if, in the judgment of the regulator, such action is warranted. The MAR will be determined according to the same core principles as the TAR.

Advanced and Standard Approaches

The most sophisticated method of calculating the TAR is the Advanced Approach which uses scenario modeling integrated with the insurer's risk management process. The Advanced Approach requires the modeling of an insurer's risks including the risk mitigation (i.e. the manner in which the risks are managed) strategies used by the insurer and the risk dependencies (e.g. the manner in which different types of risks interact with each other) within, as well as between, the insurer's key risk types under normal and stress situations. Dependencies between risks will be included only to the extent that they can be evaluated in a robust manner.

While the Advanced Approach is sophisticated, its results must be understandable and verifiable. The use of the Advanced Approach to determine TAR requires prior regulatory approval. The Advanced Approach will be made available only to those insurers that can demonstrate that they have robust controls in place and that they meet minimum standards set by the regulators.

Many insurers will determine their regulatory TAR[1] using the Standard Approach. While the Standard Approach (a formulaic or factor based method) is not as sophisticated as the Advanced

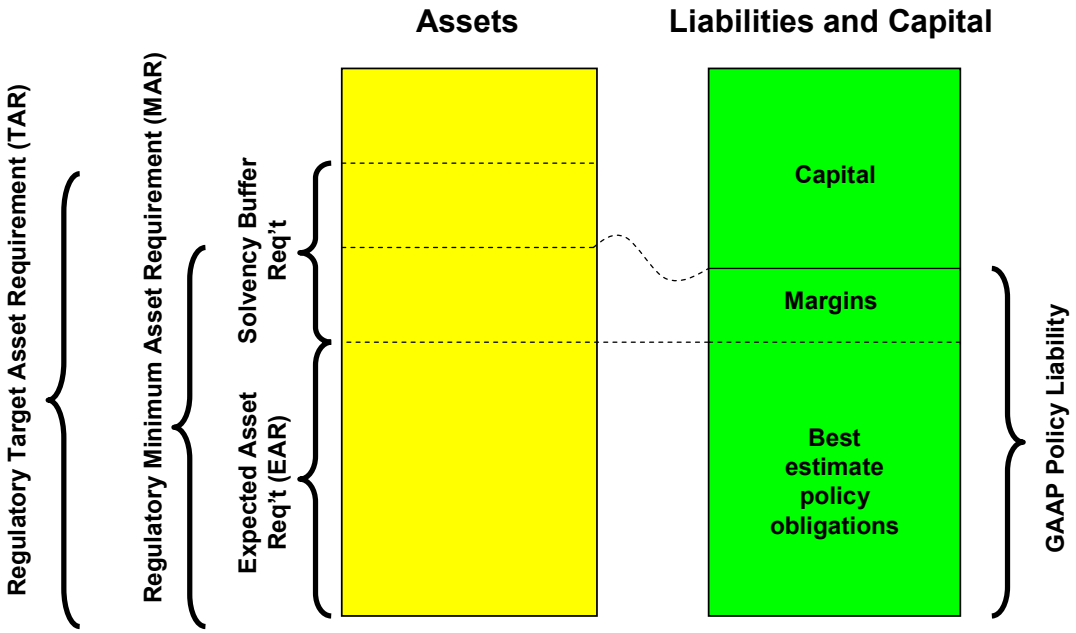
[1] Initially, the TAR may be determined as an Expected Asset Requirement (EAR) plus a solvency buffer. EAR is the expected amount of assets necessary to meet the obligations of the insurer. The EAR may be determined as the amount of the Canadian GAAP policy liabilities less the amount of explicit actuarial provisions for adverse deviation (i.e. PfADs) and the solvency buffer may be determined as the sum of those same PfADs and the MCCSR requirement. Over time more modern approaches to provisioning for risks in the solvency buffer can be

Approach, the Standard Approach will reflect the key risks, risk mitigation strategies and risk dependencies. However, the Standard Approach will be designed to produce an appropriate requirement across the industry. Its design will reflect lessons learned from work done by the CIA and insurers using an advanced modeling framework.

The Standard Approach, used for TAR, will also be used as the basic framework by all insurers for the MAR. The MAR will most likely be derived by applying simple adjustments to the TAR Standard Approach to reflect an appropriate lower sufficiency level.

Like the Advanced Approach, the Standard Approach needs to be understandable and verifiable. However, due to the important role of the MAR in intervention, the Standard Approach must also be objective.

