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**AUTORITÉ  
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FINANCIERS**

# **GUIDELINE ON CAPITAL ADEQUACY REQUIREMENTS**

**PROPERTY AND CASUALTY INSURANCE**

**July 2013**

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## Chapter 1. Introduction and General Guidance

### 1.1 Introduction

#### 1.1.1 Guideline Objective

*An Act respecting insurance* (R.S.Q., chapter A-32) (the “Act”) prescribes that every insurer must adhere to sound and prudent management practices.”<sup>1</sup> Moreover, under the Act, guidelines pertaining notably to the adequacy of capital may be given to insurers.<sup>2</sup>

The objective of these guidelines is essentially to increase the transparency and predictability of the criteria used by the *Autorité des marchés financiers* (the “AMF”) in assessing the quality and prudence of the management practices of the financial institutions for which those criteria are intended. The ability of these institutions to meet their obligations toward investors and policyholders is key to achieving this objective. This principle is reflected in the capital adequacy requirements for property and casualty (“P&C”) insurers (“damage” insurers in Québec) set forth in this guideline.

The risk-based capital adequacy framework is based on an assessment of the riskiness of asset yield deficiency, policy liabilities, interest rates, foreign exchange rates, and structured settlements, letters of credit, derivatives and other exposures, by applying varying factors and margins. P&C insurers are required to meet a **capital available to capital required** test. The definition of capital available to be used for this purpose is described in chapter 2 and is calculated on a consolidated basis.

This guideline outlines the capital framework, using a risk-based formula for minimum capital required, and defines the capital that is available to meet the minimum standard. The Minimum Capital Test (“MCT”) determines the minimum capital required and not necessarily the optimum capital required.

#### 1.1.2 Scope of Application

The Guideline on Capital Adequacy Requirements applies to all P&C insurers licensed to transact insurance business in Québec and holding a charter issued by the province of Québec or by another Canadian jurisdiction (hereinafter the “P&C insurers”).

This guideline applies on a consolidated basis in accordance with Canadian generally accepted accounting principles (“CGAAP”). Accordingly, each component of capital available and capital required is calculated in such a way as to include all of the insurer’s operations as well as any financial activity by its subsidiaries.

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<sup>1</sup> Section 222.1.

<sup>2</sup> Sections 325.0.1 and 325.0.2.

For purposes of this guideline, non-qualifying subsidiaries<sup>3</sup> should be deconsolidated and accounted for using the equity method. Interests in non-qualifying subsidiaries are therefore excluded from capital available and capital required calculations, as are loans or other debt instruments issued to them if they are considered as capital in the entity.

For insurers operating in both P&C insurance and life and health insurance (“insurance of persons” in Québec), this guideline only applies to balance sheet items and off-balance-sheet instruments attributed by the insurer to the P&C insurance sector and to the accident and sickness class of insurance business.

### **1.1.3 Clarification**

Unless the context indicates otherwise, in this guideline, concepts pertaining to corporate relationships, such as subsidiaries, associates, joint ventures and related enterprises, as well as terminology, should be interpreted in accordance with CGAAP.

Assets and liabilities of subsidiaries consolidated for the purposes of this guideline are therefore subject to asset factors and liability margins in the insurer’s MCT.

### **1.1.4 Interpretation**

Because the requirements set forth in this guideline are intended mainly as guidance for managers, the terms, conditions and definitions contained therein may not cover all situations arising in practice. The results of applying these requirements should therefore not be interpreted as being the sole indicator for assessing an insurer's financial position or the quality of its management. Insurers are expected to submit to the AMF beforehand, where applicable, any situation for which treatment is not covered in this guideline or for which the recommended treatment seems inadequate. This also applies with respect to any issue arising from an interpretation of the requirements set forth in this guideline.

### **1.1.5 Divuligation**

The calculations required by this guideline and their results must be disclosed on pages 30.70, 30.71, 30.73 and 70.38 of the P&C-1 Annual Return form. The form must be submitted to the AMF in accordance with section 305 of the Act.

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<sup>3</sup> Under this guideline, a subsidiary that is a dissimilar regulated financial institution, such as a bank, trust company, savings company or life and health insurer, and a subsidiary, which is not a legal person under Section 244.2 of the Act, are non-qualifying subsidiaries.

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## 1.2 General Guidance

### 1.2.1 Minimum Ratio and Target Capital Ratio

The requirements in this guideline comprise three stages:

- determining the capital available to the insurer;
- establishing the risk-based minimum capital requirement;
- establishing the MCT requirements as a ratio of capital available to capital required.

In order to meet the 100% minimum ratio, capital available must be equal or superior to capital required.

Moreover, this ratio does not explicitly consider all risks that could occur. In fact, quantifying several of these risks using a standard approach for all insurers is not warranted at this time given that, on the one hand, the level of exposure to these risks varies from one insurer to the other and that, on the other hand, using a standard approach to measure them is difficult.

Consequently, the AMF requires that each insurer assess its overall capital adequacy based on its risk profile for the purposes of sound and prudent management. Insurers will therefore determine a target capital ratio that is superior to the minimum ratio.

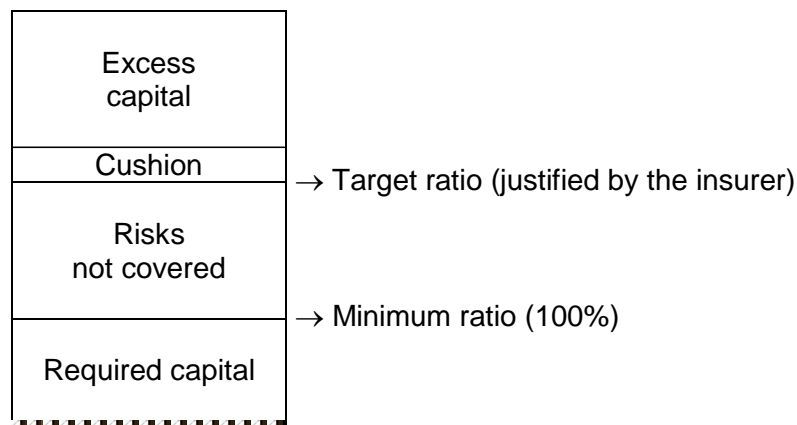
To establish this target ratio, insurers must determine the capital required to cover the risks related to their operations using various techniques such as sensitivity analyses based on various scenarios and simulations. Therefore, in addition to the other risks covered in the calculation of the MCT ratio, the target capital ratio must also take into account at least the following risks:

- residual credit, market and insurance risk; for example, foreign exchange risk and certain risks related to risk transfers are types of market risk not covered in the calculation of the MCT ratio;
- operational risks;
- liquidity risks;
- concentration risk;
- legal and regulatory risks;
- strategic risks;
- reputation risk.

Insurers should then consider the risks specific to them when determining their respective target capital ratios. Insurers can meet this requirement by drawing, for example, on dynamic capital adequacy testing (“DCAT”) plausible adverse scenarios. The impact of the various scenarios should be tested on the target capital ratio instead of the insurer’s actual capital ratio.

The AMF’s expectations are specified in the diagram below.

#### Minimum ratio and target capital ratio



Based on the above diagram, insurers should also provide a capital amount (as shown by the cushion) to take into account the variable nature of the MCT ratio and the possibility that it could fall below their target ratio under their routine operating conditions due, among other reasons, to normal market volatility and insurance experience. Issues such as access to capital limitations should also be considered when determining this cushion.

In addition, the AMF expects insurers’ level of capital to exceed the target ratio and the cushion, to enable them to:

- maintain or attain a credit rating;
- innovate by, for example, developing new products;
- keep pace with business combination trends, in particular, opportunities to acquire portfolios or companies;
- be prepared for global industry-wide change, including standard-setting developments such as changes in accounting and actuarial standards.

The target capital ratio must be reported in the DCAT Report. At the AMF's request, insurers will be required to justify their target capital ratio and support their explanations with an appropriate calculation method and data. The AMF may require an insurer to establish a new target ratio if the justifications do not demonstrate to the AMF's satisfaction that the capital ratio submitted is relevant and sufficient.

Failure to comply with the target ratio will result in supervisory measures by the AMF commensurate with the circumstances and the corrective actions taken by the insurer to comply with the established target.

For consistency, the AMF uses this target capital ratio concept for both life and health insurers and P&C insurers.

## **1.2.2 Considerations Relating to Reinsurance**

### **1.2.2.1 Definitions**

In this guideline, the expressions “registered reinsurance” and “unregistered reinsurance” refer to Appendix A of the *Reinsurance Risk Management Guideline*.

### **1.2.2.2 Registered Reinsurance**

Capital requirement calculations under the MCT reflect insurers' use of registered reinsurance in the course of their activities. Amounts receivable and recoverable under registered reinsurance agreements are subject to the asset factors described in section 3.4.1 of this guideline.

### **1.2.2.3 Unregistered Reinsurance**

For business under an unregistered reinsurance agreement, amounts receivable and recoverable from the agreement and reported on the balance sheet are deducted from capital available, that is calculations must be made as if the business was not registered, to the extent that they are not covered by amounts payable to assuming reinsurers or by eligible guarantee instruments from assuming reinsurers. To be eligible, guarantee instruments must meet the criteria set out in the *Guide Respecting the Use of Guarantee Instruments*.

Section 4.3.2 of this guideline provides additional guidance on capital deduction, the margin requirement on amounts recoverable from unregistered reinsurance and the limit on the use of eligible guarantee instruments.



## 1.2.3 Capital Required

Capital required is determined on a consolidated basis, but in agreement with section 1.1.2 which provides for the deconsolidation of non-qualifying subsidiaries.

Capital required is the sum of:

- capital for assets (reference chapter 3);
- margins for unearned premiums, unpaid claims and premium deficiencies (reference chapter 4);
- catastrophe reserves and additional policy provisions (reference chapter 4);
- margin for reinsurance ceded under unregistered reinsurance agreements (reference section 4.3.2);
- margin for interest rate risk (chapter 5);
- capital for structured settlements, letters of credit, derivatives and other exposures (reference chapter 7).

Notwithstanding the stated requirements, in any case where the AMF believes that the capital treatment is inappropriate, a specific capital requirement may be determined.

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## Chapter 2. Capital Available

### 2.1 Capital Available

Capital available is determined on a consolidated basis, but in agreement with section 1.1.2 which provides for the deconsolidation of non-qualifying subsidiaries.

