



# Guideline

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Subsection 515(1) of the *Insurance Companies Act* (ICA) requires Federally Regulated Property and Casualty Insurance Companies (property and casualty companies) to maintain adequate capital. Under the provisions of the ICA, mortgage insurance companies (insurers) are considered to be property and casualty companies. The Mortgage Insurer Capital Adequacy Test (MICAT) Guideline is not made pursuant to subsections 515(2) of the ICA. However, the minimum and supervisory target capital standards set out in this guideline provide the framework within which the Superintendent assesses whether an insurer maintains adequate capital pursuant to subsection 515(1). Notwithstanding that an insurer may meet these standards, the Superintendent may direct the insurer to increase its capital under subsection 515(3).

This guideline outlines the capital framework, using a risk-based formula, for target and minimum capital required, and defines the capital that is available to meet the minimum standard. The MICAT determines the minimum capital required and not the level of capital required at which insurers must operate.

# Chapter 1. Overview and General Requirements

The Mortgage Insurer Capital Adequacy Test (MICAT) Guideline applies to Canadian mortgage insurance companies (insurers).

This chapter provides an overview of the MICAT Guideline and sets out general requirements. More detailed information on specific components of the capital test is contained under subsequent chapters.

Further guidance concerning some of the requirements of the MICAT Guideline may be found in other guidelines and advisories available on OSFI's website.

- [Table of OSFI Guidelines](#)
- [Regulatory and Legislative Advisories](#)

## 1.1. Overview

### 1.1.1. Minimum and target capital requirements under the MICAT

Insurers' capital requirements are set at a supervisory target level that, based on expert judgment, aims to align with a conditional tail expectation (CTE) of 99% over a one-year time horizon including a terminal provision.

The formulas and risk factors defined in this guideline are used to compute capital requirements at the supervisory target level. The capital requirements at the supervisory target level are divided by 1.5 to derive the minimum capital requirements.

### 1.1.2. Risk-based capital adequacy

Insurers are required to meet the MICAT capital requirements at all times. The definition of capital available to be used for this purpose is described in chapter 2 and includes qualifying criteria for capital instruments, capital composition limits, and regulatory adjustments and deductions. The definition encompasses capital available within all subsidiaries that are consolidated for the purpose of calculating the capital ratio.

Insurers' minimum capital requirements are calculated on a consolidated basis and determined as the sum of the capital requirements at the supervisory target level for each risk component, divided by 1.5.



The capital requirements at the supervisory target level are calculated as follows:

**Sum of capital required for:**

1. Insurance risk (reference chapter 3):
  1. Residential exposures;
  2. Commercial exposures.
2. Credit risk<sup>1</sup> (reference chapter 4):
  1. Counterparty default risk for balance sheet assets;
  2. Counterparty default risk for off-balance sheet exposures;
3. Market risk (reference chapter 5):
  1. Interest rate risk;
  2. Foreign exchange risk;
  3. Equity risk;
  4. Real estate risk;
  5. Other market risk exposures.
4. Operational risk (reference chapter 6).

The MICAT does not include capital requirements or credit for reinsurance. Any mortgage insurer that is considering entering into a reinsurance agreement should contact OSFI for capital guidance.

### 1.1.3. Scope of consolidation

The capital adequacy requirements apply on a consolidated basis. The consolidated entity includes the insurer and all of its directly or indirectly held subsidiaries, which carry on business that the parent could carry on directly in accordance with the *Insurance Companies Act* (ICA), including holding companies. It therefore excludes:

- life insurance subsidiaries,
- other regulated financial institutions carrying on business that the parent would not be permitted to carry on directly under the *Insurance Companies Act* (ICA).

Whether a subsidiary should be consolidated is determined by the nature of the subsidiary's business (i.e. whether it carries on business related to mortgage insurance), not the location where the subsidiary conducts its business. All other interests in subsidiaries are considered “non-qualifying” for capital purposes and are excluded from capital available and capital required calculations.

#### 1.1.4. Interpretation of results

The MICAT is a standardized measure of capital adequacy of an insurer. It is one of several indicators that OSFI uses to assess an insurer's financial condition and should not be used in isolation for ranking and rating insurers.

### 1.2. General Requirements

#### 1.2.1. MICAT supervisory capital ratio for federally regulated mortgage insurers

The MICAT ratio is expressed as a percentage and is calculated by dividing the insurer's capital available by minimum capital required, which is derived from capital required calculated at the target level for specific risks.

Federally regulated insurers are required, at a minimum, to maintain a MICAT ratio of 100%. OSFI has established an industry-wide supervisory target capital ratio (supervisory target) of 150% that provides a cushion above the minimum requirement and facilitates OSFI's early intervention process. The supervisory target provides additional capacity to absorb unexpected losses and addresses capital needs through on-going market access.

OSFI expects each insurer to establish an internal target capital ratio (internal target) per Guideline A-4 [Regulatory Capital and Internal Capital Targets](#), and maintain on-going capital, above this target. However, the Superintendent may, on a case-by-case basis, establish an alternative supervisory target (in consultation with an insurer) based upon the insurer's individual risk profile.

Insurers are required to inform OSFI immediately if they anticipate falling below their internal target and to lay out their plans, for OSFI's supervisory approval, to return to their internal target. OSFI will consider any unusual conditions in the market environment when evaluating insurers' performance against their internal targets.

Insurers are expected to maintain their MICAT ratios at or above their established internal targets on a continuous basis. Questions about an individual insurer's target ratio should be addressed to the Lead Supervisor at OSFI.



### 1.2.2. Authorized official attestation

Each mortgage insurer is required to have an authorized Officer endorse the following statement on the MICAT Quarterly Return:

"I confirm that I have read the Mortgage Insurer Capital Adequacy Test guideline and related instructions issued by the Office of the Superintendent of Financial Institutions and that this form is completed in accordance with them."

The Officer attesting to the validity of this statement on the MICAT Quarterly Return at year-end must be different from the insurer's Appointed Actuary.

### 1.2.3. Audit requirement

Insurers are required to engage their auditor appointed pursuant to section 337 of the ICA to report annually on the MICAT prepared as at fiscal year-end, in accordance with the relevant standards for such assurance engagements, as promulgated by the Canadian Auditing and Assurance Standards Board (AASB).

The annual audit report of the MICAT must be prepared separately from the audit report for the financial statements, and is to be filed no later than 90 days after the insurers' fiscal year-end. The annual audit opinion provided must be with respect to the current fiscal year-end, for page 10.10 of the insurers' quarterly return.

## Chapter 2. Definition of Capital Available

This chapter establishes requirements for the adequacy and appropriateness of capital resources used to meet capital requirements, having regard to their ability to meet insurers' obligations to policyholders and creditors and to absorb losses in periods of stress. This includes the determination of the criteria for assessing the quality of capital components for inclusion in capital available and the composition of capital available for regulatory purposes, focusing on the predominance of highest quality capital.

## 2.1. Summary of Capital Components

The four primary considerations for defining the capital available of a company for the purpose of measuring capital adequacy are:

- availability: the extent to which the capital element is fully paid in and available to absorb losses;
- permanence: the period for, and extent to which, the capital element is available;
- absence of encumbrances and mandatory servicing costs: the extent to which the capital element is free from mandatory payments or encumbrances; and
- subordination: the extent to which and the circumstances under which the capital element is subordinated to the rights of policyholders and creditors of the insurer in an insolvency or winding-up.

Regulatory capital available will consist of the sum of the following components: common equity or category A capital, category B capital, and category C capital.

### 2.1.1. Category A capital (i.e. common equity)

- Common shares issued by the insurer that meet the category A qualifying criteria as described below;
- Surplus (share premium) resulting from the issuance of instruments included in common equity capital and other contributed surplus<sup>2</sup>;
- Retained earnings;
- General contingency reserves; and
- Accumulated other comprehensive income.

Retained earnings and accumulated other comprehensive income include interim profit or loss. Dividends are removed from capital available in accordance with applicable accounting standards.

#### 2.1.1.1. Qualifying criteria for inclusion of capital instruments in category A for regulatory capital purposes<sup>3</sup>

For an instrument to be included in capital available under category A, it must meet **all** of the following criteria:

1. Represents the most subordinated claim in liquidation of the insurer.

2. The investor is entitled to a claim on the residual assets that is proportional with its share of issued capital, after all senior claims have been paid in liquidation (i.e. has an unlimited and variable claim, not a fixed or capped claim).
3. The principal is perpetual and never repaid outside of liquidation (setting aside discretionary repurchases or other means of effectively reducing capital in a discretionary manner that is allowable under relevant law and subject to the prior approval of the Superintendent).
4. The insurer does not, in the sale or marketing of the instrument, create an expectation at issuance that the instrument will be bought back, redeemed or cancelled, nor do the statutory or contractual terms provide any feature that might give rise to such expectation.
5. Distributions are paid out of distributable items (retained earnings included). The level of distributions is not in any way tied or linked to the amount paid in at issuance and is not subject to a contractual cap (except to the extent that an insurer is unable to pay distributions that exceed the level of distributable items or to the extent that distribution on senior ranking capital must be paid first).
6. There are no circumstances under which the distributions are obligatory. Non-payment is, therefore, not an event of default.
7. Distributions are paid only after all legal and contractual obligations have been met and payments on more senior capital instruments have been made. This means that there are no preferential distributions, including in respect of other elements classified as the highest quality issued capital.
8. It is in the form of issued capital that takes the first and proportionately greatest share of any losses as they occur. Within the highest quality capital, each instrument absorbs losses on a going concern basis proportionately and *pari passu* with all the others.
9. The paid-in amount is recognized as equity capital (i.e. not recognized as a liability) for determining balance sheet solvency.
10. It is directly issued and paid-in<sup>4</sup> and the insurer cannot directly or indirectly have funded the purchase of the instrument. Where the consideration for the shares is other than cash, the issuance of the common shares is subject to the prior approval of the Superintendent.
11. The paid-in amount is neither secured nor covered by a guarantee of the issuer or related entity<sup>5</sup> or subject to any other arrangement that legally or economically enhances the seniority of the claim.



12. It is only issued with the approval of the owners of the issuing insurer, either given directly by the owners or, if permitted by applicable law, given by the Board of Directors or by other persons duly authorized by the owners.
13. It is clearly and separately disclosed on the insurer's balance sheet, prepared in accordance with the relevant accounting standards.

### 2.1.2. Category B capital

- Instruments issued by the institution that meet category B criteria and do not meet the criteria for classification as category A, subject to applicable limits;
- Surplus (share premium) resulting from the issuance of instruments meeting category B criteria.