The following pictures and charts summarize the MAC Vision.



implemented on an incremental basis. The EAR represents an approximation of the new IFRS liabilities without risk margins.

Comparison of Minimum and Target Asset Requirements		
	Minimum Asset Requirement	**Target Asset Requirement**
Purpose	Determines the point at which the regulator takes control or other appropriate action	Going concern level of assets that regulator expects an insurer to maintain
Standard vs. Advanced	Standard only	Standard or Advanced
Sufficiency Level	To be determined	99% CTE over 1 yr horizon + terminal provision

Comparison of Advanced and Standard Approaches		
	Advanced	**Standard**
Type	Internal model based on multiple scenario tests and/or stochastic approaches using company specific data and assumptions	Formula or factor based calculation using industry assumptions and applied to company specific data
Risks	All risks explicitly and appropriately modeled	All risks recognized implicitly or explicitly in formulation of standard approach and appropriately modeled
Application	Selection of advanced vs standard approach may be made for credit, market, underwriting and operational risk separately	Selection of advanced vs standard approach may be made for credit, market, underwriting and operational risk separately
Risk Mitigation	Risk mitigation modeled	Key types of mitigation recognized implicitly or explicitly
Risk Dependencies (e.g. correlation, concentration)	Risk dependencies within and between risks are modeled when appropriate and measurable	Partial recognition of dependencies within key risks
Confidence Level	99% CTE over 1 yr horizon + terminal provision	99% CTE over 1 yr horizon + terminal provision
Calibration	Calibrated according to internal model standards established by actuarial profession and regulator	Periodically calibrated by the regulator in consultation with the industry and with reference to the advanced approaches filed with the regulator
Results	Understandable and verifiable	Understandable, verifiable and objective
Use	Used for TAR if approved by the regulator	Calculated by all companies. Used by many companies for TAR. Used by all companies for MAR.

Vision Background

Purpose of Paper

This paper has been prepared by the Minimum Continuing Capital and Surplus Requirements (MCCSR) Advisory Committee (or MAC) to outline a vision for new principles-based capital requirements for Canadian life insurers, which encourage the use of improved risk-based business decisions and better reflect each company's own risk profile and its risk management practices.

Stakeholders in Change

Key stakeholders in the Canadian life insurance industry are working together through MAC to:

- establish high-level principles for the development of a new Canadian life insurance solvency framework
- provide strategic guidance on techniques to be used
- assess recommendations on the new solvency framework made by technical groups involved in the process
- build consensus on the new framework

The MAC is co-chaired by a member of the Canadian Institute of Actuaries (CIA) and a representative of the Office of the Superintendent of Financial Institutions (OSFI). Its members are senior representatives from the Canadian Life and Health Insurance Association (CLHIA), CIA, Assuris, the Autorité des marchés financiers (AMF), and OSFI, as well as representatives from large and small insurers and the reinsurance industry.

Reason for Change

Leading insurers are moving toward advanced capital models for internal risk management, capital management, regulatory reporting requirements, and rating agency assessments. MAC believes it is important to support these developments in risk management as all stakeholders benefit from a better determination and allocation of capital to risk. MAC has therefore developed this vision of life insurer solvency assessment for Canada.

Audience

Ultimately this paper is written for risk professionals (including actuaries) and regulators/supervisors. However, it may be useful to all stakeholders for whom risk management and disclosure is important. Stakeholders include:

- Internal Management - Senior Management, Board
- Examiners - Regulators, Auditors, Peer Reviewers, Rating Agencies
- Public - Shareholders, Market Analysts, Policyholders

Scope

The insurer solvency framework envisioned by this paper has been developed from the perspective of:

- Canadian insurance holding companies with life insurance subsidiary operations
- World-wide life insurance operations of domestically licensed insurers, fraternals and reinsurers
- Canadian life insurance operations of foreign insurers, fraternals and reinsurers.

Specific tailoring of the framework for holding companies or branches has not yet been addressed in this framework.

Core Concepts

The core concepts proposed by MAC for future Canadian life insurer solvency financial requirements take into account the key principles for life insurer solvency assessment developed by MAC and communicated by OSFI and AMF in 2006. These core concepts are the foundation for both the Advanced and Standard Approaches.

Financial Requirement Specifics

Regulators will set the Target Asset Requirement (TAR) at a high confidence level representative of the threshold for investment grade securities. As its working hypothesis, MAC uses a confidence level of 99% Conditional Tail Expectation (CTE) over 1 year. At the end of the year, there must be sufficient assets to run off or sell the business.