The three primary considerations for defining the capital of a financial institution for purposes of measuring capital adequacy are:

- its permanence;
- its being free of any obligation to make payments from earnings;
- its subordinated legal position to the rights of policyholders and other creditors of the institution.

The integrity of capital elements is paramount to the protection of policyholders. Therefore, these considerations will be taken into account in the overall assessment of a P&C insurer's financial condition.

Capital available includes instruments with residual rights that are subordinate to the rights of policyholders and will be outstanding over the medium term. It also includes an amount to reflect changes in the market value of investments.

Capital available is defined as the sum of the following, subject to requirements of the AMF:

- equity:
  - shares treated as equity under CGAAP;
  - contributed surplus;
  - retained earnings;
  - reserves;
  - general and contingency reserves;
- certain components of accumulated other comprehensive income:
  - accumulated net after-tax unrealized gains(losses) on available-for-sale equity securities;
  - accumulated net after-tax unrealized gains (losses) on available-for-sale debt securities;

- ❑ accumulated net after-tax foreign currency gains and losses, net of hedging activities;
  - ❑ accumulated net after-tax unrealized gains (losses) on share of other comprehensive income on non-qualifying subsidiaries, associates and joint ventures;
  - ❑ accumulated other comprehensive income (loss) on remeasurements of defined benefit pension plans.
- subordinated indebtedness and preferred shares whose redemption is subject to the AMF's approval:
    - ❑ preferred shares treated as debt under CGAAP, where they are long term;
    - ❑ all indebtedness of the insurer that, by its terms, provides that the indebtedness will, in the event of the insolvency or winding-up of the insurer, be subordinate to all policy liabilities of the insurer and all other liabilities, except those that by their terms, rank equally with or subordinate to such indebtedness.
  - consolidated qualifying non-controlling interests:
    - ❑ insurers will generally be permitted to include in capital available, qualifying non-controlling interests in subsidiaries that are consolidated for MCT purposes, provided that the capital in the subsidiary is not excessive in relation to the amount necessary to carry on the subsidiary's business, and the level of capitalization of the subsidiary is comparable to that of the insurer as a whole;
    - ❑ if a subsidiary issues capital instruments for the funding of the insurer or that are substantially in excess of its own requirements, the terms and conditions of the issue, as well as the intercompany transfer, must ensure that investors are placed in the same position as if the instrument were issued by the insurer in order for it to qualify as capital on consolidation. This can only be achieved by the subsidiary using the proceeds of the issue to purchase a similar instrument from the insurer. Since subsidiaries cannot buy shares in the insurer, it is likely that this treatment will only be applicable to the subordinated debt. In addition, to qualify as capital for the consolidated entity, the debt held by third parties cannot effectively be secured by other assets, such as cash, held by the subsidiary.

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## 2.2 Deductions/Adjustments

### 2.2.1 Deductions

The following amounts are deducted from the capital available:

- interests in non-qualifying subsidiaries and associates;
- interests in joint ventures with more than a 10% ownership;
- loans to, or other debt instruments issued to non-qualifying subsidiaries, associates and joint ventures with more than a 10% ownership interest which are considered as capital;
- amounts receivable and recoverable from unregistered reinsurance agreements to the extent that they are not covered by amounts payable to assuming reinsurers or by eligible guarantee instruments from assuming reinsurers (reference section 4.3.2);
- deferred policy acquisition expenses that are not eligible for either the 0% capital factor or the 35% capital factor;
- net defined benefit pension plan surplus asset, net of any associated deferred tax liability, and net of any amount of available refunds of defined benefit pension plan surplus assets to which the insurer has unrestricted and unfettered access. Insurers can only reduce this deduction by an amount of available refunds of defined benefit pension plan surplus assets if they obtain prior written supervisory authorization from the AMF<sup>4</sup>;
- net after-tax impacts of shadow accounting if the insurer has elected to use the shadow accounting option within International Financial Reporting Standards (“IFRS”);
- deferred tax assets that are not eligible for the 0% capital factor;
- goodwill and other intangible assets;
- other assets, as defined (reference section 3.4), in excess of 1% of total assets;
- self-insured retentions (“SIR”), included in other recoverables on unpaid claims, where the AMF requires acceptable collateral to ensure collectability of recoverables, and no collateral has been received (reference section 4.4).

No asset factor is applied to items that are deducted from capital available.

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<sup>4</sup> To obtain the AMF written supervisory authorization, the insurer must demonstrate, to the AMF’s satisfaction, that it has clear entitlement to the surplus and that it has unrestricted and unfettered access to the surplus pension assets including, among other things, having obtained an acceptable independent legal opinion and the prior authorization from the pension plan members and the pension regulator, where applicable.

## 2.2.2 Adjustments

The following amounts are reversed from the total of capital available:

- own-use property valuations<sup>5</sup>:
  - unrealized fair value gains (losses) reflected in retained earnings at conversion to IFRS (cost model). The amount at conversion is an on-going deduction to capital available and can only be changed as a result of a sale of own-use properties (owned at the time of IFRS conversion) and the resulting realization of actual gains (losses);
  - accumulated net after tax revaluation losses in excess of gains that are reflected in retained earnings for accounting purposes (revaluation model).
- accumulated net after-tax fair value gains (losses) arising from changes in an insurer's own credit risk for the insurer's financial liabilities that are classified as held for trading.

## 2.2.3 Transition Measures for IAS 19 changes

Insurers may elect to phase-in the initial impact on capital available of adopting the revisions to IAS 19 "Employee Benefits", effective for fiscal years beginning on or after January 1, 2013, related to net defined benefit pension plan liabilities (assets), including the related change in this guideline that has for effect to include in capital available the accumulated other comprehensive income (loss) on remeasurements of defined benefit pension plans. The amount subject to phase-in is the combined impact on capital available of:

- the impact on equity resulting from the adoption of the revisions to IAS 19 effective on or after January 1, 2013; and
- the inclusion of the ending balance in the accumulated other comprehensive income (loss) on remeasurements of defined benefit pension plan account on the day prior to the effective date of the revisions to IAS 19.

The phase-in will be made on a straight-line basis over the phase-in period. The phase-in period begins on the effective date of the revisions to IAS 19 and must be completed by the earliest quarter-end occurring on or after December 31, 2014. If an insurer elects a phase-in, it will be reflected via adjustments to accumulated other comprehensive income (loss) on remeasurements of defined benefit pension plans (phase-in) reported in the MCT. The election to phase-in is irrevocable.

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<sup>5</sup> No adjustments are required for "investment properties," as fair value gains (losses) are allowed for capital purposes.

## **2.3 Interests in and Loans to Subsidiaries, Associates, Joint Ventures and Limited Partnerships**

The equity method of accounting is used for all interests in non-qualifying subsidiaries, associates and joint ventures. These interests remain unconsolidated for MCT purposes.

### **2.3.1 Qualifying Consolidated Subsidiaries**

The assets and liabilities of these subsidiaries are fully consolidated in the insurer's regulatory financial statements and are included in the calculation of capital available and required; they are therefore subject to asset factors and liability margins in the insurer's MCT.

### **2.3.2 Joint Ventures with Less Than or Equal to 10% Ownership Interest**

Where an insurer holds less than or equal to 10% ownership interest in a joint venture, the investment is not deducted from capital available. The investment is subject to the asset factor applicable to common shares.

### **2.3.3 Non-qualifying Subsidiaries, Associates and Joint Ventures with More Than a 10% Ownership Interest**

Interests in non-qualifying subsidiaries, associates and joint ventures with more than a 10% ownership interest are excluded from capital available. Loans to, or other debt instruments issued to these entities are also excluded from capital available of the insurer if they are considered as capital in the entity.

Loans to, or other debt instruments issued to these entities, that are not considered as capital in the entity, are subject to an asset factor of 35% (or higher for higher risk loans). Insurers should contact the AMF to discuss higher asset factors.

Receivables from these entities will attract a capital factor of 4% or 8% depending on how long the balances are outstanding (reference section 3.4).

### **2.3.4 Limited Partnerships**

Investments of the insurer held and managed by a limited partnership on behalf of the insurer are treated as direct investments of the insurer, provided that the insurer can demonstrate to the AMF's satisfaction that these investments are not used to capitalize such a partnership under the laws and regulations governing it. Consequently, the capital required for such investments is calculated using a look-through approach to the underlying assets held by the limited partnership, by applying the capital factors in section 3.4 to the limited partnership investments.

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## Chapter 3. Asset Yield Deficiency Risk

### 3.1 Description of Asset Risks

The capital required for assets covers the potential losses resulting from asset default and the related loss of income, and the loss of market value of equities and the related reduction in income.

To determine the risk-based capital requirement for assets, P&C insurers must apply a factor to the balance sheet value of each asset. For loans, the factors are applied to amortized cost. (No asset factor is applied to assets deducted from Capital Available, refer to chapter 2). The total of these amounts represents the capital required for asset risks.

### 3.2 Government Grade

Government grade securities include securities issued or guaranteed by, loans made or guaranteed by, and accounts receivable from:

- the federal government or an agent of the Crown;
- a provincial or territorial government of Canada or one of its agents;
- a municipality or school corporation in Canada;
- the central government of a foreign country where:
  - the securities are rated AAA; or if not rated
  - the long-term sovereign credit rating of that country is AAA.

### 3.3 Use of ratings

Many of the capital factors in this guideline depend on the external credit rating assigned to an asset or an obligor. In order to use a factor that is based on a rating, a P&C insurer must meet all of the conditions specified below.

Insurers may recognize credit ratings from the following rating agencies for MCT purposes:

- DBRS;
- Moody's Investors Service;

- Standard and Poor's (S&P);
- Fitch Rating Services.

An insurer must choose the rating agencies it intends to rely on and then use their ratings for MCT purposes consistently for each type of claim. Insurers may not “cherry pick” the assessments provided by different rating agencies.

Any rating used to determine a factor must be publicly available, i.e., the rating must be published in an accessible form and included in the rating agency's transition matrix. Ratings that are made available only to the parties to a transaction do not satisfy this requirement.