#### 2.1.2.1 Qualifying criteria for inclusion of capital instruments in category B for regulatory capital purposes

For an instrument to be included in capital available under category B, it must meet **all** of the following criteria:

1. Issued and paid-in in cash or, subject to the prior approval of the Superintendent, in property.
2. Subordinated to policyholders, general creditors and subordinated debt holders of the insurer.
3. Is neither secured nor covered by a guarantee of the issuer or related entity or other arrangement that legally or economically enhances the seniority of the claim vis-à-vis policyholders and creditors.<sup>6</sup>
4. Is perpetual, i.e. there is no maturity date and there are no step-ups<sup>7</sup> or other incentives to redeem<sup>8</sup>
5. May be callable at the initiative of the issuer only after a minimum of five years:
  1. To exercise a call option, an insurer must receive prior approval of the Superintendent; and
  2. An insurer's actions and the terms of the instrument must not create an expectation that the call will be exercised; and
  3. An insurer must not exercise a call unless:
    1. It replaces the called instrument with capital of the same or better quality, including through an increase in retained earnings, and the replacement of this capital is done at conditions that are sustainable for the income capacity of the insurer<sup>9</sup>; or
    2. The insurer demonstrates that its capital position is well above the supervisory target capital requirements after the call option is exercised.

6. Any repayment of principal (e.g. through repurchase or redemption) must require approval of the Superintendent and insurers should not assume or create market expectations that such approval will be given.
7. Dividend/coupon discretion:
  1. the insurer must have full discretion at all times to cancel distributions/payments;<sup>10</sup>
  2. cancellation of discretionary payments must not be an event of default or credit event;
  3. insurers must have full access to cancelled payments to meet obligations as they fall due;
  4. cancellation of distributions/payments must not impose restrictions on the insurer except in relation to distributions to common shareholders.
8. Dividends/coupons must be paid out of distributable items.
9. The instrument cannot have a credit sensitive dividend feature, i.e., a dividend/coupon that is reset periodically based in whole or in part on the insurance organization's credit standing.<sup>11</sup>
10. The instrument cannot contribute to liabilities exceeding assets if such a balance sheet test forms part of national insolvency law.
11. Other than preferred shares, category B instruments included in capital available must be classified as equity per relevant accounting standards.
12. Neither the insurer nor a related party over which the insurer exercises control or significant influence can have purchased the instrument, nor can the insurer directly or indirectly have funded the purchase of the instrument.
13. The instruments cannot have any features that hinder recapitalization, such as provisions that require the issuer to compensate investors if a new instrument is issued at a lower price during a specified timeframe.
14. If the instrument is not issued directly by the insurer (e.g. it is issued out of a special purpose vehicle or SPV), proceeds must be available immediately without limitation to an insurer in a form that meets or exceeds all of the other criteria for inclusion in capital available as specified under category B. For greater certainty, the only assets the SPV may hold are intercompany instruments issued by the insurer or a related entity with terms and conditions that meet or exceed criteria specified under category B. Put differently, instruments issued to the SPV have to fully meet or exceed all of the eligibility criteria under category B as if the SPV itself was an end investor – i.e. the insurer cannot issue a lower quality capital or senior debt instrument to an SPV

and have the SPV issue higher quality capital instruments to third-party investors so as to receive recognition as qualifying capital under category B.

Purchase for cancellation of Category B capital instruments is permitted at any time with the prior approval of the Superintendent. For further clarity, a purchase for cancellation does not constitute a call option as described in the above Category B qualifying criteria.

Tax and regulatory event calls are permitted during an instrument's life subject to the prior approval of the Superintendent and provided the insurer was not in a position to anticipate such an event at the time of issuance.

Dividend stopper arrangements that stop payments on common shares or Category B instruments are permissible provided the stopper does not impede the full discretion the insurer must have at all times to cancel distributions or dividends on the Category B instrument, nor must it act in a way that could hinder the recapitalization of the institution pursuant to criterion number 13 above. For example, it would not be permitted for a stopper on a Category B instrument to:

- attempt to stop payment on another instrument where the payments on the other instrument were not also fully discretionary;
- prevent distributions to shareholders for a period that extends beyond the point in time that dividends or distributions on the Category B instrument are resumed;
- impede the normal operation of the institution or any restructuring activity, including acquisitions or disposals.

A dividend stopper may also act to prohibit actions that are equivalent to the payment of a dividend, such as the insurer undertaking discretionary share buybacks.

Where an amendment or variance of a Category B instrument's terms and conditions affects its recognition as regulatory capital, such amendment or variance will only be permitted with the prior approval of the Superintendent.<sup>[12](#)</sup>

Insurers are permitted to "re-open" offerings of capital instruments to increase the principal amount of the original issuance provided that call options will only be exercised, with the prior approval of the Superintendent, on or after



the fifth anniversary of the closing date of the latest re-opened tranche of securities.

Defeasance options may only be exercised on or after the fifth anniversary of the closing date with the prior approval of the Superintendent.

### 2.1.3. Category C capital

- Instruments issued by the institution that meet category C criteria, but do not meet the category A or B criteria, subject to an applicable limit;
- Surplus (share premium) resulting from the issuance of instruments meeting the category C criteria.

#### 2.1.3.1. Qualifying criteria for inclusion of capital instruments in Category C for regulatory capital purposes

For an instrument to be included in capital available under category C, it must meet **all** of the following criteria:

1. Issued and paid-in in cash or, with the prior approval of the Superintendent, in property.
2. Subordinated to policyholders and general creditors of the insurer.
3. Is neither secured nor covered by a guarantee of the issuer or related entity or other arrangement that legally or economically enhances the seniority of the claim vis-à-vis the insurer's policyholders and/or general creditors.
4. Maturity:
  1. minimum original maturity of at least five years;
  2. recognition in regulatory capital in the remaining five years before maturity will be amortized on a straight line basis;
  3. there are no step-ups<sup>13</sup> or other incentives to redeem.
5. May be callable at the initiative of the issuer only after a minimum of five years:
  1. To exercise a call option, an insurer must receive the prior approval of the Superintendent; and
  2. An insurer must not do anything that creates an expectation that the call will be exercised;<sup>14</sup> and
  3. An insurer must not exercise a call unless:
    1. It replaces the called instrument with capital of the same or better quality, including through an increase in retained earnings, and the replacement of this capital is done at conditions that are

sustainable for the income capacity of the insurer;<sup>15</sup> or

2. The insurer demonstrates that its capital position is well above the supervisory target capital requirements after the call option is exercised.
6. The investor must have no rights to accelerate the repayment of future scheduled payments (interest or principal), except in bankruptcy, insolvency, wind-up, or liquidation.
7. The instrument cannot have a credit sensitive dividend feature, i.e. a dividend/coupon that is reset periodically based in whole or in part on the insurer's credit standing<sup>16</sup>.
8. Neither the insurer nor a related party over which the insurer exercises control or significant influence can have purchased the instrument, nor can the insurer directly or indirectly have funded the purchase of the instrument.
9. If the instrument is not issued directly by the insurer (e.g. it is issued out of an SPV), proceeds must be available immediately without limitation to the insurer in a form that meets or exceeds all of the criteria for inclusion specified under category C. For greater certainty, the only assets the SPV may hold are intercompany instruments issued by the institution or a related entity with terms and conditions that meet or exceed the above category C criteria. Put differently, instruments issued to the SPV have to fully meet or exceed all of the eligibility criteria under category C as if the SPV itself was an end investor – i.e. the institution cannot issue a lower capital or a senior debt instrument to an SPV and have the SPV issue higher quality capital instruments to third-party investors so as to receive recognition as qualifying capital under category C.

Category C capital instruments must not contain restrictive covenants or default clauses that would allow the holder to trigger acceleration of repayment in circumstances other than the insolvency, bankruptcy or winding-up of the issuer.

Purchase for cancellation of category C instruments is permitted at any time with the prior approval of the Superintendent. For further clarity, a purchase for cancellation does not constitute a call option as described in the above Category C criteria.

Tax and regulatory event calls are permitted during an instrument's life subject to the prior approval of the Superintendent and provided the insurer was not in a position to anticipate such an event at the time of issuance.



Where an amendment or variance of a Category C instrument's terms and conditions affects its recognition as regulatory capital, such amendment or variance will only be permitted with the prior approval of the Superintendent<sup>17</sup>.

Institutions are permitted to "re-open" offerings of capital instruments to increase the principal amount of the original issuance provided that call options will only be exercised, with the prior approval of the Superintendent, on or after the fifth anniversary of the closing date of the latest re-opened tranche of securities.

Defeasance options may only be exercised on or after the fifth anniversary of the closing date with the prior approval of the Superintendent.

### 2.1.3.2. Amortization

Category C capital instruments are subject to straight-line amortization in the final five years prior to maturity. Hence, as these instruments approach maturity, redemption or retraction, such outstanding balances are to be amortized based on the following schedule:

Amortization Schedule

Years to Maturity	Included in Capital
5 years or more	100%
4 years and less than 5 years	80%
3 years and less than 4 years	60%
2 years and less than 3 years	40%
1 year and less than 2 years	20%
Less than 1 year	0%

For instruments issued prior to January 1, 2015, where the terms of the instrument include a redemption option that is not subject to prior approval of the Superintendent and/or holders' retraction rights, amortization should begin five years prior to the effective dates governing such options. For example, a 20-year debenture that can be redeemed at the insurer's option at any time on or after the first 10 years would be subject to amortization

commencing in year 5. Further, where a subordinated debt was redeemable at the insurer's option at any time without the prior approval of the Superintendent, the instrument would be subject to amortization from the date of issuance. For greater certainty, this would not apply when redemption requires the Superintendent's approval as is required for all instruments issued pursuant to the above criteria in section 2.1.3.1.

Amortization should be computed at the end of each fiscal quarter based on the "years to maturity" schedule above. Thus, amortization would begin during the first quarter that ends within five calendar years to maturity. For example, if an instrument matures on October 15, 2020, 20% amortization of the issue would occur on October 16, 2015 and be reflected in the December 31, 2015 regulatory return. An additional 20% amortization would be reflected in each subsequent December 31 return.

#### 2.1.4. Non-controlling interests

Insurers are permitted to include, in capital available, non-controlling interests in operating consolidated subsidiaries, provided:

1. the capital instruments meet the qualifying criteria under category A, B and C;
2. the capital in the subsidiary is not excessive in relation to the amount necessary to carry on the subsidiary's business; and
3. the level of capitalization of the subsidiary is comparable to that of the insurance company 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 directly in order for it to qualify as capital available upon consolidation. This can only be achieved by the subsidiary using the proceeds of the issue to purchase a similar instrument from the parent. Since subsidiaries cannot buy shares of the parent insurance company, 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.