The TAR will be determined according to the following specific requirements:

- **Time horizon** – For purposes of solvency assessment, "time horizon" represents the period of time since the last solvency assessment during which severe adversity could occur and consequent supervisory action could be taken. The MAC sets this time period at one year. Funds remaining after one year, according to the scenario tested, must be sufficient to allow the insurer to fulfill its policyholder obligations or pass the risks on to a succeeding insurer. In other words, there must be an adequate terminal provision for the remaining risks at the end of the time horizon.
- **Terminal provision** – The amount of assets needed at the end of the time horizon for the insurer to fulfill its policyholder obligations over the remaining lifetime of those obligations or to pass the risks on to a succeeding insurer. The determination of the terminal provision will recognize the severe adversity tested within the preceding time horizon for supervisory action. Further guidance can be found in the paper produced by the Solvency Framework Sub-Committee (SFSC) of the Canadian Institute of Actuaries (CIA) on this topic.
- **Confidence level** – Assets must be adequate to provide for the obligations of the insurer with a high degree of confidence. This assessment of the insurer's risks must recognize the volatility, uncertainty and catastrophic elements of the risks. The regulator will choose the confidence level. As its working hypothesis, MAC is using a confidence level of 99% Conditional Tail Expectation (CTE) over 1 year. On the advice of the SFSC, MAC chose TailVar (TVaR) or (CTE) as its preferred measure of confidence. Further guidance can be found in the paper produced by the SFSC on this topic.
- **Consistency** – Asset and liability risks will be assessed in a consistent manner based on "market related information." There continues to be active Canadian and international debate on the precise meaning of these words as various stakeholders strive for "market related" values for streams of asset or liability cash flows.

Solvency Framework

The vision paper focuses on the financial elements of the solvency framework. A robust and comprehensive regime should also include regulatory requirements that address governance and market conduct needs and should ensure that these all work together in a fully integrated, cohesive fashion.

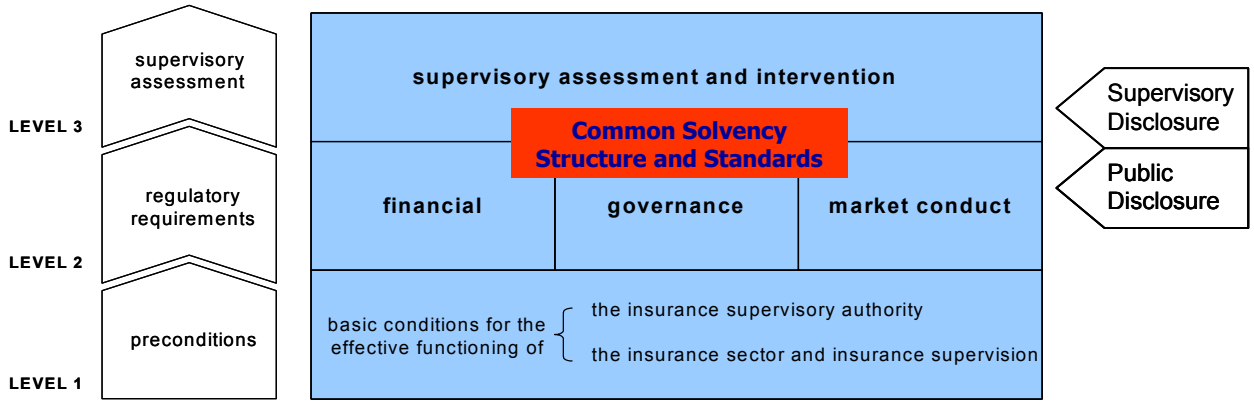
Multi-Level Approach

MAC endorses the current multi-level approaches to insurer supervision, a combination of:

- Framework Level 1: Pre-conditions for Solvency Assessment
- Framework Level 2: Regulatory Requirements
- Framework Level 3: Supervisory Assessment and Intervention
- Disclosure

These self-reinforcing levels have been suggested by the IAIS and are currently used in Canada. MAC recommends their continued use in the future. The precise function, design and operation of each level will continue to evolve reflecting the needs of the industry and supervisory best practices.