If an insurer is relying on multiple rating agencies and there is only one assessment for a particular claim, that assessment should be used to determine the capital requirement for the claim. If there are two assessments from the rating agencies used by an insurer and these assessments differ, the insurer should apply the capital requirement corresponding to the lower of the two ratings. If there are three or more assessments for a claim from an insurer's chosen rating agencies, the insurer should exclude one of the ratings that corresponds to the lowest capital factor, and then use the rating that corresponds to the lowest capital factor of those that remain (i.e., the insurer should use the second-highest rating from those available, allowing for multiple occurrences of the highest rating).

Where an insurer holds a particular securities issue that carries one or more issue-specific assessments, the capital factor for the claim will be based on these assessments. Where an insurer's claim is not an investment in a specifically rated security, the following principles apply:

- in circumstances where the borrower has a specific rating for an issued debt security, but the insurer's claim is not an investment in this particular security, a rating of BBB- or better on the rated security may only be applied to the insurer's unrated claim if this claim ranks *pari passu* or senior to the rated claim in all respects. If not, the credit rating cannot be used and the insurer's claim must be treated as an unrated obligation;
- in circumstances where the borrower has an issuer rating, this assessment typically applies to senior unsecured claims on that issuer. Consequently, only senior claims on that issuer will benefit from a BBB- or better issuer assessment; other unassessed claims on the issuer will be treated as unrated. If either the issuer or one of its issues has a rating of BB+ or lower, this rating should be used to determine the capital factor for an unrated claim on the issuer;
- short-term assessments are deemed to be issue specific. They can only be used to derive capital factors for claims arising from the rated security. They cannot be generalized to other short-term claims, and in no event can a short-term rating be used to support a capital factor for an unrated long-term claim;
- where the capital requirement for an unrated exposure is based on the rating of an equivalent exposure to the borrower, foreign currency ratings should be used for exposures in foreign currency. Canadian currency ratings, if separate, should only be used to determine the capital factor for claims denominated in Canadian currency.



The following additional conditions apply to the use of ratings:

- external assessments for one entity within a corporate group may not be used to determine the capital factor for other entities within the same group. This condition does not apply to assets held with a credit union that is a member of a federation within the meaning of *An Act respecting financial services cooperatives* (R.S.Q., chapter C-67.3)<sup>6</sup>;
- no rating may be inferred for an unrated entity based on assets that the entity possesses;
- in order to avoid the double counting of credit enhancement factors, insurers may not recognize asset yield deficiency risk mitigation if the credit enhancement has already been reflected in the issue-specific rating;
- an insurer may not recognize a rating if the rating is at least partly based on unfunded support (e.g. guarantees, credit enhancement or liquidity facilities) provided by the insurer itself or one of its associates;
- any assessment used must take into account and reflect the entire amount of credit risk exposure an insurer has with regard to all payments owed to it. In particular, if an insurer is owed both principal and interest, the assessment must fully take into account and reflect the asset yield deficiency risk associated with repayment of both principal and interest;
- insurers may not rely on any unsolicited rating in determining the capital factor for an asset.

## 3.4 Capital Factors for Asset Risks

### 3.4.1 Fixed Capital Factors

#### *0% Capital Factor*

- Cash;
- obligations<sup>7</sup> of federal, provincial, territorial and municipal governments, and school corporations in Canada;
- obligations of agents of the federal, provincial or territorial governments in Canada whose obligations are, by virtue of their enabling legislation, direct obligations of the parent government;

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<sup>6</sup> To qualify for this exception, the insurer must refer to a rating assigned to a financial services cooperative by a rating agency duly recognized under this guideline, which rating should be closely linked to the evaluation of the quality of the financial condition and the risk assessment of the credit unions that are members of the federation. If more than one financial services cooperative is assessed, the insurer must apply the capital factor corresponding to the lowest rating.

<sup>7</sup> Including securities, loans and accounts receivable.

- obligations of AAA-rated central governments and central banks, or obligations of organizations with the guarantee of the central government;
- obligations backed by a Government Grade guarantor including, for example, residential mortgages insured under the NHA or equivalent provincial mortgage insurance program, and NHA mortgage-backed securities that are guaranteed by the Canada Mortgage and Housing Corporation;
- insurance receivables from associated<sup>8</sup> registered reinsurers (reference section 4.3.1);
- unearned premiums recoverable from associated registered reinsurers (reference section 4.3.1);
- unpaid claims and adjustment expenses recoverable from associated registered reinsurers (reference section 4.3.1);
- deferred tax assets arising from discounting of claims reserves for tax purposes, or from unrealized capital gains, that are recoverable from income taxes paid in the three immediately preceding fiscal years;
- current tax assets (income taxes receivable);
- deferred premium taxes;
- instalment premiums (not yet due).

### *0.5% Capital Factor*

- Unearned premiums recoverable from non-associated registered reinsurers (reference section 4.3.1);
- insurance receivables from non-associated registered reinsurers (reference section 4.3.1);
- accounts receivable from the Facility Association and the *Plan de répartition des risques* (P.R.R.).

### *2% Capital Factor*

- Investment income due and accrued;
- unpaid claims and adjustment expenses recoverable from non-associated registered reinsurers (reference section 4.3.1).

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<sup>8</sup> Associates under the terms of this guideline.

## *4% Capital Factor*

- Accounts receivable, not yet due and outstanding less than 60 days, from agents, brokers, non-qualifying subsidiaries, associates, joint ventures and policyholders, including other receivables;
- instalment premiums outstanding less than 60 days;
- first mortgages on one- to four-unit residential dwellings.

## *8% Capital Factor*

- Accounts receivable, outstanding 60 days or more, from agents, brokers, non-qualifying subsidiaries, associates, joint ventures and policyholders, including instalment premiums and other receivables;
- property (real estate for an insurer's own use, excluding any unrealized fair value gains (losses) resulting from the conversion to IFRS, or subsequent unrealized fair value gains (losses) due to revaluation);
- commercial mortgages and other residential mortgages that do not qualify as first mortgages on one- to four-unit residential dwellings;
- the amount of owned defined benefit pension plan surplus assets included in capital available.

## *10% Capital Factor*

- Other loans.

## *15% Capital Factor*

- Common shares;
- investments in joint ventures with less than or equal to 10% ownership;
- investment properties (investments in real estate not for an insurer's own use);
- mortgages secured by undeveloped land (e.g., construction financing), other than land used for agricultural purposes or for the production of minerals. A property recently constructed or renovated will be considered as "under construction" until it is completed and 80% leased;
- other recoverables (mainly salvage and subrogation) on unpaid claims;
- self-insured retentions not deducted from capital (reference section 4.4);

- other investments. These include investments **other than** term deposits, bonds and debentures, loans, shares, or investment in real estate (real estate not for the insurer's own use) and derivative-related amounts. Capital requirements for derivative-related amounts included in other investments are set out in chapter 7 and are reported on page 30.70, with capital required for structured settlements, letters of credit, derivatives and other exposures.

### *35% Capital Factor*

- Deferred premium commissions, net of an adjustment for unearned commissions. The 35% capital factor applies to this calculated net value and not to the book value entered on page 30.71. If the net value is negative, an amount of zero should be reported in column 3 of page 30.71. Any excess adjustment for unearned commissions cannot be recognized as capital;
- other assets, including equipment, (line 86, page 30.71) to a limit of 1% of total assets. Any excess over the limit is included with the assets with a capital requirement of 100%, on line 17, page 30.70;
- loans or other debt instruments (bonds, debentures, mortgages, etc) not considered as capital in non-qualifying subsidiaries, associates and joint ventures with more than a 10% ownership interest;
- computer software classified as an intangible asset;
- assets held for sale (other than financial). These assets must be reported on line 88, page 30.71.

### **3.4.2 Variable Capital Factors**

Varying capital factors are applied to invested assets depending on the external credit ratings (reference section 3.3), as outlined below.

Investments in securitized assets, mutual funds or other similar assets must be broken down by type of investment (bonds, preferred shares, etc), then be reported on the applicable lines of page 30.71, and assigned the appropriate capital factor. If the information available on an investment is not broken down, then the factor of the riskiest asset being securitized, or held in the fund, is assigned to the entire investment.

*Long-term Obligations*

- Long-term obligations, including term deposits, bonds and debentures that are not eligible for a 0% capital factor have capital factors according to the following table:

Rating	Term to Maturity		
	1 year or less	Greater than 1 year up to and including 5 years	Greater than 5 years
AAA	0.25%	0.50%	1.25%
AA+ to AA-	0.25%	1.00%	1.75%
A+ to A-	0.75%	1.75%	3.00%
BBB+ to BBB-	1.50%	3.75%	4.75%
BB+ to BB-	3.75%	7.75%	8.00%
B+ to B-	7.50%	10.50%	10.50%
Other	15.50%	18.00%	18.00%

- long-term obligations generally have an original term to maturity at issue of 1 year or more;
- maturity denotes the date a bond will be redeemed, while term to maturity denotes the number of years until that date;
- for an amortizing security, a type of debt security in which a portion of the underlying principal amount is paid in addition to periodic interest payments to the security's holder, the weighted average maturity may be used to determine the appropriate term to maturity to refer to in the above table. To determine the weighted average maturity, the contractual principal amortization schedule should be used and not an internally derived estimate;
- where information is not available to determine the redemption/maturity of an asset, insurers must use the category with the highest capital factor for that asset. For example, insurers must use the term deposits, bonds and debentures expiring or redeemable or repayable in the "Greater than 5 years" category where no information is available to determine the maturity of a given asset.

*Short-term Obligations*

- Short-term obligations, including commercial paper, that are not eligible for a 0% capital factor, have capital factors assigned according to the following table:

<b>Notation</b>	<b>Factor</b>
A-1, F1, P-1, R-1 or equivalent	0.25%
A-2, F2, P-2, R-2 or equivalent	0.50%
A-3, F3, P-3, R-3 or equivalent	2.00%
All other ratings, including non-prime and B or C ratings	8.00%

- short-term obligations generally have an original term to maturity at issue of no more than 365 days.

*Preferred Shares*

- Preferred shares capital factors should be assigned according to the following table:

<b>Rating</b>	<b>Factor</b>
AAA, AA+ to AA-, Pfd-1, P-1 or equivalent	3.0%
A+ to A-, Pfd-2, P-2 or equivalent	5.0%
BBB+ to BBB-, Pfd-3, P-3 or equivalent	10.0%
BB+ to BB-, Pfd-4, P-4 or equivalent	20.0%
B+ or lower, Pfd-5, P-5 or equivalent or unrated	30.0%

**3.4.3 Derivatives**

Capital requirements for derivatives are set out in chapter 7.