## 2.2. Capital Composition Limits

The inclusion of capital instruments qualifying under category B and category C criteria is subject to the following limits:

- The sum of capital instruments meeting the qualifying criteria under category B and category C will not exceed 40% of total capital available, excluding accumulated other comprehensive income;
- Capital instruments meeting the qualifying criteria under category C will not exceed 7% of total capital available, excluding accumulated other comprehensive income.

Category B and category C capital exceeding the allowable limits will be subject to the following treatment for regulatory capital purposes:

- In cases where capital instruments qualifying under one of either category B or C exceed the limits, the capital in excess of the limits will not be considered in the calculation of capital available. In cases where capital instruments both under category B and category C are in excess of the prescribed limits, the greater value of the two excess amounts will be excluded from capital available. In doing so, insurers must first fully exclude excess capital under category C, followed by excess capital under category B.
- Under certain exceptional circumstances and subject to OSFI's supervisory approval, a company may be permitted to continue to include such excess amounts in capital available temporarily, upon providing OSFI with a satisfactory plan outlining the company's strategy to achieve compliance with the limits as soon as possible. Typically, only those excesses arising after issuance and as a result of operating losses or extraordinary events beyond the control of management will normally be eligible for temporary inclusion in capital available. In most other circumstances, for example, excesses resulting from:
  1. purchases or redemptions of capital instruments;
  2. discretionary dividend payments;
  3. new issuances of non-common capital instruments within the same fiscal quarter; or
  4. foreseeable events;

would generally **not** qualify for inclusion in capital available.



## 2.3. Regulatory Adjustments to Capital Available

### 2.3.1. Deductions

1. Interests in and loans or other forms of lending provided to non-qualifying subsidiaries, associates, and joint ventures in which the company holds more than a 10% ownership interest:
  - Interests in non-qualifying subsidiaries, associates, and joint ventures in which the company holds more than a 10% ownership interest must be deducted from capital available (reference section [2.4](#));
  - Loans or other forms of lending provided to non-qualifying subsidiaries, associates, and joint ventures in which the company holds more than a 10% ownership interest that are reported as equity on their financial statements must be deducted from capital available (reference section [2.4](#)).
2. Accumulated other comprehensive income on cash flow hedges:
  - The amount of cash flow hedge reserve that relates to the hedging of items that are not fair valued on the balance sheet (including projected cash flows) must be derecognized in the calculation of capital available. This includes items that are not recognized on the balance sheet but excludes items that are fair valued on the balance sheet. Positive amounts should be deducted from capital available and negative amounts should be added back. This treatment specifically identifies the element of the cash flow hedge reserve that is to be derecognized for prudential purposes. It removes the element that gives rise to artificial volatility in capital available, as in this case the reserve only reflects one half of the picture (the fair value of the derivative, but not the changes in fair value of the hedged future cash flow).
3. Goodwill and other intangible assets:
  - Goodwill related to consolidated subsidiaries and subsidiaries deconsolidated for regulatory capital purposes and the proportional share of goodwill in joint ventures subject to the equity method accounting must be deducted from capital available. The amount reported on the balance sheet is to be deducted net of any associated deferred tax liability that would be extinguished if the goodwill becomes impaired or derecognized under relevant accounting standards.
  - All other intangible assets<sup>18</sup> must be deducted from capital available. This includes intangible assets related to consolidated subsidiaries and subsidiaries deconsolidated for regulatory capital purposes,

and the proportional share of intangible assets in joint ventures subject to the equity method of accounting. The full amount is to be deducted net of any associated deferred tax liability that would be extinguished if the intangible assets become impaired or derecognized under relevant accounting standards.

4. Deferred tax assets:

- Deferred tax assets (DTAs), except for those eligible for the 10% risk factor, must be deducted from capital available. In addition, the amount of DTAs that is in excess of the amount that could be recoverable from income taxes paid in the three immediate preceding years is deducted from capital available. Deferred tax assets may be netted with associated deferred tax liabilities (DTLs) only if the DTAs and DTLs relate to taxes levied by the same taxation authority and offsetting is permitted by the relevant taxation authority<sup>19</sup>. The DTLs permitted to be netted against DTAs must exclude amounts that have been netted against the deduction of goodwill, intangibles and defined benefit pension plan assets, and must be allocated on a pro rata basis between DTAs that are to be deducted in full and DTAs that are subject to the 10% risk factor (reference section [4.1](#)).

5. Cumulative gains and losses due to changes in own credit risk on fair valued financial liabilities:

- All accumulated after-tax unrealized gains and losses that have resulted from changes in the fair value of insurer's financial liabilities that are due to changes in the institution's own credit risk must be deducted from capital available. In addition, with regard to derivative liabilities, all accounting valuation adjustments arising from the institution's own credit risk should also be deducted on an after-tax basis. The offsetting between valuation adjustments arising from the institution's own credit risk and those arising from its counterparties' credit risk is not permitted.

6. Defined benefit pension fund assets and liabilities:

- For each defined benefit pension fund that is in a surplus position and reported as an asset on the institution's balance sheet, the amounts reported as a surplus asset on the balance sheet must be deducted from capital available, net of any associated deferred tax liability that would be extinguished if the asset becomes impaired or derecognized under the relevant accounting standards, and net of any amount of available refunds of defined benefit pension fund surplus assets to which the insurer has unrestricted and unfettered access. Insurers may only reduce this deduction by an amount of

available refunds of defined benefit pension plan surplus assets if they obtain a prior written supervisory approval from OSFI<sup>20</sup>.

7. Investments in own instruments (treasury stock):

- All of institution's investments in its own instruments, whether held directly or indirectly, must be deducted from capital available (unless already derecognized under IFRS). In addition, any own stock that the institution could be contractually obliged to purchase should be deducted from capital available.

8. Reciprocal cross holdings in the common shares of insurance, banking and financial entities:

- Reciprocal cross holdings in common shares (e.g. Insurer A holds shares of Insurer B and Insurer B in return holds shares of Insurer A), also known as back-to-back placements, that are designed to artificially inflate the capital position of institutions must be fully deducted from capital available.

9. Insurance acquisition cash flows:

- Any asset for insurance acquisition cash flows must be deducted from capital available.

Items that are deducted from capital available will be subject to a 0% risk factor for capital-required purposes.

### 2.3.2. Adjustments

Adjustments to owner-occupied property valuations<sup>21</sup>:

- For owner-occupied property accounted for using the cost model and where the deemed value of the property was determined at conversion to the International Financial Reporting Standards (IFRS) by using fair value, unrealized after tax fair value gains (losses) must be reversed from the institution's reported retained earnings for capital adequacy purposes. The amount determined at conversion is an on-going deduction from capital available and can only be changed as a result of a sale of owner-occupied properties (owned at the time of IFRS conversion) and the resulting realization of actual gains (losses); and
- Accumulated net after tax revaluation losses in excess of gains accounted for using the revaluation model must be reversed from retained earnings. Net after tax revaluation gains must be reversed from accumulated other comprehensive income included in capital available.

## 2.4. Capital Treatment of Interests in and Loans to Subsidiaries, Associates and Joint Ventures

The equity method of accounting is used for all interests in non-qualifying subsidiaries, associates and joint ventures<sup>22</sup>. These interests remain unconsolidated for MICAT purposes.

### 2.4.1. Consolidated subsidiaries (e.g. insurance and ancillary businesses such as agencies, brokerages and mutual funds)

The financial statements of the subsidiaries are fully consolidated and the net value is included in the parent's capital available. The assets and liabilities of these subsidiaries are therefore subject to risk factors and liability margins in the parent's MICAT.

### 2.4.2. Non-qualifying subsidiaries

Interests in non-qualifying subsidiaries are excluded from capital available. Loans or other forms of lending provided to a non-qualifying subsidiary, if they are reported as equity on the financial statements of the non-qualifying subsidiary, are also excluded from capital available of the insurer. Loans or other forms of lending provided to a non-qualifying subsidiary that are not reported as equity are subject to a risk factor of 45%. Receivables from non-qualifying subsidiaries will attract a risk factor of 5% or 10% depending on how long the balances are outstanding (reference section [4.1](#)).

### 2.4.3. Associates

An enterprise is an associate of another enterprise if:

- both are subsidiaries of the same enterprise; or
- each of them represents an investment by the same person or enterprise, in which the investor holds 20% or more of the voting power in each investment; or
- one enterprise exerts significant influence over the other. The notion of significant influence is defined in accordance with IFRS; or
- if an insurance broker is economically dependent on the insurer, then the broker must be treated as an associate of the insurer for capital purposes.

Interests in associates are excluded from capital available. Loans or other forms of lending provided to associates, if they are reported as equity in the financial statements of the associates, are also excluded from capital available of the insurer. Loans or other forms of lending provided to associates that are not reported as equity are subject to a risk factor of 45%. Receivables from associates will attract a risk factor of 5% or 10% depending on how long the balances are outstanding (reference section [4.1](#)).

#### **2.4.4. Joint ventures in which a company holds less than or equal to 10% ownership interest**

Where an insurer holds less than or equal to 10% ownership in a joint venture, the investment is included in capital available. The investment is reported under capital required for equity risk, and is subject to the risk factor applicable to investments in common shares (reference section [5.3](#)).

#### **2.4.5. Joint ventures in which a company holds more than a 10% ownership interest**

Interests in joint ventures with more than 10% ownership are excluded from capital available. Loans or other forms of lending provided to a joint venture with more than a 10% ownership interest, if they are reported as equity on the financial statements of the joint venture with more than a 10% ownership interest, are also excluded from capital available of the insurer. Loans or other forms of lending provided to a joint venture with more than a 10% ownership interest that are not reported as equity are subject to a risk factor of 45%. Receivables from joint ventures with more than a 10% ownership interest will attract a risk factor of 5% or 10% depending on how long the balances are outstanding (reference section [4.1](#)).

#### **2.4.6. Ownership interests in an intra-group investment arrangement**

Where companies participate in an intra-group investment arrangement, and the arrangement has been approved by OSFI pursuant to the requirements of the ICA, companies are not required to deduct from capital available their ownership interest. A “look-through” approach should be used for intra-group investments, similar to that for mutual funds (reference section [4.1](#)).