Supervisory Solvency Framework



Framework Level 1 – Pre-conditions for Solvency Assessment

Effective insurance supervision requires the existence of a supervisory authority with adequate powers, legal protection and financial resources to exercise its functions and powers. The supervisor must have adequate powers to:

- require the insurer to assesses and manage the risks to which it is exposed and appropriately assess and maintain its total financial resources

- set regulatory financial requirements for individual insurers which should result in insurers holding sufficient assets to protect policyholders' interests under both normal and adverse circumstances
- require that, if necessary, an insurer takes action to reduce the risks it is taking so that the assets it holds are sufficient.

This set of pre-conditions is already in place in Canada and is assumed to continue to exist in the future.

Framework Level 2 – Regulatory Requirements

There are three blocks of topics within Framework Level 2: the financial block, the governance block and the market conduct block. The primary focus of this Vision paper, however, is on the financial block, which is addressed in the following section. Governance, market conduct and disclosure requirements are also important, however, they are much broader than solvency assessment and hence only brief reference is made to them in this paper.

Regulatory Financial Requirement

Supervisors use a variety of quantitative measures within Level 2 to assess the soundness of a life insurer's current financial position. Principal among these measures has been a risk-based capital requirement (e.g. MCCSR and TAAM from OSFI federally or CAR from AMF in Quebec).

In the past, this risk-based capital requirement has been "added on" top of the liabilities determined in accordance with Canadian GAAP (Generally accepted accounting principles).

In the future, we envision that the solvency financial requirement will be determined on an integrated basis using a regulatory asset requirement approach.

In the past, the risk-based capital requirement was associated with varying levels of supervisory action. If companies consistently exceeded a target level set in consultation with the supervisor (e.g. currently 150% of the capital requirement) then normal supervisory oversight might be needed. On the other hand, if a company fell well below the target, it would be subject to increasing degrees of supervisory oversight and action.

In the future, we envision there will continue to be a need for a regulatory Target Asset Requirement (TAR) based on market related information as well as a Minimum Asset Requirement (MAR) to serve as triggers for supervisory oversight and actions. It is likely that strongly capitalized insurers will wish to maintain total asset levels above the TAR in recognition of their financial strength. In the future the MAR will be determined using the Standard Approach.

In the past, substantial use has been made of risk-based factor determinations of the capital requirements. For some more complex risks (e.g. segregated fund guarantees) more advanced internal models using stochastic modeling, "total balance sheet" (TBS), CTE risk measure, etc

have been used. To a considerable degree, large and small insurers used similar degrees of complexity in the determination of their capital requirements.

In the future, the wider use of advanced internal model approaches will be encouraged (and required in more cases than currently). Larger insurers, those technically able and those insurers with complex risks will be encouraged to use advanced internal model approaches. A standard approach will be available to all insurers. The Standard Approach will be developed according to the same core principles as the Advanced Approach and be designed to produce an appropriate requirement across the industry. Its design will reflect lessons from work done by the CIA and insurers using an advanced modeling framework.

Governance

Sound governance, supported by effective disclosure, is of key importance for the adequate management of the insurer and critical to the effectiveness of the regulatory regime. Some risks may be addressed only through governance standards rather than by setting regulatory financial requirements. Hence governance standards form one of the key blocks in the Solvency Framework.

The Solvency Framework assumes a dynamic risk assessment by the insurer's management. This includes that judgments are made regarding provisioning and capital adequacy. It is, first of all, clearly the responsibility of the insurer itself to fulfill its fiduciary role to policyholders and to manage its risks, value its obligations and procure sufficient capital. It is the role of the regulator to see that this management responsibility is met and to ensure accountability.

Sound corporate governance and professional advice is a prerequisite of any solvency regime where financial and internal reporting, valuations and solvency assessment are dependent on an individual insurer's risk assessment and management systems. Sound corporate governance, properly designed and implemented, is the basis for supervisory assessment of the ability and accountability of an insurer's Board and its management in operating effective risk management systems. Clear, relevant and enforceable professional standards of conduct are appropriate to promote the objectivity and independence of auditing and actuarial professionals.

Sound corporate governance should be firmly rooted in management, and throughout the insurer. Management should have sufficient skills and experience in relation to the insurance business. Management should possess a good understanding of the insurer's risk management, valuation and capital allocation systems. After all, management is responsible for designing, implementing and evaluating the effectiveness of such systems, including monitoring risk exposure limits adopted by the Board.