**3.4.4 General**

- Where rating information is not available to determine the grade of the counterparty, the counterparty is assigned the riskiest capital factor by type of investment;
- new assets, not currently listed, will be categorized according to their inherent riskiness;
- the total balance sheet value reported in the exhibit "Capital Required for Balance Sheet Assets", on page 30.71 of the P&C-1 Annual Return, is equal to the total assets reported on the balance sheet.

## **3.5 Capital Required – Movable Hypothecs and Guarantees**

This section applies to assets, and to structured settlements, letters of credit, derivatives and other exposures.

### **3.5.1 Movable Hypothecs**

Recognition of movable hypothecs in reducing the capital required for assets, structured settlements, derivatives and other exposures, is limited to cash or securities meeting the “Government Grade” criteria or an A- rating and higher. Where a rating is not available for the asset, exposure, or counterparty where applicable, no reduction in capital required is permitted.

Any movable hypothec must be held throughout the period for which the asset is held or for which the exposure exists. Only that portion of an obligation that is covered by an eligible movable hypothec will be assigned the capital factor given to the movable hypothec.

Collateral held as part of a movable hypothec is subject to the same capital factors as those applied to similar assets owned by the insurer (reference section 3.4)

### **3.5.2 Guarantees**

Investments (principal and interest) or exposures that have been explicitly, directly, irrevocably and unconditionally guaranteed by a guarantor whose long-term issuer credit rating or, in the case of a government, the long-term sovereign credit rating, satisfies the « Government Grade” criteria or an A- rating and higher, may attract the capital factor allocated to a direct claim on the guarantor where the effect is to reduce the risk. Guarantees provided by a related enterprise are not eligible for this treatment on the basis that guarantees within a corporate group are not considered to be a substitute for capital.

Where a rating is not available for the investment, exposure, or guarantor where applicable, no reduction in capital required is permitted.

To be eligible, guarantees should cover the full term of the instrument and be legally enforceable.

Where the recovery of losses on a loan, financial lease agreement, security or exposure is partially guaranteed, only the part that is guaranteed is to be weighted according to the capital factor of the guarantor (see following examples).

#### **3.5.2.1 Public Sector Entities in Competition**

Insurers may not recognize guarantees made by public sector entities, including federal, provincial and territorial governments in Canada, that would disadvantage private sector competition. Insurers should look to the host (sovereign) government to confirm whether a public sector entity is in competition with the private sector.

### 3.5.3 Examples

#### Example 3-1: asset (reference chapter 3)

To record a \$100,000 bond rated AAA due in 10 years that has a government guarantee of 90%, the insurer would report a balance sheet value of \$90,000 ( $\$100,000 \times 90\%$ ) in the “Government Grade” category and a balance sheet value of \$10,000 ( $\$100,000 - \$90,000$ ) in the AAA category under “Term Deposits, Bonds and Debentures - Expiring or redeemable in more than five years”. The capital required in the “Government Grade” category is \$0 ( $\$90,000 \times 0.0\%$ ). The capital required in the AAA category is \$125 ( $\$10,000 \times 1.25\%$ ) for a total capital requirement of \$125. An example of the calculation, assuming no other assets, is provided in the table below.

	Factor (%)	Balance Sheet Value	Capital Required
<b>Investments :</b>			
Term Deposits, Bonds and Debentures :			
Expiring or redeemable in more than five years:			
Government Grade	0.0%	\$90,000	\$0
Rating: AAA	1.25%	\$10,000	\$125
<b>Total</b>		\$100,000	\$125



**Example 3-2: Type 1 structured settlement (reference chapter 7)**

To record a \$300,000 Type 1 structured settlement rated BBB+ and lower, backed by a movable hypothec or by a guarantee of \$200,000 from a counterparty rated A- or higher, the insurer would report a possible credit exposure of \$300,000 and a movable hypothec and guarantees of negative \$200,000 in the BBB+ and lower category, and a movable hypothec and guarantees of \$200,000 in the A- and higher category in Appendix 5 under “Structured Settlements”.

The capital required in the BBB+ and lower category is \$2,000 ( $(\$300,000 - \$200,000) \times 50\% \times 4\%$ ). The capital required in the A- and higher category is \$500 ( $\$200,000 \times 50\% \times 0.5\%$ ) for a total capital requirement of \$2,500. An example of the calculation, assuming no other exposures, is provided in the following table.

	Possible Credit Exposure	Movable Hypothec and Guarantees	Credit Conversion Factor (%)	Capital Factor (%)	Capital Required
	(01)	(02)	(03)	(04)	(05)
<b>Structured Settlements:</b>					
Government Grade					
Rating: A- and higher		\$200,000	50%	0.5%	\$500
Rating: BBB+ and lower	\$300,000	(\$200,000)	50%	4.0%	\$2,000
<b>Total</b>					\$2,500

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## Chapter 4. Policy Liability Risks

### 4.1 Description of Risks for Policy Liabilities

This risk component reflects the insurer's consolidated risk profile by its individual classes of insurance and results in specific margin requirements on policy liabilities. For the MCT, the risk associated with policy liabilities is divided into four parts:

- variation in claims provisions (unpaid claims);
- possible inadequacy of provisions for unearned premiums;
- possible inadequacy of provisions for premium deficiencies;
- occurrence of catastrophes (earthquake and other).

### 4.2 Margins for Unearned Premiums, Unpaid Claims and Premium Deficiencies

Given the uncertainty that balance sheet provisions will be sufficient to cover underlying liabilities, margins are added to cover the potential shortfall. The margins have been established in order to ensure a balance between the recognition of varying risks associated with different classes of insurance and the administrative necessity to minimize the test's complexity.

From the AMF's perspective, these margins are included to take into account possible abnormal negative variations in the provision amounts, given the fact that the margins added by actuaries in their valuations are primarily intended to cover expected variations.

Margins on unearned premiums are applied by class of insurance to the net amount at risk, which is after deducting reinsurance recoverables. The unearned premiums margin is applied to the greater of the net unearned premiums or 50% of the net written premiums in the past 12 months.

Margins on unpaid claims are applied by class of insurance to the net amount at risk (i.e., net of reinsurance, salvage and subrogation, and self-insured retentions) less the provision for adverse deviations ("PfAD").

The margins are as follows:

<b>Class of Insurance</b>	<b>Margin on Unearned Premiums</b>	<b>Margin on Unpaid Claims</b>
Personal property and commercial property	8%	5%
Automobile – Liability and personal accident	8%	10%
Automobile – Other	8%	5%
Liability	8%	15%
Mortgage	Consult the AMF	
Accident and sickness	See Appendix 2	See Appendix 2
All other classes	8%	15%

A margin of 8% applies to premium deficiencies.

### 4.3 Risk Mitigation and Risk Transfer Mechanisms - Reinsurance

The risk of default for recoverables from reinsurers arises from both credit and actuarial risk. Credit risk relates to the risk that the reinsurer will fail to pay the insurer what it is owed. Actuarial risk relates to the risk associated with mis-assessing the amount of the required provision.

#### 4.3.1 Registered Reinsurance

The capital factor applied to recoverables from registered reinsurance agreements is treated as a combined weight under the MCT, reflecting both the credit risk and the risk of variability or insufficiency of unpaid claims and unearned premiums. The registered reinsurance agreement capital factors are as follows:

<b>Balance Sheet Asset</b>	<b>Non-Associated Reinsurer</b>	<b>Associated Reinsurer</b>
Insurance receivables	0.5%	0%
Unearned premiums recoverable	0.5%	0%
Unpaid claims recoverable	2%	0%

### 4.3.2 Unregistered Reinsurance

#### 4.3.2.1 Deduction from Capital Available

Rather than being applied a capital factor to cover the risk of default of the reinsurers, amounts receivable and recoverable from unregistered reinsurance agreements, as reported on the balance sheet, are deducted from capital available to the extent that they are not covered by amounts payable to assuming reinsurers (including funds withheld), non-owned deposits or letters of credit held as security from assuming reinsurers. Amounts payable to assuming reinsurers may be deducted from amounts receivable and recoverable only where there is a legal and contractual right of offset. Insurers are not to include any amounts payable to assuming reinsurers that are associates or non-qualifying subsidiaries.

The deduction is calculated on page 70.38 of the P&C-1, and reported on the line “Assets with a Capital Requirement of 100%” on page 30.70 (section 2.2.1). The amount is the sum, for each of the unregistered reinsurance agreements, of the following calculation where the result is positive:

$$A + B + C - D - E - F$$

where:

- (A) unearned premiums ceded to assuming reinsurer;
- (B) outstanding losses recoverable from assuming reinsurer;
- (C) receivable from assuming reinsurer;
- (D) payable to assuming reinsurer (for insurers holding a charter issued by the province of Québec or by another Canadian jurisdiction, only payables under unregistered reinsurance agreements to non-associated and qualifying unregistered reinsurers are included);
- (E) non-owned deposits or other assets held as security from assuming reinsurer, as an eligible guarantee instrument for reinsurance;
- (F) acceptable letters of credit held as security from assuming reinsurer.

#### 4.3.2.2 Margin Required

The margin for unregistered reinsurance is calculated on page 70.38 and reported on the “Reinsurance Ceded to Unregistered Insurers” line on page 30.70. The margin is 10% of the ceded unearned premiums under unregistered reinsurance agreements and of the outstanding losses recoverable from such agreements. The margin requirement for each unregistered reinsurance agreement may be reduced to a minimum of 0 by letters of credit and by deposits held as security that are in excess of the amounts receivable and recoverable from unregistered reinsurance agreements. The amount of letters of credit and deposits that are in excess must be divided by 1.5 before being applied to the margin.

### 4.3.2.3 Guarantee Instruments

A ceding insurer is given credit for unregistered reinsurance where the insurer obtains and maintains a valid and enforceable guarantee interest (subject to the “eligible guarantee instruments” requirements of section 1.2.2 of this guideline) that has priority over any other security interest in assets of an unregistered reinsurer that are held in Canada, to secure the payment to the ceding insurer by the reinsurer of the reinsurer’s share of any loss or liability for which the reinsurer is liable under the reinsurance agreement.