#### **2.4.7 Summary of exposures**

Types of exposures an insurer might have with non-qualifying subsidiaries, associates, and joint ventures:



## Examples of exposures and capital treatment

Exposure	Capital treatment
Common or preferred shares (non-qualifying subsidiaries and associates) including share of accumulated earnings/losses less dividends received based on equity accounting	Excluded from capital available
Ownership interests > 10% joint venture	Excluded from capital available
Ownership interests ≤ 10% joint venture	Included in capital available with a risk factor of 30% applied to the ownership interest
Loans or other forms of lending (bonds, debentures, mortgages, etc.) reported as equity	Excluded from capital available
Loans or other forms of lending (bonds, debentures, mortgages, etc.) not reported as equity	Included in capital available with a risk factor of 45%
Receivables	Included in capital available with a risk factor of 5% or 10% depending on how long the balances are outstanding

## Appendix 2-A: Information Requirements for Capital Confirmations

Given the potential impact of the disqualification of a capital instrument, insurers are encouraged to seek confirmations of capital quality from OSFI prior to issuing instruments<sup>23</sup>. In conjunction with such requests, the insurer is expected to provide the following information to the Capital Division:

1. An indicative term sheet specifying indicative dates, rates and amounts and summarizing key provisions in respect of all proposed instruments.
2. The draft and final terms and conditions of the proposed instrument supported by relevant documents (i.e. Prospectus, Offering Memorandum, Debt Agreement, Share Terms, etc.).
3. A copy of the institution's current by-laws or other constating documents relevant to the capital to be issued as well as any material agreements, including shareholders' agreements, which may affect the capital quality of the instrument.
4. Where applicable, for all debt instruments only:

1. the draft and final Trust Indenture and supplemental indentures; and
  2. the terms of any guarantee relating to the instrument.
5. Where the terms of the instrument include a redemption option or similar feature upon a tax event, an external tax opinion confirming the availability of such deduction in respect of interest or distributions payable on the instrument for income tax purposes<sup>24</sup>.
6. An accounting opinion describing the proposed treatment and disclosure of the capital instrument (other than common shares) on the institution's financial statements<sup>25</sup>.
7. Where the initial interest or coupon rate payable on the instrument resets periodically or the basis of the interest rate changes from fixed to floating (or vice versa) at a pre-determined future date, calculations demonstrating that no incentive to redeem, or step-up, will arise upon the change in the initial rate. Where applicable, a step-up calculation should be provided according to the swap-spread methodology, which confirms there is no step-up upon the change in interest rate, and supported by screenshots of the applicable reference index rate(s).
8. Capital projections demonstrating that the insurer will be in compliance with its supervisory target capital ratios as well as the capital composition requirements specified in section 2.2 at the end of the quarter in which the instrument is expected to be issued.
9. An assessment of the features of the proposed capital instrument against the qualifying criteria for category B capital instruments or category C capital instruments, as applicable, as specified in the MICAT Guideline. For greater certainty, this assessment would only be required for an initial issuance or precedent and is not required for subsequent issuances provided the terms of the instrument are not materially altered.
10. A written attestation from a senior officer of the institution confirming that the insurer has not provided financing to any person for the express purpose of investing in the proposed capital instrument.

## Chapter 3. Insurance Risk

Insurance risk is the risk that the provisions that an insurer holds to cover its obligations under the insurance contracts it has written are insufficient under a severe but plausible scenario.

The capital requirement for insurance risk consists of:

1. a capital requirement for future losses, i.e., losses associated with defaults that occur after the reporting date, referred to as the capital required for liabilities for remaining coverage;
2. a capital requirement for losses that have already occurred and for which settlement is not yet complete, referred to as the capital required for liabilities for incurred claims; and,
3. a capital requirement for the loss components of liabilities for remaining coverage.

For the purposes of this Guideline, a residential mortgage is a mortgage on a property that is designed for occupancy by not more than four family units or is a single-family unit of a condominium. A mortgage that is not considered to be a residential mortgage according to this definition will be referred to as a commercial mortgage.

Section 3.1 describes the calculation of the capital requirement for residential exposures while section 3.2 describes the calculation for commercial exposures. Section 3.3 describes the calculation of the additional policy provision. For residential exposures, the additional policy provision is an allocation of the requirement determined in section 3.1; for commercial exposures, it is an amount that is held in addition to the requirement determined in section 3.2.

## 3.1. Residential exposures

### 3.1.1. Capital required for liabilities for remaining coverage

Liabilities for remaining coverage are the liabilities that an insurer holds to cover future losses, i.e., losses associated with defaults that occur after the reporting date.

The capital required for liabilities for remaining coverage associated with residential exposures is defined as

$$\max (T - L, F)$$

where:

- $T$  represents the total of liabilities for remaining coverage and capital for residential exposures and is defined in subsections 3.1.1.1 through 3.1.1.3,
- $L$  is the amount of liabilities for remaining coverage for residential exposures<sup>26</sup> as defined by accounting standards, and
- $F$  represents a floor on the capital requirements for residential exposures and is currently set at 0.





### 3.1.1.1. Total requirement

The total amount  $T$  required for residential exposures is the sum of the total amounts required for individual residential mortgages, whether insured individually or as part of a portfolio, that are in-force as of the reporting date and for which there is no claim outstanding<sup>27</sup>. The total amount required for an individual mortgage loan is the sum of the base total requirement for the mortgage loan and, if applicable, a supplementary capital requirement.

The formula for calculating the base total requirement for an individual mortgage loan is provided in subsection 3.1.1.2. The formula for calculating the supplementary capital requirement is provided in subsection 3.1.1.3. The following data inputs are used in the calculation of the base total requirement and the supplementary capital requirement for an individual mortgage loan:

1. outstanding loan balance as of the reporting date;
2. remaining amortization for the mortgage loan as of the reporting date;
3. credit score of the borrower(s) determined as described in section 3.1.1.4; and
4. loan-to-value ratio determined as described in subsection 3.1.1.5.

### 3.1.1.2. Base total requirement for an individual mortgage loan

The base total requirement for an individual mortgage loan that is in-force on the reporting date and for which there is no claim outstanding is determined by the formula

$$T_B = \alpha_B + \beta_B \times \text{outstanding loan balance}$$

where the outstanding loan balance is the loan balance as of the reporting date in units of \$100,000 and

$$\alpha_B = 1.05 \times m \times A$$

$$\beta_B = 1.05 \times m \times B$$

where  $m$  is the adjustment factor for credit quality defined in subsection 3.1.1.4, and where the quantities  $A$  and  $B$  are defined as follows.



## i) Formula for A

$$A = C_1 \times \exp\left(-\frac{1}{2} \frac{LTV - \mu_1}{\sigma_1^2}\right) + C_2 \times \exp\left(-\frac{1}{2} \frac{LTV - \mu_2}{\sigma_2^2}\right)$$

where  $LTV$  represents the loan-to-value ratio for the mortgage loan as defined in subsection 3.1.1.5 and  $\mu_1, \mu_2, \sigma_1, \sigma_2, C_1, C_2$  are defined as follows:

If the remaining term of insurance for the mortgage loan as of the reporting date is five years or less then

$$\mu_1 = 90\% \text{ for } T^* \leq 40$$

$$\sigma_1 = \begin{cases} 17\% & \text{for } T^* \leq 10 \\ 0.2\% \times T^* + 19\% & \text{for } 10 < T^* \leq 25 \\ 14\% & \text{for } 25 < T^* \leq 40 \end{cases}$$

$$C_1 = \begin{cases} 123 \times T^* + 520 & \text{for } T^* \leq 11 \\ -25 \times T^* + 2,250 & \text{for } 11 < T^* \leq 40 \end{cases}$$

$$\mu_2 = 125\% \text{ for } T^* \leq 40$$

$$\sigma_2 = \begin{cases} 16\% & \text{for } T^* \leq 15.5 \\ 0.59\% \times T^* + 7\% & \text{for } 15.5 < T^* \leq 40 \end{cases}$$

$$C_2 = \begin{cases} 115 \times T^* - 85 & \text{for } T^* \leq 17 \\ 1,900 & \text{for } 17 < T^* \leq 40 \end{cases}$$

Otherwise,

$$\mu_1 = 90\% \text{ for } T^* \leq 40$$

$$\sigma_1 = 17\% \text{ for } T^* \leq 40$$

$$C_1 = \begin{cases} 123 \times T^* + 520 & \text{for } T^* \leq 16 \\ -65 \times T^* + 3,515 & \text{for } 16 < T^* \leq 25 \\ -39 \times T^* + 2,885 & \text{for } 25 < T^* \leq 40 \end{cases}$$

$$\mu_2 = 125\% \text{ for } T^* \leq 40$$

$$\sigma_2 = \begin{cases} 16\% & \text{for } T^* \leq 15.5 \\ 1.09\% \times T^* - 0.94\% & \text{for } 15.5 < T^* \leq 40 \end{cases}$$

$$C_2 = \begin{cases} 115 \times T^* - 85 & \text{for } T^* \leq 25 \\ 68 \times T^* + 1,110 & \text{for } 25 < T^* \leq 40 \end{cases}$$



where  $T^*$  represents the remaining amortization for the mortgage loan as of the reporting date and is measured in years<sup>28</sup>. If the remaining amortization exceeds 40 years, 40 years should be used as  $T^*$ .

## ii) Formula for $B$

$$B = C_1 \times \exp\left(-\frac{1}{2} \frac{LTV - \mu_1}{\sigma_1^2}\right) + C_2 \times \exp\left(-\frac{1}{2} \frac{LTV - \mu_2}{\sigma_2^2}\right)$$

where  $LTV$  represents the loan-to-value ratio for the mortgage loan as defined in subsection 3.1.1.5 and in this case,  $\mu_1, \mu_2, \sigma_1, \sigma_2, C_1, C_2$  are defined as follows:

If the remaining term of insurance for the mortgage loan as of the reporting date is five years or less then

$$\mu_1 = 94\% \text{ for } T^* \leq 40$$

$$\sigma_1 = 23\% \text{ for } T^* \leq 14 \quad -0.64\% \times T^* + 32\% \text{ for } 14 < T^* \leq 25 \quad 16\% \text{ for } 25 < T^* \leq 40$$

$$C_1 = 233 \times T^* + 1,975 \text{ for } T^* \leq 11 \quad 4,450 \text{ for } 11 < T^* \leq 40$$

$$\mu_2 = 0.62\% \times T^* + 121\% \text{ for } T^* \leq 15 \quad 130\% \text{ for } 15 < T^* \leq 40$$

$$\sigma_2 = 14\% \text{ for } T^* \leq 15 \quad 0.4\% \times T^* + 8\% \text{ for } 15 < T^* \leq 40$$

$$C_2 = 1,550 \text{ for } T^* \leq 15 \quad 400 \times T^* - 4,450 \text{ for } 15 < T^* \leq 18 \quad 130 \times T^* + 420 \text{ for } 18 < T^* \leq 25 \quad 30 \times T^* + 3,020 \text{ for } 25 < T^* \leq 40$$

Otherwise,

$$\mu_1 = 94\% \text{ for } T^* \leq 19.75 \quad -2.33\% \times T^* + 140\% \text{ for } 19.75 < T^* \leq 26 \quad 80\% \text{ for } 26 < T^* \leq 40$$

$$\sigma_1 = 23\% \text{ for } T^* \leq 14.75 \quad 1.63\% \times T^* - 0.82\% \text{ for } 14.75 < T^* \leq 40$$

$$C_1 = 233 \times T^* + 1,975 \text{ for } T^* \leq 25 \quad 282 \times T^* + 740 \text{ for } 25 < T^* \leq 40$$

$$\mu_2 = 0.62\% \times T^* + 121\% \text{ for } T^* \leq 33.25 \quad 142\% \text{ for } 33.25 < T^* \leq 40$$



$$\sigma_2 = 14\% \text{ for } T^* \leq 19 \quad 1.03\% \times T^* - 5.84\% \text{ for } 19 < T^* \leq 27 \quad 21.5\% \text{ for } 27 < T^* \leq 40$$

$$C_2 = 1,550 \text{ for } T^* \leq 19.25 \quad 133 \times T^* - 1,030 \text{ for } 19.25 < T^* \leq 26 \quad -117 \times T^* + 5,490 \text{ for } 26 < T^* \leq 40$$

where  $T^*$  represents remaining amortization for the mortgage loan as of the reporting date and is measured in years. If the remaining amortization exceeds 40 years, 40 years should be used as  $T^*$ .