Management is responsible for ensuring model-based valuations and capital allocation systems function effectively by having:

- sufficient skilled and competent resources dedicated to the modelling function

- a process, including back testing and calibration to market valuations, with the aim that models and procedures have good estimation power and that valuations arrived at will not be insufficient or structurally underestimated
- a process to review data for the determination of model input assumptions
- a process to ensure model input is consistent with general data on the financial markets and company experience as appropriate
- a review of model-based valuations to find errors and limit weaknesses
- a credible ongoing effort to improve model performance
- a regular cycle of model evaluation that includes monitoring of model performance and stability, review of model relationships and testing of model outputs against outcomes
- adequate documentation of the model, valuation and capital allocation processes.

Management is responsible for ensuring that the insurer makes appropriate use of experts with the proper skills, knowledge and experience.

Market Conduct

Market conduct requirements also form one of the key blocks in the Solvency Framework. As with governance, some risks may be addressed only through market conduct requirements rather than by setting regulatory financial requirements.

Market conduct requirements seek to ensure that customers are able to select the insurance product that best meets their needs. Sound market conduct policies and procedures are also closely related to the solvency position of an insurer, and should be a key part of the risk management of an insurer. Improper market conduct may have a direct prudential impact on an insurer, or may be damaging to the reputation of an insurer and hence have severe indirect consequences for its financial position and its ability to operate effectively. Sound market conduct needs to be based on a clear understanding by the insurer of the risks covered in the policy contracts, and should be integrated into the overall risk management and governance structure of the insurer.

The solvency regime should be transparent as to how policyholder expectations are reflected in the financial requirements. Constructive obligations[2] may arise from the exercise of discretion by insurers under insurance policies. Insurers also use such discretion to manage their risk of financial loss. The extent and nature of the insurers' discretion may vary between policies and insurers. This should be taken into account in specifying the capital requirements.

[2] Constructive obligations may, subject to the particular jurisdiction and contract, be legally binding as a result of specific contract wording, past practice of the insurer and/or disclosures made to policyholders.

Framework Level 3 – Supervisory Assessment and Intervention

In the past there have been many aspects to the supervisory assessment of an insurer's operations. Supervisory review has included the areas of compliance, risk management, governance, audit, external peer review of policy liabilities, etc.

There should also be a solvency control framework, including the company's own assessment of its capital needs, which triggers different degrees of timely intervention by the supervisor. These levels should have due regard to any corrective action that may be at the disposal of the insurer, and of the supervisor, including options to reduce the risks being taken by the insurer as well as to raise more capital.

In the future we expect the need for these aspects to remain and evolve over time in light of industry and supervisory best practices. However, in the future, the "total asset requirement" and internal model determinations of capital will require different types of technical risk management, risk modeling and communication skills to be exhibited by both insurers and supervisors. For insurers wishing to make greater use of internal models, the burden of proof to justify the selection of internal models, their assumptions, data and results will fall to the insurer. Back-testing and validation of assumptions with experience will be needed. Increasingly, internal models will need to be prepared in accordance with professional standards of practice. Supervisory skills and experience with advanced internal models will be needed.

Disclosure

There is a need to differentiate between public disclosure and disclosure to the regulator which is subject to confidentiality. Information provided to the regulator and subject to confidentiality will generally be more detailed and technical in nature. Ensuring appropriate confidentiality not only guards against disclosure of commercially sensitive information but also fosters openness between the regulator and the insurer. Insurers should provide sufficient information to give confidence to the regulator and the public at large that they are appropriately carrying out their responsibility to manage their risks and protect the interests of policyholders.

Public disclosure is critical for a well balanced solvency regime, to the operation of a sound market and to achieve the aims of transparency, comparability and convergence. The use of increasingly risk-based calculations of capital requirements is expected to increase the quality and utility of risk disclosures that should be provided by insurers.

Roles and Responsibilities

Supervisor/Regulator

- Approval of all principles
- Set specific rules and regulations related to solvency financial requirements consistent with the principles
- Internal model approval, including calibration standards
- Review and monitoring of capital requirements as part of overall supervisory review

Insurer management

- Internal models embedded in risk management and used in decision-making
- Independently vetted
- Ensure internal models and their results are verifiable, auditable, understandable etc
- Related disclosures are complete and appropriate

Auditors

- Solvency financial requirements are verified and audited
- Ensure required disclosures are complete and appropriate

Actuaries

- Appropriate guidance and standards are available
- Guidance and standards from actuarial profession and supervisors are followed