The assets used to obtain credit for a specific unregistered reinsurance agreement must materially reduce the risk arising from the credit quality of the reinsurer. In particular, the assets used may not be related party obligations of the unregistered reinsurer (i.e. obligations of the reinsurer itself, its parent, or one of its subsidiaries or associates). With respect to the above three sources available to obtain credit, this implies that:

- to the extent that a ceding insurer is reporting obligations due from a related party of the reinsurer as assets in its annual return, the ceding insurer is precluded from taking credit for funds held to secure payment from an unregistered reinsurer;
- assets located in Canada in which a ceding insurer has a valid and perfected first priority security interest under applicable law, may not be used to obtain credit if they are obligations of a related party of the unregistered reinsurer;
- a letter of credit is not acceptable if it has been issued by a related party of the unregistered reinsurer.

Letters of credit held as guarantee against unregistered reinsurance are considered a direct credit substitute and are subject to a 0.5% capital factor (reference chapter 7). Where a letter of credit is issued or confirmed by a related enterprise of a ceding insurer, no reduction in capital required is permitted.

Eligible guarantee instruments other than letter of credits, such as non-owned deposits, held as guarantee against unregistered reinsurance, are subject to the same capital factors as those applied to similar assets owned by the insurer (reference section 3.4).

The capital requirement for both letters of credit and other eligible guarantee instruments is reported under “Risks Associated with Structured Settlements, Letters of Credit, Derivatives and Other Exposures”. Appendix 5 can be used to calculate the total capital requirement for structured settlements, letters of credit, derivatives and other exposures.

Capital requirements for eligible guarantee instruments associated with unregistered reinsurance are calculated on an aggregate basis using applicable capital factors, on the total amount of letters of credit and other eligible guarantees from all reinsurers.

However, letters of credit and other eligible guarantees held that are greater than 100% of the unregistered requirements are considered excess guarantees and are not subject to a capital factor. Where appropriate, the total amount of capital required for the guarantees is pro-rated in order to exclude capital otherwise required on the excess portion of guarantees (Refer to examples 4-1 and 4-2).

**Example 4-1: computation of excess guarantees**

<b>Reinsurance Ceded Under Unregistered Reinsurance Agreements</b>	<b>Amount (\$)</b>
Unearned premiums ceded to assuming reinsurer	100
Outstanding losses recoverable from assuming reinsurer	500
10% margin on unearned premiums and outstanding losses recoverable	60
Receivable from assuming reinsurer	40
Payable to assuming reinsurer	(20)
<b>Unregistered reinsurance exposure</b>	<b>680</b>
Guarantees required to reduce margin required to 0 (500 + 100) x 115% + 40 - 20	710
Non-owned deposits	1,000
Letters of credit	100
<b>Total guarantees</b>	<b>1,100</b>
<b>Excess guarantees</b> (no capital required on this amount) 1,100-710	<b>390</b>

**Example 4-2: reduction in capital required for excess guarantees**

Using the above example, the ratio of 0.35 (390/1,100) should be applied to the total amount of capital required on guarantees, in order to calculate the capital requirement on guarantees excluding the excess portion. The calculation is provided in the following table.

	<b>Guarantee amount</b>	<b>Capital factor</b>	<b>Total capital required</b>	<b>Proportional allocation of excess guarantees</b>	<b>Reduction in capital required for excess guarantees</b>
	(01)	(02)	(03)=(01)x(02)	(04)	(05)=(03)x(04)
<b>Letters of credit</b>	\$100	0.50%	\$0.50		
<b>Non-owned deposits</b> (AAA bonds ≤1 year)	\$500	0.25%	\$1.25		
<b>Non-owned deposits</b> (AA bonds >1 year ≤5 years)	\$500	1.00%	\$5.00		
<b>Total</b>	\$1,100		\$6.75	0.35	\$2.36

**4.3.2.4 Letters of Credit**

The limit on the use of letters of credit to obtain credit for unregistered reinsurance is 30% of ceded unearned premiums under unregistered reinsurance agreements and of the outstanding losses recoverable from such agreements. The limit is applied in the aggregate and not against individual reinsurance exposures.

**4.3.2.5 Non-Owned Deposits from Reinsurers Held as Security**

Deposits from reinsurers received under unregistered reinsurance agreements and that are “not owned” by the insurer, including deposits held in trust on behalf of reinsurers, are not to be reported on the insurer's balance sheet. Details of these deposits must be reported in the unregistered reinsurance exhibit, page 70.38 of the P&C-1 Annual Return.

Non-owned deposits held as security on behalf of an unregistered assuming reinsurer must be valued at market value as at the end of the statement year, including the amount of investment income due and accrued respecting these deposits.

## 4.4 Self-Insured Retentions

Self-insured retention (“SIR”) represents the portion of a loss that is payable by the policyholder. In some cases, SIRs may be included in the policy declaration or in an endorsement to the policy, stipulating that the policy limit applies in excess of the SIR.

To admit SIRs recoverable for statutory capital purposes, the AMF must be satisfied with the collectability of recoverables, and may require collateral to ensure collectability. For example, collateral may be required when it is deemed that there is an excessive concentration of SIRs owed by any one debtor. SIRs amounts not admitted (deducted from capital available) must be reported on line 88, page 30.71.

Letters of credit for SIRs are considered a direct credit substitute and are subject to a 0.5% capital factor (reference chapter 7). Where a letter of credit is issued or confirmed by a related enterprise of a ceding insurer, no reduction in capital required is permitted. Capital factors for collateral other than letters of credit are the same as those applied to similar assets owned by the insurer (reference section 3.4).

## 4.5 Catastrophes

Refer to the AMF’s Sound Management and Measurement of Earthquake Exposure Guideline.

## 4.6 Other Classes

### *Accident and Sickness Insurance*

For this class, refer to the calculation of the margin requirement set forth in appendices 2 and 3. The amount of this margin requirement is to be included in the amount of the capital required for unearned premiums and unpaid claims (page 30.70, line 22).

### *Mortgage Insurance*

Consult the AMF.



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## Chapter 5. Interest Rate Risk

Interest rate risk represents the risk of economic loss resulting from market changes in interest rates and the impact on interest rate sensitive assets and liabilities. Interest rate risk arises due to the volatility and uncertainty of future interest rates.

Assets and liabilities whose value depends on interest rates are affected. The interest rate sensitive assets include fixed income assets. The interest sensitive liabilities include those for which the values are determined using a discount rate.

To compute the interest rate risk margin, a duration and an interest rate shock factor are applied to the fair value of interest rate sensitive assets and liabilities. The interest rate risk margin is the difference between the change in the value of interest rate sensitive assets and the change in the value of interest rate sensitive liabilities, taking into account the change in the value of recognized interest rate derivative contracts, as appropriate.

### 5.1 General Requirements

The components used to calculate the interest rate risk margin are as follows.

#### 5.1.1 Interest Rate Sensitive Assets

The interest rate sensitive assets to be included in the interest rate margin requirement are those for which their fair value will change with movements in interest rates. Although certain assets, for example loans and bonds held to maturity, may be reported on the balance sheet on an amortized cost basis, their economic value, and changes in that value, are to be considered for interest rate risk margin purposes. Interest rate sensitive assets include the following:

- term deposits and other similar short-term securities (excluding cash);
- bonds and debentures;
- commercial paper;
- loans;
- mortgages (residential and commercial);
- mortgage-backed and asset-backed securities (MBS and ABS);
- preferred shares;
- interest rate derivatives held for other than hedging purposes.

Investments in mutual funds and segregated funds should be viewed on a “look through” basis with regard to the underlying assets. The assets in the fund that are interest rate sensitive are to be included in the determination of the fair value of the insurer’s total interest rate sensitive assets.

Other assets, such as cash, investment income due and accrued, common shares and investment properties, are not to be included in the determination of the value of interest rate sensitive assets. Such assets are assumed for interest rate risk margin determination purposes to be insensitive to movements in interest rates.

## **5.1.2 Interest Rate Sensitive Liabilities**

The interest rate sensitive liabilities to be included in the interest rate risk margin requirement are those for which their fair value will change with movements in interest rates. The following liabilities are considered sensitive to interest rates and are to be included:

- net unpaid claims and adjustment expenses;
- net premium liabilities.

The net premium liabilities are those determined in a manner consistent with the valuation of premium liabilities in the Canadian Institute of Actuaries (“CIA”) standards for valuation of policy liabilities. The net premium liabilities are equal to the present value, at the balance sheet date, of cash flows on account of premium development and of the claims, expenses and taxes to be incurred after that date on account of the policies in force at that date, after reinsurance recoverable. In other words, they are the actuary’s estimate of net policy liabilities in connection with unearned premiums disclosed in the table entitled “Premium Liabilities” from the expression of opinion included in the Report on P&C insurer policy liabilities.

## **5.1.3 Allowable Interest Rate Derivatives**

Interest rate derivatives are those for which the payoffs are dependent on future interest rates. They may be used to hedge a P&C insurer’s interest rate risk and as such may be recognized in the determination of the margin required for interest rate risk, subject to the conditions below.

Only plain-vanilla interest rate derivatives that clearly serve to offset fair value changes in an insurer’s capital position due to changes in interest rates may be included in the interest rate risk calculation. Plain-vanilla interest rate derivative instruments are limited to the following:

- interest rate and bond futures;
- interest rate and bond forwards;
- single-currency interest rate swaps.

Other interest rate derivatives, including interest rate options, caps and floors are not considered plain-vanilla and are not to be recognized in the determination of the interest rate risk margin requirement.

Insurers must understand the interest rate hedging strategies that they have in place and be able to demonstrate to the AMF, upon request, that the underlying hedges decrease interest rate risk and that the addition of such derivatives does not result in overall increased risk. For example, insurers are expected to be able to demonstrate that they have defined the hedging objectives, the class of risk being hedged, the nature of the risk being hedged, the hedge horizon and have considered other factors, such as the cost and liquidity of the hedging instruments. In addition, the ability to demonstrate an assessment, retrospectively or prospectively, of the performance of the hedge would be appropriate. If the insurer cannot demonstrate that the derivatives result in decreased overall risk, then additional capital may be required, and insurers in this situation should contact the AMF for details.