If a mortgage has payments that are contractually required to be reset within a period not exceeding one month, and the amortization of a mortgage loan at the end of a reporting period does not reflect the contractually required payment reset, a mortgage insurer may calculate  $T^*$  as if that reset has occurred.

### 3.1.1.3. Supplementary capital requirement for an individual mortgage loan

If a mortgage loan originated after December 31, 2016 corresponds to a property that is located in one of the 11 metropolitan areas listed in Appendix 3-A and if the value of the supplementary capital requirement indicator (SCRI) for this metropolitan area is greater than the threshold value for this metropolitan area then a supplementary capital requirement must be determined for this mortgage loan and added to the base total requirement for this mortgage loan to determine the total amount for this loan.

The calculation of the SCRI is described in Appendix 3-A.

If a supplementary capital requirement must be determined for a particular mortgage loan, it is calculated using the following formula:

$$S = r \times T_B$$

where  $T_B$  is as defined in subsection 3.1.1.2 and where the quantity  $r$  is defined as follows.

$$r = a + b \times \exp(-0.1 \times T^*)$$

where  $a$  and  $b$  are defined as follows:

If the remaining term of insurance for the mortgage loan as of the reporting date is five years or less then

$$a = \min \{ c + 0.1 \times (1 - LTV), 1.15 \},$$

$$b = \begin{cases} 0.3 & \text{for } T^* \leq 10 \\ 0 & \text{for } 10 < T^* \leq 40 \end{cases}$$

$$c = \begin{cases} 0.08 & \text{for } T^* \leq 10 \\ -0.013 \times T^* + 0.32 & \text{for } 10 < T^* \leq 13 \\ 0.19 & \text{for } 13 < T^* \leq 40 \end{cases}$$

where:

- $LTV$  represents the loan-to-value ratio for the mortgage loan as defined in subsection 3.1.1.5, and
- $T^*$  represents remaining amortization as of the reporting date and is measured in years.

Otherwise,

$$a = \min \{ 0.08 + 0.1 \times (1 - LTV), 1.15 \},$$

$$b = 0.3$$

Note that for a given mortgage loan,  $LTV$  and  $T^*$  have the same values as in the calculation of the base total requirement in subsection 3.1.1.2.

#### 3.1.1.4. Adjustment factor for credit quality of an individual mortgage loan

The adjustment factor for credit quality,  $m$ , used in the formulas for  $\alpha_B$  and  $\beta_B$  to determine the base total requirement for an individual mortgage loan depends on the credit score(s) of the borrower(s) associated with the mortgage loan as of origination.

The credit score used to determine the value of  $m$  for a particular mortgage loan should come from a reputable credit bureau and should also be used as part of the insurer's business and risk management processes. It should not be acquired for the sole purpose of determining regulatory capital requirements.

In cases where an insurer obtains credit scores from more than one credit bureau, the insurer should select the bureau whose scores the insurer primarily uses in the management of its business, and use the scores of this credit bureau consistently for all mortgage loans and from one reporting period to the next. The only exception is if there is no credit score available for a particular mortgage loan from the credit bureau whose scores the insurer primarily uses to manage its business; in this situation, the insurer may use the credit score from another reputable credit



bureau until such time that a credit score becomes available from the bureau whose scores the insurer primarily uses.

For mortgage loans with more than one borrower, the credit score used to determine the value of  $m$  is the maximum of the credit scores of the individual borrowers. In cases where the credit scores of the individual borrowers are from different credit bureaus, the maximum is calculated using only the credit scores from the bureau whose scores the insurer primarily uses to manage its business. In cases where none of the credit scores of the individual borrowers is from the credit bureau whose scores the insurer primarily uses to manage its business, the maximum is calculated using the available scores.

**Credit Quality Adjustment Factors by Credit Score,  $m$**

Credit Score	$m$
< 600	3.00
[600,620)	2.05
[620,640)	1.80
[640,660)	1.60
[660,680)	1.35
[680,700)	1.10
[700,720)	0.90
[720,740)	0.65
[740,760)	0.55
[760,780)	0.45
$\geq 780$	0.40

The value assigned to the adjustment factor for credit quality,  $m$ , of a mortgage loan with no credit score is 1.3 unless more than 5% of an insurer's mortgage loans considered residential exposures have no credit score, in which case the value assigned to the adjustment factor for credit quality,  $m$ , of a mortgage loan with no credit score is 3.0.

### 3.1.1.5. Loan-to-value ratio for an individual mortgage loan

This subsection describes the calculation of the *LTV* input for the formulas given in subsections 3.1.1.2 and 3.1.1.3. Note that if the value of *LTV* determined in this subsection is greater than 105% then an *LTV* input of 105% should be used in the formulas in subsections 3.1.1.2 and 3.1.1.3.

The value of the *LTV* input for the formulas in subsections 3.1.1.2 and 3.1.1.3 depends on the origination date of the mortgage, and whether it is a First-Time Home Buyer Incentive (FTHBI) mortgage or not.

#### i) Mortgages originated after December 31, 2015 that are not FTHBI mortgages

For mortgages originated after December 31, 2015, the *LTV* input is calculated by dividing the outstanding loan balance on the reporting date by the property value on the origination date or the date of the most recent appraisal, provided that the appraisal was commissioned by an independent third party entity other than an insurer.

#### ii) FTHBI Mortgages

For FTHBI mortgages, the reciprocal of the *LTV* input is determined by taking a weighted average of the following two quantities:

1. the reciprocal of loan-to-value if the mortgage were not a FTHBI mortgage, and
2. the reciprocal of loan-to-value calculated using:
  - for the loan amount, the sum of the outstanding loan balance as of the reporting date and the shared equity amount,
  - for the property value, the value as of the origination date or the date of the most recent appraisal, if the appraisal was commissioned by an independent third party entity other than an insurer, and
  - the shared equity amount as of the origination date, unless the property value is updated to the most recent appraisal, in which case the shared equity amount should be updated as well.

The reciprocal of the *LTV* input for FTHBI mortgages is represented formulaically below:

$$\frac{1}{LTV} = w \times \frac{1}{LTV_{SE}} + (1 - w) \times \frac{1}{LTV_M}$$

Where

$LTV_{SE} = \frac{\text{outstanding loan balance} + \text{shared equity amount}}{\text{property value}}$

and

$LTV_M = \frac{\text{outstanding loan balance}}{\text{property value}}$

and

$w = \max(35\%, \min(95\%, 200\% \times (1 - LTV_M) - 205\%))$

### iii) Mortgages originated after December 31, 2004 but on or before December 31, 2015

For mortgages originated after December 31, 2004 but on or before December 31, 2015, the *LTV* input is calculated by dividing the outstanding loan balance on the reporting date by the property value that is determined as follows.

1. If the property is located in one of the 11 Census Metropolitan Areas specified in Appendix 3-A and defined by Statistics Canada then the property value used to calculate the *LTV* input is

$\text{Property Value at Origination} \times \frac{\text{Teranet index value as of December 2015}}{\text{Teranet index value as of origination month and year}}$

where “Teranet index value” refers to the value of the Teranet-National Bank House Price Index for the particular metropolitan area as of the end of the indicated month. If the property is located in one of these metropolitan areas but the mortgage was originated in December 2015 or later then the property value used to calculate the *LTV* input is the property value on the origination date.

2. If the property is not located in one of these metropolitan areas then the property value used to calculate the *LTV* input is

$\text{Property Value at Origination} \times \frac{\text{Teranet composite index value as of December 2015}}{\text{Teranet composite index value as of origination month and year}}$



where “Teranet composite index value” refers to the value of the Teranet-National Bank National Composite House Price Index as of the end of the indicated month.

#### iv) Mortgages originated prior to 2005

For mortgages originated prior to 2005, the *LTV* input is calculated by dividing the outstanding loan balance on the reporting date by the property value that is determined as follows.

1. If the property is located in one of the 11 Census Metropolitan Areas specified in Appendix 3-A and defined by Statistics Canada then the property value used to calculate the *LTV* input is

$$\text{Property Value at Origination} \times \frac{\text{Teranet index value as of December 2015}}{\text{Teranet index value as of December 2004}}$$

where “Teranet index value” refers to the value of the Teranet-National Bank House Price Index for the particular metropolitan area as of the end of the indicated month.

2. If the property is not located in one of these metropolitan areas then the property value used to calculate the *LTV* input is

$$\text{Property Value at Origination} \times \frac{\text{Teranet composite index value as of December 2015}}{\text{Teranet composite index value as of December 2004}}$$

where “Teranet composite index value” refers to the value of the Teranet-National Bank National Composite House Price Index as of the end of the indicated month.

### 3.1.2. Capital required for liabilities for incurred claims

Liabilities for incurred claims are the liabilities that an insurer holds to cover losses that have already occurred and for which settlement is not yet complete. This includes mortgage loans that are currently delinquent or in arrears. The capital required for liabilities for incurred claims associated with residential exposures is calculated by multiplying the liabilities for incurred claims associated with residential exposures by 20%.



### 3.1.3. Capital required for the loss components of liabilities for remaining coverage

The capital required for loss components of liabilities for remaining coverage associated with residential exposures is calculated by multiplying the loss component amounts associated with residential exposures by 40%.

## 3.2 Commercial exposures

### 3.2.1. Capital required for liabilities for remaining coverage

The capital required for liabilities for remaining coverage associated with commercial exposures is the sum of the capital requirements for individual commercial exposures, where the sum is calculated over all commercial mortgage loans that were expected to be in-force on the reporting date based on the mortgage's amortization schedule at the time of mortgage origination. Unlike the situation for residential exposures, an amount must be calculated and held for all commercial mortgages that were expected to be in-force on the reporting date based on the mortgage's original amortization schedule, regardless of whether the mortgage is still in-force on the reporting date.

The capital required for an individual mortgage loan is determined by the formula

$$F_1 \times F_2 \times F_3 \times A$$

where:

- $F_1$  is a factor that depends on the age of the loan and is defined in subsection 3.2.1.1,
- $F_2$  is a factor that depends on whether the mortgage's loan-to-value ratio at origination is greater or less than 80% and whether the underlying mortgage is a first or second mortgage and is defined in subsection 3.2.1.2,
- $F_3$  is a factor that depends on the settlement option stated in the master policy and the mortgage's loan-to-value ratio at origination and is defined in subsection 3.2.1.3, and
- $A$  is the mortgage balance, including any mortgage insurance premium amounts added to the balance, as of origination, measured in units of \$100.<sup>29</sup>

### 3.2.1.1. Calculation of $F_1$

The value of  $F_1$  for an individual mortgage loan depends on the number of years that have elapsed since the mortgage loan was issued and is defined by the following table.

Value of  $F_1$  by mortgage loan age

Mortgage loan age (years)	Value of $F_1$
0	1.3750
1	1.3750
2	1.3375
3	1.2250
4	1.0875
5	0.9125
6	0.6750
7	0.4125
8	0.1250
$\geq 9$	0

The values for fractional ages can be determined by interpolation.

### 3.2.1.2. Calculation of $F_2$

The value of  $F_2$  for an individual mortgage loan depends on whether the mortgage's loan-to-value ratio at origination is greater or less than 80% and whether the underlying mortgage is a first or second mortgage, and is defined by the following table.

### Value of $F_2$ by Priority and Loan-to-Value

Loan-to-Value Ratio at Origination	Priority	
	First Mortgage	Second Mortgage
$\leq 80\%$	1.00	1.50
$> 80\%$	1.50	1.50

#### 3.2.1.3. Calculation of $F_3$

The value of  $F_3$  for an individual mortgage loan depends on the settlement option stated in the master policy and the mortgage's loan-to-value ratio at origination.

If the maximum amount payable on an individual mortgage loan after all recoveries is 100% or more of the mortgage balance at origination, then the value of  $F_3$  is as defined in the following table.

### Value of $F_3$ by Loan-to-Value

Loan-to-Value Ratio at Origination	Value of $F_3$
$\leq 50\%$	100%
$50\% < \text{LTV} \leq 65\%$	100%
$65\% < \text{LTV} \leq 75\%$	100%
$75\% < \text{LTV} \leq 80\%$	105%
$80\% < \text{LTV} \leq 85\%$	110%
$85\% < \text{LTV} \leq 90\%$	115%
$90\% < \text{LTV} \leq 95\%$	140%
$\text{LTV} > 95\%$	150%

If the maximum amount payable on an individual mortgage loan after all recoveries is less than 100% of the mortgage balance at origination, then the value of  $F_3$  is as defined in the following table.

### Value of $F_3$ by Maximum Amount Payable

Maximum Amount Payable (% of Balance at Origination)	Value of $F_3$
10%	73%
15%	80%
20%	84%
25%	100%

If the amount payable on an individual mortgage loan is a fixed percentage of the lender's loss net of recoveries, then the value of  $F_3$  is determined by multiplying this fixed percentage by the value of  $F_3$  in the case where the maximum amount payable is 100% of the mortgage balance at origination. For example, if the master policy provides coverage for 50% of the lender's loss net of recoveries, and the loan-to-value ratio at origination is 85%, then the value of  $F_3$  would be 55% ( $= 50\% \times 110\%$ ).

#### 3.2.2. Capital required for liabilities for incurred claims

The capital required for liabilities for incurred claims associated with commercial exposures is calculated by multiplying the liabilities for incurred claims associated with commercial exposures by 20%.

#### 3.2.3. Capital required for the loss components of liabilities for remaining coverage

The capital required for the loss components of liabilities for remaining coverage associated with commercial exposures is calculated by multiplying the loss component amounts associated with commercial exposures by 40%.

### 3.3 Additional policy provisions

This section describes the calculation of the additional policy provision for residential and commercial exposures.

An additional policy provision must be determined for every mortgage that was expected to be in-force on the reporting date based on the mortgage's original amortization schedule, regardless of whether the mortgage is still in-force on the reporting date.

When calculating the capital required at the supervisory target, the total of the additional policy provisions for residential mortgages is to be deducted from the capital required for liabilities for remaining coverage that is determined in section 3.1.1 and then added to the capital required for catastrophes. The total of the additional policy provisions for commercial exposures is to be multiplied by 1.25 and simply added to the capital required for catastrophes.

### Additional policy provision for an individual mortgage loan

Completed Policy Duration in Years	Additional Policy Reserve as Per Cent of Single Premium Original Term of the Policy			
	Up to 5 years	Over 5 to 10 years	Over 10 to 15 years	Over 15 to 40 years
1	2.0	3.0	4.0	4.0
2	1.0	2.0	4.0	4.0
3	0.5	1.0	3.5	4.0
4	0.0	1.0	3.0	5.5
5	0.0	0.5	3.0	6.0
6	n/a	0.5	2.0	5.0
7	n/a	0.0	1.0	3.5
8	n/a	0.0	1.0	2.0
9	n/a	0.0	1.0	1.5
10	n/a	0.0	1.0	1.5
11	n/a	n/a	0.0	1.0
12	n/a	n/a	0.0	1.0
13	n/a	n/a	0.0	0.5
14	n/a	n/a	0.0	0.5
15	n/a	n/a	0.0	0.5
16	n/a	n/a	n/a	0.5
17	n/a	n/a	n/a	0.5
18	n/a	n/a	n/a	0.5
19	n/a	n/a	n/a	0.5
≥ 20	n/a	n/a	n/a	0.0

## Appendix 3-A. Determining supplementary capital requirement indicators

This appendix describes how insurers are to calculate the supplementary capital requirement indicators (SCRIs) for the purpose of determining whether a supplementary capital requirement is applied to a given residential mortgage loan.

The data sources necessary to calculate the SCRIs are outlined in Section 1 of this appendix. The Teranet – National Bank National Composite House Price Index (“Teranet index”) is used to measure house prices and Statistics Canada household disposable income and population data are used to measure per capita income.

An SCRI is to be determined for 11 metropolitan areas in the Teranet index. For each metropolitan area, an SCRI is calculated on a quarterly basis and is determined as follows:

$$H \times I \times s$$

where:

- $H$  is the smoothed value of the Teranet index for a metropolitan area as determined in Section 2;
- $I$  is the per capita income value as determined in Section 3; and
- $s$  is the scaling factor for the particular metropolitan area as indicated in Section 4.

The SCRI for a metropolitan area is compared to a threshold value for that particular area as defined in Section 5. If the SCRI exceeds the threshold value for that metropolitan area, then supplementary capital requirements will apply at the beginning of an insurer’s next quarterly fiscal reporting period, according to the schedule presented in Section 6, for the life of the loan for newly originated mortgages in that metropolitan area<sup>30</sup>.

An example illustrating how to calculate SCRIs is provided in Section 7.

### 1. Data sources

Insurers need to access the following data sources to calculate the SCRIs:

1. Teranet index data source: Teranet index, monthly (June 2005 = 100, Monthly to present)
2. Per capita income data sources:



1. Statistics Canada Current and Capital Accounts – Households, quarterly – table 36-10-0112-01 (formerly CANSIM table 380-0072)
2. Statistics Canada Labour force characteristics monthly, seasonally adjusted and trend cycle – table 14-10-0287-01 (formerly CANSIM table 282-0087)

The SCRI is to be determined using as of dates of March 31, June 30, September 30 and December 31. As the income data in table 36-10-0112-01 is the last item to be released, approximately two months after the calendar quarter ends, its release date determines when the SCRI can be calculated.

## 2. Metropolitan area house price indices

The Teranet index values are available on a monthly basis for the following 11 metropolitan areas: Calgary, Edmonton, Halifax, Hamilton, Montréal, Ottawa-Gatineau, Québec, Toronto, Vancouver, Victoria, and Winnipeg.

The Teranet indices for the metropolitan areas as published are not seasonally adjusted. Given the seasonal nature of the housing market, the indices need to be smoothed to ensure the stability of the SCRI. Without smoothing, there is a risk that an index could exhibit short-term fluctuations above and below its threshold, which would not be a desirable outcome. Therefore, a simplified approach is used to determine the smoothed Teranet indices for use in the SCRI; an average of the last 12 months of each Teranet Index's monthly metropolitan area values must be calculated.

## 3. Calculation of per capita income

The per capita income for use in the SCRI is determined as:

$$\text{Per capita income} = \frac{1,000 \times \text{Household disposable income}}{\text{Population}}$$

where:

1. The "Household disposable income" is a quarterly data series from the table 36-10-0112-01. The data characteristics for this table necessary to calculate the per capita income are:
  - Estimates = Household disposable income ( $\times 1,000,000$ )
  - Geography = Canada

- Seasonal adjustment = Seasonally adjusted at annual rates

2. The “Population” is a monthly data series and is part of the table 14-10-0287-01. The data characteristics for this table necessary to calculate the per capita income are:

- Labour force characteristics = Population ( $\times 1,000$ )
- Geography = Canada
- Sex = Both sexes
- Age group = 15 years and over
- Data type = Seasonally adjusted

To determine the “Per capita income” on a quarterly basis, the “Population” data series must be converted from a monthly basis to a quarterly basis by calculating a three month average of the data series.

#### 4. Calculation of metropolitan area SCRI

The quarterly SCRI before scaling for each metropolitan area is determined as:

SCRI before scaling =  $\frac{\text{Smoothed quarter-end Teranet house price index for a metropolitan area}}{\text{Per capita income}}$

The SCRI for a metropolitan area needs to be scaled before being compared to the threshold values to determine whether the mortgages originated in that area are subject to a supplementary capital requirement. The SCRI is determined by multiplying the ratio of the smoothed Teranet index for a metropolitan area over the per capita income by the scaling factors in the following table.

## Scaling Factor by Metropolitan Area

Metropolitan area	Scaling factor
Calgary	2,500
Edmonton	2,100
Halifax	1,900
Hamilton	2,000
Montréal	2,500
Ottawa-Gatineau	2,400
Québec	1,700
Toronto	3,300
Vancouver	4,200
Victoria	3,300
Winnipeg	1,400

## 5. Threshold values

Each metropolitan area has its own threshold value that has been determined by OSFI using an algorithm that ensured consistency across metropolitan areas. Threshold values will remain stable over time, but are subject to periodic review.