#### **5.1.4 Duration of Interest Rate Sensitive Assets and Liabilities**

Insurers are required to calculate the duration of the interest rate sensitive assets and liabilities for purposes of the interest rate risk capital requirement. The duration of an asset or liability is a measure of the sensitivity of the value of the asset or liability to changes in interest rates. More precisely, it is the percentage change in asset or liability value given a change in interest rates.

The calculation of duration for an asset or liability will depend on the duration measure chosen and whether the cash flows of the asset or liability are themselves dependent on interest rates. Modified duration is a duration measure in which it is assumed that interest rate changes do not change the expected cash flows. Effective duration is a duration measure in which recognition is given to the fact that interest rate changes may change the expected cash flows.

An insurer may use either modified duration or effective duration to calculate the duration of its assets and liabilities. However, the duration methodology chosen should apply to all interest rate sensitive assets and liabilities under consideration and the same methodology is to be used consistently from year to year (i.e. no “cherry-picking”).

The cash flows associated with interest rate derivatives are sensitive to changes in interest rates and therefore the duration of an interest rate derivative must be determined using effective duration. In particular, if an insurer has interest rate derivatives on its balance sheet that lie within the scope of section 5.1.3, then it must use effective duration for all of its interest rate sensitive assets and liabilities.

The portfolio duration (modified or effective) can be obtained by calculating the weighted average of the duration of the assets or liabilities in the portfolio.

The dollar duration of an asset or liability is the change in dollar value of an asset or liability for a given change in interest rates.

### 5.1.4.1 Modified Duration

Modified duration is defined as the approximate percentage change in the present value of cash flows for a 100 basis point change in interest rates assuming that the expected cash flows do not change when the interest rates change.

Modified duration can be written as:

$$\text{Modified duration} = \frac{1}{(1+\text{yield}/k)} \times \frac{1 \times \text{PVCF}_1 + 2 \times \text{PVCF}_2 + \dots + n \times \text{PVCF}_n}{k \times \text{Market Value}}$$

where:

- $k$ : number of periods, or payments, per year (e.g.,  $k = 2$  for semi-annual payments and  $k = 12$  for monthly payments)
- $n$ : number of periods until maturity (i.e. number of years to maturity times  $k$ )
- yield: market value yield to maturity of the cash flows
- $\text{PVCF}_t$ : present value of the cash flow in period  $t$  discounted at the yield to maturity

### 5.1.4.2 Effective Duration

Effective duration is a duration measure in which recognition is given to the fact that interest rate changes may change the expected cash flows. Although modified duration will give the same estimate of the percentage fair value change for an option-free series of cash flows, the more appropriate measure for any series of cash flows with an embedded option is effective duration.

Effective duration is determined as follows:

$$\text{Effective duration} = \frac{\text{Fair value if yields decline} - \text{Fair value if yields rise}}{2 \times (\text{initial price}) \times (\text{change in yield in decimal})}$$

Denoting:

- $\Delta y$ : change in yield in decimal
- $V_0$ : initial fair value
- $V_-$ : fair value if yields decline by  $\Delta y$
- $V_+$ : fair value if yields increase by  $\Delta y$

Then, effective duration is as follows:

$$\frac{V_- - V_+}{2 \times (V_0) \times (\Delta y)}$$

### 5.1.4.3 Portfolio Duration

The duration of a portfolio of interest rate sensitive assets or liabilities is to be determined by calculating the weighted average of the duration of the assets or liabilities in the portfolio. The weight is the proportion of the portfolio that a security comprises. Mathematically, a portfolio's duration is calculated as follows:

$$w_1D_1 + w_2D_2 + w_3D_3 + \dots + w_KD_K$$

where:

- $w_i$ : fair value of security  $i$  / fair value of the portfolio
- $D_i$ : duration of security  $i$
- $K$ : number of securities in the portfolio

### 5.1.4.4 Dollar Fair Value Change

Modified and effective duration are related to percentage fair value changes. The interest rate risk capital requirements depend on determining the adjustment to the fair value of interest rate sensitive assets and liabilities for dollar fair value changes. The dollar fair value change can be measured by multiplying duration by the dollar fair value and the number of basis points (in decimal form). In other words:

$$\text{Dollar fair value change} = \text{duration} \times \text{dollar fair value} \times \text{interest rate change (in decimal)}$$

### 5.1.5 Duration of Allowable Interest Rate Derivatives

Effective duration is the appropriate measure that should be used when assets or liabilities have embedded options. For portfolios with eligible plain-vanilla interest rate derivatives, since the insurer is hedging the dollar interest rate risk exposure, it is the effective dollar duration<sup>9</sup> that should be used.

#### Example 5-1: effective dollar duration of a swap

Assuming an insurer has a longer duration for its interest rate sensitive assets and a shorter duration for its interest rate sensitive liabilities, the current dollar duration position of the insurer, prior to taking into consideration any interest rate derivatives, is effectively as follows:

$$\text{Insurer's dollar duration} = \text{dollar duration of assets} - \text{dollar duration of liabilities} > 0$$

The insurer enters into a single-currency interest rate swap in which it pays fixed-rate and receives floating-rate. The dollar duration of a swap for a fixed-rate payer can be broken down as follows:

<sup>9</sup> Effective dollar duration is the fair value change in dollars for a unit change in the yield (per one percentage point or per one basis point).

Effective dollar duration of a swap for a fixed-rate payer = effective dollar duration of a floating-rate bond – effective dollar duration of a fixed rate bond

Assuming the dollar duration of the floater is near zero, then:

Effective dollar duration of a swap for a fixed-rate payer = 0 – effective dollar duration of a fixed-rate bond

The dollar duration of the swap position is negative; therefore, adding the swap position reduces the insurer's dollar duration of assets and moves the insurer's overall dollar duration position closer to zero.

## 5.2 Interest rate Risk Margin

The interest rate risk margin is determined by measuring the economic impact on the insurer of a  $\Delta y$  change in interest rates. The AMF will phase-in the magnitude of the interest rate shock factor. Effective January 1, 2013, the  $\Delta y$  interest rate shock factor is 0.75% ( $\Delta y = 0.0075$ ).

- (A) The estimated change in the interest sensitive asset portfolio for an interest rate increase of  $\Delta y$  is determined as follows:

Dollar fair value change of the interest rate sensitive asset portfolio = (Duration of interest rate sensitive asset portfolio)  $\times \Delta y \times$  (Fair value of interest rate sensitive asset portfolio)

- (B) The change in the interest rate sensitive liabilities for an interest rate increase of  $\Delta y$  is determined as follows:

Dollar fair value change of interest rate sensitive liabilities = (Duration of interest rate sensitive liabilities)  $\times \Delta y \times$  (Fair value of interest rate sensitive liabilities)

- (C) The change in the allowable interest rate derivatives for an interest rate increase of  $\Delta y$  is determined as follows:

Effective dollar duration of the allowable interest rate derivatives portfolio = Sum of the effective dollar duration of the allowable interest rate derivatives for a  $\Delta y$  increase in interest rates

- (D) The capital requirement for an interest rate increase of  $\Delta y$  is determined as the greater of zero and  $A - B + C$ .

- (E) Steps A through C are repeated for an interest rate decrease of  $\Delta y$  (i.e.  $-\Delta y$ ) and the capital requirement for an interest rate decrease of  $\Delta y$  is the greater of zero and  $A - B + C$ .

- (F) The interest rate risk margin is then determined as the maximum of D or E.

Refer to Appendix 4 to calculate the interest rate risk margin from the interest rate shock factor increase and decrease.

## **Chapter 6. Foreign Exchange Risk**

This chapter was intentionally left blank. Foreign exchange risk capital requirement will be specified later.

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## Chapter 7. Risks Associated with Structured Settlements, Letters of Credit, Derivatives and Other Exposures

### 7.1 Description of risks for structured settlements, letters of credit, derivatives and other exposures

This section applies to counterparty risk exposures not covered by the treatment for assets.

The capital required for structured settlements, letters of credit, derivatives and other exposures is calculated in a manner similar to the on-balance sheet assets in that the credit risk exposure is multiplied by a counterparty risk factor to arrive at the capital required. However, unlike most assets, the face amount of structured settlements, letters of credit, derivatives and other exposures does not necessarily reflect the amount of the credit risk exposure. To approximate this credit risk exposure, the face amount/cost of the instrument, net of any collateral or guarantees, is multiplied by a credit conversion factor. The determination of the counterparty risk categories and the approach for determining the eligibility of collateral and guarantees is the same as it is for other assets.

The risk to a P&C insurer associated with structured settlements, letters of credit, derivatives and other exposures and the amount of capital required to be held against this risk is:

- the value of the instrument (Possible Credit Exposure) at the reporting date;
- less: the value of eligible movable hypothec or guarantees (Movable Hypothecs and Guarantees; reference section 3.5);
- multiplied by: a factor reflecting the nature and maturity of the instrument (Credit Conversion Factors);
- multiplied by: a factor reflecting the risk of default of the counterparty to a transaction (Risk Factors).

Refer to Appendix 5, Worksheet - Capital Required - Structured Settlements, Derivatives, Letters Of Credit, and Other Exposures.

### 7.2 Possible Credit Exposure

The possible credit exposure related to structured settlements, letters of credit, derivatives and other exposures varies depending on the type of instrument.

#### 7.2.1 Structured Settlements

The possible credit exposure for a structured settlement is the current replacement cost of the instrument.



Instruments included in this section are primarily “Type 1” structured settlements that are not recorded as liabilities on the balance sheet.

Type 1 structured settlements have the following characteristics:

- an annuity is purchased by a P&C insurer who is named as the owner. There is an irrevocable direction from the insurer to the annuity underwriter to make all payments directly to the claimant;
- since the annuity is non-commutable, non-assignable and non-transferable, the insurer is not entitled to any annuity payments and there are no rights under the contractual arrangement that would provide any current or future benefit to the insurer;
- the insurer is released by the claimant to evidence settlement of the claim amount;
- the insurer remains liable to make payments to the claimant in the event and to the extent the annuity underwriter fails to make payments under the terms and conditions of the annuity and the irrevocable direction given.

Under this type of structured settlement arrangement, the insurer does not have to recognize a liability to the claimant, nor does it have to recognize the annuity as a financial asset. However, the insurer is exposed to credit risk by guaranteeing the obligation of the annuity underwriter to the claimant.

For details on the types of structured settlements, insurers should refer to Special Topics, section IV of the Instructions to the P&C-1.

## **7.2.2 Letters of Credit and Other Collateral**

The possible credit exposure for a letter of credit is the face value of the instrument.

Letters of credit may include, for example:

- letters of credit serving as direct credit substitutes backing financial claims where the risk of loss to the insurer is directly dependent on the creditworthiness of the counterparty;
- letters of credit acting as transaction-related contingencies associated with the ongoing business activities of a counterparty where the risk of loss to the P&C insurer depends on the likelihood of a future event that is independent of the creditworthiness of the counterparty.

Collateral other than letters of credit, such as non-owned deposits used to reduce unregistered reinsurance margin are also considered credit substitutes backing financial claims.

### 7.2.3 Derivatives

The possible credit exposure for derivatives is the positive replacement cost (obtained by marking to market) plus an amount for potential future credit exposure (an “add-on” factor).

Derivatives include forwards, futures, swaps, purchased options, and other similar contracts. Insurers are not exposed to credit risk for the full face value of these contracts (notional principal amount), only to the potential cost of replacing the cash flow (on contracts showing a positive value) if the counterparty defaults. Instruments traded on exchanges are excluded where they are subject to daily receipt and payment of cash variation margins.

The possible credit exposure depends on the maturity of the contract and the volatility of the underlying instrument. It is calculated by adding:

- the total replacement cost (obtained by marking to market) of all contracts with positive values; and
- an amount for potential future credit exposure (or “add-on”). This is calculated by multiplying the notional principal amount by the following “add-on” factors.

<b>Residual Maturity</b> (01)	<b>Interest Rate</b> (02)	<b>Exchange Rate</b> (03)	<b>Equity</b> (04)	<b>Other Instruments</b> (05)
One year or less	0.0%	1.0%	6.0%	10.0%
Over one year	0.5%	5.0%	8.0%	12.0%

For contracts that are structured to settle outstanding exposures following specified payment dates, and where the terms are reset so that the market value of the contract is zero on these specified dates, the residual maturity is considered to be the time until the next reset date. In the case of interest rate contracts with residual maturities of more than one year that also meet the above criteria, the add-on factor is subject to a floor of 0.5%.

The notional principal amount is:

- the stated notional amount, except where the stated notional amount is leveraged or enhanced by the structure of the transaction. In these cases, insurers must use the actual or effective notional amount when determining potential future exposure<sup>10</sup>;
- nil, where the credit exposure on single currency floating/floating interest rate swaps would be evaluated solely on the basis of their marked-to-market value;

<sup>10</sup> For example, if a stated notional amount is based on a specified parameter (e.g. LIBOR), but has actual payments calculated at two-times that parameter, the amount for potential future credit exposure is based on twice the stated notional amount.

- for contracts with multiple exchanges of principal, the sum of the remaining payments.

Contracts not covered by columns 2 to 4 in the above table are to be treated as “Other Instruments” for the purpose of determining the “add-on” factor.

## **7.2.4 Other Exposures**

This section includes any other exposures not covered above. Some examples are provided below.

### **7.2.4.1 Commitments**

A commitment involves an obligation (with or without a material adverse change clause or similar clause) of the insurer to fund its customer in the normal course of business should the customer seek to draw down the commitment. This includes:

- extending credit in the form of loans or participations in loans, lease financing receivables, mortgages, letters of credit, guarantees or loan substitutes; or
- purchasing loans, securities, or other assets.

Normally, commitments involve a written contract or agreement and a commitment fee or some other form of consideration.

The maturity of a commitment should be measured from the date when the commitment was accepted by the customer, regardless of whether the commitment is revocable or irrevocable, conditional or unconditional, until the earlier of the following two dates:

- the date on which the commitment is scheduled to expire; or
- the date on which the insurer can, at its option, unconditionally cancel the commitment.

### **7.2.4.2 Repurchase and Reverse Repurchase Agreements**

A securities repurchase (repo) is an agreement whereby a transferor agrees to sell securities at a specified price and repurchase the securities on a specified date and at a specified price. Since the transaction is regarded as a financing for accounting purposes, the securities remain on the balance sheet. Given that these securities are temporarily assigned to another party, the capital factor accorded to the asset should be the higher of the factor of the security and the factor of the counterparty to the transaction (net of any eligible movable hypothec).

A reverse repo agreement is the opposite of a repo agreement, and involves the purchase and subsequent sale of a security. Reverse repos are treated as collateralized loans, reflecting the economic reality of the transaction. The risk is therefore to be measured as an exposure to the counterparty. Where the asset temporarily acquired is a security that attracts a lower capital factor, this would be recognized as collateral and the factor would be reduced accordingly.

### 7.2.4.3 Guarantees provided in securities lending

In securities lending, insurers can act as principal to the transaction by lending their own securities or as agent by lending securities on behalf of clients. When the insurer lends its own securities, the capital factor is the higher of:

- the capital factor related to the instruments lent; or
- the capital factor for an exposure to the borrower of the securities. The exposure to the borrower may be reduced if the insurer holds an eligible movable hypothec (reference section 3.5.1). Where the insurer lends securities through an agent and receives an explicit guarantee of the return of the securities, the insurer may treat the agent as the borrower subject to the conditions in section 3.5.2.

When the insurer, acting as agent, lends securities on behalf of a client and guarantees that the securities lent will be returned or the insurer will reimburse the client for the current market value, the insurer should calculate the capital requirement as if it were the principal to the transaction. The capital factor is that for an exposure to the borrower of the securities, where the exposure amount may be reduced if the insurer holds an eligible movable hypothec (reference section 3.5.1).

For details on how to record these and other such exposures, contact the AMF. In addition, insurers should refer to any other applicable guidelines.

## 7.3 Credit Conversion Factors

Separate credit conversion factors exist for structured settlements, letters of credit, derivatives and other exposures.

For other exposures, the weighted average of the credit conversion factors, described below, for all of these instruments held by the insurer, should be entered in the appropriate cell in the Appendix 5.

### *100% Factor*

- Guarantees, letters of credit, or other similar irrevocable obligations used as financial guarantees. Generally, these are considered direct credit substitutes where the risk of loss to the insurer is directly dependent on the creditworthiness of the counterparty;
- commitments that mature in one year or more, where the insurer cannot cancel or withdraw the commitment at any time without notice and where their drawdown is certain;

- derivatives such as forwards, futures, swaps, purchased options (including options purchased over the counter) and other similar derivative contracts, including:
  - ❑ interest rate contracts (single currency interest rate swaps, basis swaps, forward rate agreements and products with similar characteristics, interest rate futures, interest rate options purchased, and similar derivative contracts based on specific parameters or on indices, etc.);
  - ❑ equity contracts (forwards, swaps, purchased options, and similar derivative contracts based on specific parameters or on indices, etc.);
  - ❑ exchange rate contracts (gold contracts, cross-currency swaps, cross-currency interest rate swaps, outright forward foreign exchange contracts, currency futures, currency options purchased, and similar derivative contracts based on specific parameters or on indices, etc.);
  - ❑ precious metals (except gold) and other commodity contracts (forwards, swaps, purchased options, and similar derivative contracts based on specific parameters or on indices, etc.);
  - ❑ other derivative contracts based on specific parameters or on indices (such as catastrophe insurance options and futures).
- forward asset purchases including a commitment to purchase a loan, security or other asset at a specified future date, usually on prearranged terms;
- sale and repurchase agreements;
- all other exposures not contemplated elsewhere (provide details).

### *50% Factor*

- Structured settlements that are not recorded as liabilities on the balance sheet (refer to Type 1 structured settlements characteristics and to Section IV, *Special Topics*, of the Instructions to the P&C-1);
- performance-related and non-financial guarantees such as performance-related standby letters of credit (e.g. representing obligations backing the performance of non-financial or specific commercial contracts or undertakings, but not general financial obligations). Performance-related guarantees exclude items relating to non-performance of financial obligations;
- commitments that mature in one year or more, where the insurer cannot cancel or withdraw the commitment at any time without notice and where their drawdown is uncertain.

## *0% Factor*

- Commitments that mature in less than one year and other commitments where the insurer has full discretion to unconditionally cancel or withdraw the commitment at any time without notice.<sup>11</sup>

## **7.4 Capital Factors**

Structured settlements, letters of credit, derivatives and other exposures are assigned a capital factor ranging from 0% to 8.0%, subject to their counterparty risk rating (reference chapter 3). The factors to be applied are:

### *0% Factor*

- Exposures rated “Government Grade”.

### *0.5% Factor*

- Structured settlements rated A- and higher;
- letters of credit acceptable to the AMF and received from a reinsurer with respect to an unregistered reinsurance agreement or from a policyholder for self-insured retention (chapter 4 and Appendix 5);
- derivatives rated A- and higher.

### *2% Factor*

- Other exposures rated A- and higher.

### *4% Factor*

- Structured settlements rated BBB+ and lower;
- derivatives rated BBB+ and lower.

### *8% Factor*

- Other exposures rated BBB+ and lower.

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<sup>11</sup> Other than any notice required under legislation or court rulings that require notice.

**Appendix 1: Worksheet – Assets with a Capital Requirement of 100%**

(in thousands of dollars)

<b>Asset</b>	<b>Amount</b>
Amounts receivable and recoverable from unregistered reinsurance agreements not covered by amounts payable to assuming reinsurers or by eligible guarantee instruments from assuming reinsurers	
Interest in non-qualifying subsidiaries	
Interest in associates	
Interest in joint ventures with more than a 10% ownership	
Loans considered capital to non-qualifying subsidiaries	
Loans considered capital to associates	
Loans considered capital to joint ventures with more than a 10% ownership	
Deferred policy acquisition expenses that are not eligible for either the 0% capital factor or the 35% capital factor	
Net after-tax impacts of shadow accounting if the insurer has elected to use the shadow accounting option within IFRS	
Deferred tax assets that are not eligible for the 0% capital factor	
Goodwill and other intangible assets	
Other assets greater than 1% of total assets (other assets less than or equal to 1% of total assets, 35% capital factor)	
Self-insured retentions, included in other recoverables on unpaid claims, where the AMF requires collateral and no collateral has been received	
Net defined benefit pension plan asset, net of any associated deferred tax liability, and net of any amount of owned defined benefit pension plan surplus assets	
Other assets (as deemed required by the AMF)	
<b>Total</b>	

Note: This worksheet may be used to calculate assets with a capital requirement of 100%. The worksheet does not need to be filed with the AMF, although the AMF may ask for details supporting the amounts reported in the MCT.