The following table shows the threshold values for each metropolitan area used to determine whether a newly originated mortgage in a given area is subject to a supplementary capital requirement. For each metropolitan area, if the calculated SCRI has breached its threshold value, then effective the beginning of the next quarterly fiscal reporting period, any mortgage loan originated in that area is subject to the supplementary capital requirement for the life of the loan.

## Threshold Values by Metropolitan Area

Metropolitan area	Threshold values
Calgary	10.0
Edmonton	9.0
Halifax	8.5
Hamilton	9.5
Montréal	11.0
Ottawa-Gatineau	11.0
Québec	9.0
Toronto	14.0
Vancouver	18.5
Victoria	12.5
Winnipeg	7.5

Exposures in those areas remain subject to the supplementary capital requirements until the SCRI for a metropolitan area falls below the threshold value. In this case, the supplementary capital requirement would no longer be required for mortgage loans originated in the next quarterly fiscal reporting period.

### 6. Timing of the calculation

The following table provides a summary of the timing for performing the SCRI calculation and determining when the supplementary capital requirement applies.

## Timing for performing and applying SCRI calculation

As at date for data	SCRI calculations performed	Application of supplementary capital requirements
December 31	March 1	April 1
March 31	June 1	July 1
June 30	September 1	October 1
September 30	December 1	January 1

## 7. Example

This example illustrates how to calculate the SCRI for Q4 2015 for the 11 metropolitan areas in the Teranet index.

### Step 1: Calculation of metropolitan area smoothed Teranet indices

The following table provides the monthly Teranet values for the 11 metropolitan areas for 2015 as well as the December 2015 smoothed values (determined as the 12-month average of the January through December 2015 values).

## Teranet Values of the 11 Metropolitan Areas for 2015

2015	Calgary	Edmonton	Halifax	Hamilton	Montréal	Ottawa-Gatineau
January	184.68	182.74	137.60	157.15	146.81	140.58
February	184.10	181.24	136.72	157.60	146.42	137.65
March	184.45	181.93	138.36	157.07	147.49	137.20
April	184.85	183.11	139.39	156.99	148.92	136.30
May	178.84	184.28	142.62	157.97	151.34	138.30
June	183.23	184.27	142.05	161.85	152.61	140.58
July	179.75	182.93	140.56	166.27	153.10	143.75
August	186.70	182.02	140.05	170.33	152.35	144.64
September	187.98	182.04	142.71	172.53	151.72	143.88
October	186.51	182.33	140.30	172.08	151.32	143.00
November	184.20	180.77	138.32	172.52	151.65	141.22
December	181.10	180.21	140.45	171.51	149.74	139.19
December smoothed	183.87	182.32	139.93	164.49	150.29	140.52

### Teranet Values for 11 Metropolitan Areas for 2015, continued

2015	Québec	Toronto	Vancouver	Victoria	Winnipeg
January	173.71	166.18	185.94	139.41	194.74
February	173.46	165.99	188.66	140.04	192.88
March	176.09	166.42	189.14	139.70	193.33
April	179.12	166.44	189.20	139.47	197.00
May	180.71	169.10	191.58	140.19	197.39
June	179.74	171.86	193.90	143.87	196.80
July	178.61	175.91	196.94	146.36	195.89
August	176.59	178.75	198.08	145.89	197.08
September	173.15	179.79	201.20	147.08	194.32
October	172.84	180.35	202.42	147.55	198.09
November	173.58	180.53	205.15	150.15	197.48
December	174.52	180.82	207.40	150.17	194.55
December smoothed	176.01	173.51	195.80	144.16	195.80

#### Step 2: Calculation of per capita income

Given the following values for the data series “Household disposable income” (table 36-10-0112-01) and “Population” data series (table 14-10-0287-01), the per capita income for Q4 2015 is determined as follows. The average population has to be rounded to the first decimal.

## Household Disposable Income and Population Data for 2015

Data type	2015	Statistics Canada data estimates
Household disposable income	Q4	1,131,400
Population	October	29,377.5
Population	November	29,401.2
Population	<b>December</b>	<b>29,419.0</b>
Population	Q4 (Average of October – December)	29,399.2

Then the per capita income for Q4 2015 is:

$$1,000 \times \frac{1,131,400}{29,399.2} = 38,484.0$$

The per capita income value has to be rounded to the first decimal.

### Step 3: Calculation of metropolitan area SCRIs

Using the December 2015 smoothed Teranet values for the 11 metropolitan areas and the per capita income for Q4 2015, the SCRIs before and after scaling as at Q4 2015 are included in the table below. The SCRI before scaling has to be rounded to the fifth decimal, while the final SCRI has to be rounded to the second decimal.



### SCRI Calculation for Q4 2015

Metropolitan area	Dec. 2015 Teranet index smoothed (H)	Q4 2015 SCRI before scaling $H \div I$	Scaling Factor (s)	Q4 2015 SCRIs $H \div I \times s$
Calgary	183.87	0.00478	2,500	11.95
Edmonton	182.32	0.00474	2,100	9.95
Halifax	139.93	0.00364	1,900	6.92
Hamilton	164.49	0.00427	2,000	8.54
Montréal	150.29	0.00391	2,500	9.78
Ottawa-Gatineau	140.52	0.00365	2,400	8.76
Québec	176.01	0.00457	1,700	7.77
Toronto	173.51	0.00451	3,300	14.88
Vancouver	195.80	0.00509	4,200	21.38
Victoria	144.16	0.00375	3,300	12.38
Winnipeg	195.80	0.00509	1,400	7.13

Where for example the Calgary Q4 2015 SCRI before scaling  $H \div I$  is determined as:

$$183.87 \div 38,484.0 = 0.00478$$

And the SCRI would be calculated as:

$$0.00478 \times 2,500 = 11.95$$

As the threshold value is set at 10.0 for Calgary, had this Guideline been in effect in Q2-2016, the supplementary capital requirements would therefore have applied for the life of a mortgage loan originated in the Calgary metropolitan area during that reporting quarter.

## Chapter 4. Credit Risk

In the context of this guideline, credit risk refers to any default risk as defined in this chapter other than the borrower default risk associated with mortgage insurance which is covered in chapter 3, Insurance Risk.

Credit risk is the risk of loss arising from a counterparty's potential inability or unwillingness to fully meet its contractual obligations due to an insurer. Exposure to this risk occurs any time funds are extended, committed, or invested through actual or implied contractual agreements. Components of credit risk include loan loss/principal risk, pre-settlement/replacement risk and settlement risk. Counterparties include issuers, debtors, borrowers, brokers, policyholders, and guarantors.

All on- and off-balance sheet exposures are subject to a specific risk factor that either: 1) corresponds to the external credit rating of the counterparty or issuer or 2) represents a prescribed factor determined by OSFI. To determine the capital requirements for balance sheet assets, factors are applied to the balance sheet values or other specified values of these assets. To determine the capital requirements for off-balance sheet exposures, factors are applied to the exposure amounts determined according to the section [4.2](#). Collateral and other forms of credit risk mitigators may be used to reduce the exposure. No risk factors are applied to assets deducted from capital available (reference section [2.3](#)). The resulting amounts are summed to arrive at the credit risk capital requirements.

In respect of invested assets, insurers must comply with OSFI's Guideline B-2 [Property and Casualty Large Insurance Exposures and Investment Concentration](#).

### 4.1. Capital Requirements for Balance Sheet Assets

For the purpose of calculating the capital requirements for credit risk, balance sheet assets should be valued at their balance sheet carrying amounts, with the following exceptions:

- loans measured at fair value through profit and loss, fair value hedge accounting, or fair valued through other comprehensive income, should be measured at amortized cost;



- financial assets measured at amortized cost should be valued gross of IFRS 9 Stage 1 and Stage 2 expected credit loss provisions; and
- off-balance sheet exposures should be valued in accordance with section [4.2](#).

#### 4.1.1. Use of ratings

Many of the risk factors in this chapter 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, an insurer must meet all of the conditions specified in this section. For MICAT purposes, insurers may recognize credit ratings from the following rating agencies:

- 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 MICAT purposes consistently for each type of asset or obligation. Companies should not select the assessments provided by different rating agencies with the sole intent to reduce their capital requirements (i.e. "cherry picking" is not permitted).

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 asset or obligor, that assessment should be used to determine the capital requirements. If there are two assessments from the rating agencies used by an insurer and these assessments differ, the insurer should apply the risk factor corresponding to the lower of the two ratings. If there are three or more assessments for an asset or obligor from an insurer's chosen rating agencies, the insurer should exclude one of the ratings that corresponds to the lowest capital requirement, and then use the rating that corresponds to the lowest capital requirement 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 requirements for the asset or obligor will be based on these assessments. Where an insurer's asset 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 asset 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 asset if this asset ranks pari passu or senior to the rated security in all respects. If not, the credit rating cannot be used and the insurer's asset must be treated as an unrated obligation.
- In circumstances where the borrower has an issuer rating, this assessment typically applies to senior unsecured assets or obligations on that issuer. Consequently, only senior assets or obligations on that issuer will benefit from a BBB- or better issuer assessment; other unassessed assets or obligations 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 requirements for an unrated asset or obligation on the issuer.
- Short-term assessments are deemed to be issue specific. They can only be used to derive capital requirements for assets or obligations arising from the rated facility. They cannot be generalized to other short-term assets or obligations, and in no event can a short-term rating be used to support a risk factor for an unrated long-term asset or obligation.
- Where the risk factor 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 requirements for assets or obligations 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 risk factors for other entities within the same group.
- 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, companies may not recognize credit 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 credit risk associated with repayment of both principal and interest.
- Insurers may not rely on unsolicited ratings in determining the risk factors for an asset, except where the asset is a sovereign exposure and a solicited rating is not available.

#### 4.1.2 Credit risk factors

Various risk factors are applied to invested assets depending on the external credit rating and the remaining term to maturity as outlined below.

Investments in mutual funds or other similar assets must be broken down by type of investment (bonds, preferred shares, etc.) and assigned the appropriate risk factor relating to the investment. If these investments are not reported on a prorated basis, then the factor of the riskiest asset held in the fund, is assigned to the entire investment.

##### 4.1.2.1 Long-term obligations

Long-term obligations, including term deposits, bonds, debentures, and loans that are not eligible for a 0% risk factor attract risk factors according to the following table. Long-term obligations generally have an original term to

maturity at issue of 1 year or more.