## Appendix 2: Instructions – Capital Required – Accident and Sickness Insurance

Mortality/morbidity risk for accident and sickness insurance is the risk that assumptions about mortality and morbidity will be wrong.

To compute the mortality/morbidity component, a factor is applied to the measure of exposure to risk. The resulting values are added to arrive at the Unearned Premium and Unpaid Claims margin requirements.

The factors used in deriving the risk component vary with the guaranteed term remaining in the exposure measure. The measure of the exposure to risk is as follows:

<b>Risk</b>	<b>Measure of Exposure (before reinsurance)</b>	<b>Applicable Guaranteed Term</b>
Disability Income, New Claims Risk	Annual net earned premiums	The length of the premium guarantee remaining
Disability Income, Continuing Claims Risk	Disability income net reserves relating to claims of prior years	The length of the benefit period remaining
Accidental Death and Dismemberment	Net amount at risk = the total face amount of insurance less policy reserves (even if negative)	The period over which the mortality cost cannot be changed (limited to the remaining period to expiry or maturity)

### Disability Income Insurance

The additional risks associated with non-cancellable guaranteed premium business should be recognized. As well, significant volatility is characteristic of disability income insurance, as compared with medical and dental insurance.



*New Claims Risk*

The unearned premium component relates to claims arising from the current year's coverage, and includes the risks of incidence and claims continuance. The factor applied to the measure of exposure is as follows:

Percentage of Annual Earned Premiums <sup>12</sup>		Length of the Premium Guarantee Remaining
Individually Underwritten	Other	
12%	12%	Less than or equal to 1 year
20%	25%	Greater than 1 year, but less than or equal to 5 years
30%	40%	Greater than 5 years

*Continuing Claims Risk*

The unpaid claims component covers the risk of claims continuance arising from coverage provided in prior years. The factor applies to disability income claim reserves related to claims incurred in prior years, including the portion of the provision for incurred but unreported claims. The factor applied to the measure of exposure is as follows:

Duration of Disability			Length of Benefit Period Remaining
Less than or equal to 2 years	Greater than 2 years but less than or equal to 5 years	Greater than 5 years	
4.0%	3.0%	2.0%	Less than or equal to 1 year
6.0%	4.5%	3.0%	Greater than 1 year but less than or equal to 2 years
8.0%	6.0%	4.0%	Greater than 2 years or lifetime

<sup>12</sup> For travel insurance, annual earned premiums should be considered revenue premiums.

## Accidental Death and Dismemberment

To compute the components for accidental death and dismemberment, the following factors are applied to the net amount at risk:

Type		Factor	Guaranteed Term Remaining
<b>Participating</b>	Group	0.015%	Less than or equal to 1 year
	All other	0.030%	All
<b>Non-participating</b>  <i>Individual</i>	Adjustable	0.030%	All
	All other	0.015%	Less than or equal to 1 year
		0.030%	Greater than 1 year but less than or equal to 5 years
		0.060%	Greater than 5 years, whole life, and all life insurance continued on disabled lives without payment of premiums
<b>Non-participating</b>  <i>Group</i>	All	0.015%	Less than or equal to 1 year
		0.030%	Greater than 1 year but less than or equal to 5 years
		0.060%	Greater than 5 years, whole life, and all life insurance continued on disabled lives without payment of premiums

For participating business without meaningful dividends, and participating adjustable policies where mortality adjustability is not reasonably flexible, the factors for all other non-participating business should be used.

If current premium rates are significantly less than the maximum guaranteed premium rates, the guarantee term used is that applicable to the current rates.

Additional adjustments are accorded group insurance. They are as follows:

- the above factors may be multiplied by 50% for any group benefit that carries one of the following features: 1) a “guaranteed no risk”; 2) deficit repayment by policyholders, or 3) “hold harmless” agreement where the policyholder has a legally enforceable debt to the insurer;
- no component is required for “Administrative services only” group cases where the insurer has no liability for claims.

Only “all cause” policies solicited by mail should be included in this section for automobile and common carrier accidental death and dismemberment. Specific accident perils accidental death and dismemberment in policies solicited by mail, and “free” coverages on premium credit card groups, should be included in the “Other Accident and Sickness Benefits” section.

## **Other Accident and Sickness Benefits**

### *New Claims Risk*

The component requirement is 12% of annual earned premiums.

### *Continuing Claims Risk*

The component requirement is 10% of the provision for unpaid claims relating to prior years. The use of prior years avoids a double component requirement for unpaid claims arising from coverage purchases by premiums paid in the current year.

### *Special Policyholder Arrangements*

For group insurance policies, deposits in excess of liabilities may be used to reduce the component requirement to a minimum of zero. Such deposits must be: made by policyholders; available for claims payment (e.g. claim fluctuation and premium stabilization reserves, and accrued provision for experience refunds); and returnable, net of applications, to policyholders on policy termination.

### Appendix 3: Worksheet – Capital Required – Accident and Sickness Insurance

(In thousands of dollars)

	01	02	03
	<b>Earned Premiums</b>	<b>Factor</b>	<b>Margin</b>
<b>A. Unearned Premium Margin</b>			
(i) Disability Income Insurance			
Length of premium guarantee remaining			
Individually underwritten			
< 1 year		12.0%	
1 – 5 years		20.0%	
> 5 years		30.0%	
Other			
< 1 year		12.0%	
1 – 5 years		25.0%	
> 5 years		40.0%	
(ii) Accidental Death and Dismemberment			
Note			
(iii) Other Accident and Sickness Benefits			
12.0%			
<b>Total Unearned Premium Margin</b>			

	01	02	03
	<b>Unpaid Claims (prior years)</b>	<b>Factor</b>	<b>Margin</b>
<b>B. Unpaid Claims Margin</b>			
(i) Disability Income Insurance			
Duration of disability < 2 years			
Length of benefit period remaining			
< 1 year		4.0%	
1 – 2 years		6.0%	
> 2 years		8.0%	
Duration of disability 2 - 5 years			
Length of benefit period remaining			
< 1 year		3.0%	
1 – 2 years		4.5%	
> 2 years		6.0%	
Duration of disability > 5 years			
Length of benefit period remaining			
< 1 year		2.0%	
1 – 2 years		3.0%	
> 2 years		4.0%	
(ii) Accidental Death and Dismemberment			
Note			
(iii) Other Accident and Sickness Benefits			
10.0%			
Other Adjustments			
<b>Total Unpaid Claims Margin</b>			

Note: This worksheet may be used to calculate capital required for accident and sickness insurance. The worksheet does not need to be filed with the AMF, although the AMF may ask for details supporting the amounts reported in the MCT.

### Appendix 4: Worksheet – Capital required – Interest Rate Risk

(In thousands of dollars)

	Fair Value (01)	Modified or Effective Duration (02)	Dollar Fair Value Change (03) = (01)x(02)x $\Delta y$	Dollar Fair Value Change (04)=(01)x(02)x(- $\Delta y$ )
<b>Interest Rate Sensitive Assets</b>				
Term deposits				
Bonds and Debentures				
Commercial paper				
Loans				
Mortgages				
Mortgage backed and asset backed securities				
Preferred shares				
Other				
<b>Total</b>			<b>A</b>	<b>A</b>
<b>Interest Rate Sensitive Liabilities</b>				
Net unpaid claims and adjustment expenses				
Net premium liabilities				
<b>Total</b>			<b>B</b>	<b>B</b>
<b>Allowable Interest Rate Derivatives</b>	<b>Notional Value</b> (01)	<b>Effective Duration</b> (02)	<b>Dollar Fair Value Change (<math>\Delta y</math>)</b> (03)	<b>Dollar Fair Value Change (-<math>\Delta y</math>)</b> (04)
Long positions				
Short positions				
<b>Total</b>			<b>C</b>	<b>C</b>
<b>Capital Requirement for <math>\Delta y</math> Shock Increase</b>			<b>D = Maximum (0, A - B + C)</b>	
<b>Capital Requirement for <math>\Delta y</math> Shock Decrease</b>				<b>E = Maximum (0, A - B + C)</b>
<b>Interest Rate Risk Margin</b>			<b>F = Maximum (D, E)</b>	

where  $\Delta y$  = interest rate shock factor

Note: This worksheet may be used to calculate capital required for interest rate risk. The worksheet does not need to be filed with the AMF, although the AMF may ask for details supporting the amounts reported in the MCT.

## Appendix 5: Worksheet – Capital Required – Structured Settlements, Letters of Credit, Derivatives and Other Exposures

(In thousands of dollars)

	Possible Credit Exposure  (01)	Movable Hypothecs and Guarantees  (02)	Credit Conversion Factor  (03)	Capital Factor  (04)	Capital required  (05) = (01- 02)x03x04
<b>Structured Settlements</b>					
Government grade			50%	0.0%	
Rated A- and higher			50%	0.5%	
Rated BBB+ and lower			50%	4.0%	
<b>Derivatives</b>					
Government grade			100%	0.0%	
Rated A- and higher			100%	0.5%	
Rated BBB+ and lower			100%	4.0%	
<b>Other Exposures</b>					
Government grade			Note	0.0%	
Rated A- and higher			Note	2.0%	
Rated BBB+ and lower			Note	8.0%	
<b>Letters of Credit</b>	<b>Face Value  (01)</b>		<b>Credit Conversion Factor  (03)</b>	<b>Capital Factor  (04)</b>	<b>Capital Required  (05) = 01x04</b>
Unregistered reinsurance			100%	0.5%	
Policyholders (self-insured retentions)			100%	0.5%	
					<b>Capital Required (05)</b>
Guarantee instruments other than letters of credit <sup>13</sup>					
Less: reduction in capital required for excess guarantees (ref. chapter 4)					
<b>Total Capital Required</b>					

Note : This worksheet may be used to calculate capital required for structured settlements, letters of credit, derivatives, and other exposures. The worksheet does not need to be filed with the AMF, although the AMF may ask for details supporting the amounts reported in the MCT.

<sup>13</sup> Eligible guarantee instruments other than letters of credit are subject to the same capital factors as those applied to similar assets owned by the insurer (reference chapter 3).