### Factors for Long-Term Obligations

Rating	1 year or less remaining term to maturity	Greater than 1 year up to and including 5 years remaining term to maturity	Greater than 5 years remaining term to maturity
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%
Unrated	6.00%	8.00%	10.00%
Below B-	15.50%	18.00%	18.00%

- Remaining term to maturity denotes the number of years from the reporting date until the maturity date.
- Insurers may use effective maturity as an option for determining risk factors for investments in long-term obligations subject to a determined cash flow schedule. The following formula may be used to calculate effective maturity:

$$\text{Effective Maturity (M)} = \frac{\sum_t t \times CF_t}{\sum_t CF_t},$$

where  $CF_t$  denotes the cash flows (principal, interest payments and fees) contractually payable by the borrower in period  $t$ .

- In cases where an insurer elects not to calculate an effective maturity or if it is not feasible to do so using the above formula, the insurer is required to use the maximum remaining time (in years) that the borrower is permitted to fully discharge its contractual obligation (principal, interest, and fees) under the terms of the

loan agreement. Normally, this would correspond to the nominal maturity or term to maturity of the instrument.

- Where information is not available to determine the redemption/maturity of an asset, insurers must use the "greater than 5 years" category for that asset.

#### 4.1.2.2 Short-term obligations

Short-term obligations, including commercial paper, that are not eligible for a 0% risk factor have risk factors assigned according to the following table. Short-term obligations generally have an original term to maturity at issue of no more than 365 days.

Factors for short-term obligations

Rating	Factor
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%
Unrated	6.00%
All other ratings, including non-prime and B or C ratings	8.00%

#### 4.1.2.3 Asset-backed securities

The category of asset-backed securities encompasses all securitizations, including collateralized mortgage obligations and mortgage-backed securities, as well as other exposures that result from stratifying or tranching an underlying credit exposure. For exposures that arise as a result of asset securitization transactions, insurers should refer to Guideline B-5: [Asset Securitization](#) to determine whether there are functions provided (e.g., credit enhancement and liquidity facilities) that require capital for credit risk.

#### National Housing Act (NHA) mortgage-backed securities

NHA mortgage-backed securities that are guaranteed by Canada Mortgage Housing Corporation (CMHC) receive a factor of 0% to recognize the fact that obligations incurred by CMHC are legal obligations of the Government of

Canada.

### Other asset-backed securities

The capital requirements for all other asset-backed securities are based on their external ratings. In order for an insurer to use external ratings to determine a capital requirement, the insurer must comply with all of the operational requirements for the use of ratings in Guideline B-5: [Asset Securitization](#).

For asset-backed securities (other than resecuritizations) rated BBB or higher, the capital requirement is the same as the requirement specified in subsection [4.1.2.1](#) for a long-term obligation having the same rating and maturity as the asset-backed security. If an asset-backed security is rated BB, an insurer may recognize the rating only if it is a third-party investor in the security. The credit risk factor for an asset-backed security (other than a resecuritization) rated BB in which a company is a third-party investor is 300% of the requirement for a long-term obligation rated BB having the same rating and maturity as the security.

The credit risk factors for short-term asset-backed securities (other than resecuritizations) rated A-3 or higher are the same as those in subsection [4.1.2.2](#) for short-term obligations having the same rating.

The credit risk factor for any resecuritization rated BBB or higher is 200% of the risk factor applicable to an asset-backed security having the same rating and maturity as the resecuritization.

The credit risk factor for securitization exposures classified within the highest risk category of securitization exposures in Guideline B-5: [Asset Securitization](#), is 60%.

The credit risk factor for any asset-backed security that is not mentioned above (including unrated securities and any asset-backed security that is rated lower than BB) is 60%.



#### 4.1.2.4 Preferred shares

Risk factors for preferred shares

Rating	Factor
AAA, AA+ to AA-, Pfd-1, P-1 or equivalent	3.00%
A+ to A-, Pfd-2, P-2 or equivalent	5.00%
BBB+ to BBB-, Pfd-3, P-3 or equivalent	10.00%
BB+ to BB-, Pfd-4, P-4 or equivalent	20.00%
B+ or lower, Pfd-5, P-5 or equivalent or unrated	30.00%

#### 4.1.2.5 Other balance sheet assets

##### Other risk factors for balance sheet assets

Factor	Asset
0.00%	<ul style="list-style-type: none"> <li>• Cash held on the company's own premises,</li> <li>• Obligations<sup>32</sup> of federal, provincial, and territorial governments in Canada,</li> <li>• 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,</li> <li>• Obligations of sovereigns rated AA- or better and their central banks<sup>33</sup>,</li> <li>• Obligations that have been explicitly, directly, irrevocably and unconditionally guaranteed by a government entity eligible for a 0% risk factor including, for example, residential mortgages insured under the <i>National Housing Act</i> (NHA) or equivalent provincial mortgage insurance program, and NHA mortgage-backed securities that are guaranteed by the Canada Mortgage and Housing Corporation,</li> <li>• Instalment premiums receivable (not yet due),</li> <li>• Current tax assets (income tax receivables),</li> <li>• Any deductions from capital, including goodwill, intangible assets and interests in non-qualifying subsidiaries, associates, and joint ventures with more than 10% ownership interest.</li> </ul>
0.25%	<ul style="list-style-type: none"> <li>• Demand deposits, certificates of deposit, drafts, checks, acceptances and similar obligations that have an original maturity of less than three months, and that are drawn on regulated deposit-taking institutions subject to the solvency requirements of the Basel Framework.</li> </ul> <p>(Note: where the maturity of the asset is longer than three months, the risk factor related to the credit rating of the regulated deposit-taking institution would apply instead.)</p>
2.50%	<ul style="list-style-type: none"> <li>• Investment income due and accrued.</li> </ul>
4%	<ul style="list-style-type: none"> <li>• First mortgages on one- to four-unit residential dwellings.</li> </ul>
5%	<ul style="list-style-type: none"> <li>• Receivables, outstanding less than 60 days, from agents, brokers, non-qualifying subsidiaries, associates, joint ventures, and policyholders, including instalment premiums and other receivables.</li> </ul>

Factor	Asset
10%	<ul style="list-style-type: none"> <li>• Receivables, outstanding 60 days or more, from agents, brokers, non-qualifying subsidiaries, associates, joint ventures and policyholders, including instalment premiums and other receivables,</li> <li>• Commercial mortgages and other residential mortgages that do not qualify as first mortgages on one- to four-unit residential dwellings,</li> <li>• The amount of available refunds of defined benefit pension fund surplus assets included in capital available,</li> <li>• Deferred tax assets arising from temporary differences that the institution could recover from income taxes paid in the three immediate preceding years. Insurers should deduct from capital available any amount of DTAs from temporary differences in excess of the amount of taxes recoverable in the three immediate preceding years.</li> <li>• Right-of-use assets associated with owner-occupied leased properties and other leases, excluding leases for properties used for investment purposes.</li> <li>• Other investments not specified in this section or section <a href="#">5.5</a> as part of other market risk exposures, excluding derivative-related amounts. Capital requirements for derivative-related amounts included in other investments are set out in section <a href="#">4.2</a>,</li> <li>• Other assets not specified in this section or section <a href="#">5.5</a> as part of other market risk exposures, excluding other investments.</li> </ul>
15%	<ul style="list-style-type: none"> <li>• Mortgages secured by undeveloped land (i.e. 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.</li> </ul>
20%	<ul style="list-style-type: none"> <li>• Other recoverables (mainly salvage and subrogation) on liabilities for incurred claims.</li> <li>• Assets held for sale (other than financial)<a href="#">34</a>,</li> <li>• Right-of-use assets associated with leases for properties used for investment purposes.</li> </ul>
45%	<ul style="list-style-type: none"> <li>• Loans or other forms of lending (bonds, debentures, mortgages, etc.) to non-qualifying (non-consolidated) subsidiaries, associates and joint ventures with more than a 10% ownership interest, that are not reported as equity on their financial statements.</li> </ul>

## 4.2. Capital Requirements for Off-Balance Sheet Exposures

The capital required for off-balance sheet exposures such as structured settlements, letters of credit or non-owned deposits, derivatives and other exposures is calculated in a manner similar to 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 an off-balance sheet exposure does not necessarily reflect the true credit risk exposure. To approximate this exposure, a credit equivalent amount is calculated for each exposure. This amount, net of any collateral or guarantees, is then multiplied by a credit conversion factor. For letters of credit and non-owned deposits, the credit equivalent amount is the face value. The determination of the counterparty credit risk categories and the approach for determining the eligibility of collateral and guarantees is the same as it is for other assets.

Insurers should also refer to OSFI's Guideline B-5: [Asset Securitization](#), which outlines the regulatory framework for asset securitization transactions, including transactions that give rise to off-balance sheet exposures.

The risk to an insurer associated with structured settlements, letters of credit, non-owned deposits, derivatives and other exposures and the amount of capital required to be held against this risk is:

1. The credit equivalent amount of the instrument at the reporting date;
2. Less: the value of eligible collateral securities or guarantees (reference section [4.3](#));
3. Multiplied by: a factor reflecting the nature and maturity of the instrument (credit conversion factor); and
4. Multiplied by: a factor reflecting the risk of default of the counterparty to a transaction (counterparty credit risk).

#### 4.2.1 Credit equivalent amount

The credit equivalent amount related to off-balance sheet exposures varies according to the type of instrument.

##### 4.2.1.1 Derivatives

The credit equivalent amount 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. The credit equivalent amounts are assigned the risk factor appropriate to the counterparty in order to calculate the capital requirement.



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

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

Derivative "Add-On" Factors

Residual Maturity (01)	Interest Rate (02)	Exchange Rate and Gold (03)	Equity (04)	Precious Metals except Gold (05)	Other Instruments (06)
One year or less	0.0%	1.0%	6.0%	7.0%	10.0%
One year to five years	0.5%	5.0%	8.0%	7.0%	12.0%
Over five years	1.5%	7.5%	10.0%	8.0%	15.0%

Notes:

1. Instruments traded on exchanges do not require capital for counterparty credit risk where they are subject to daily margining requirements.
2. For contracts with multiple exchanges of principal, the factors are to be multiplied by the number of remaining payments in the contract.
3. 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 remaining maturities of more than one year and that also meet the above criteria, the add-on factor is subject to a floor of 0.5%.
4. Contracts not covered by columns (02) to (05) in the above table are to be treated as "other instruments" for the purpose of determining the add-on factor.

5. No potential credit exposure would be calculated for single currency floating/floating interest rate swaps; the credit exposure on these contracts would be evaluated solely on the basis of their mark-to-market value.
6. The add-ons are based on effective rather than stated notional amounts. In the event that the stated notional amount is leveraged or enhanced by the structure of the transaction, companies must use the actual or effective notional amount when determining potential future exposure. For example, a stated notional amount of \$1 million with payments calculated at two times LIBOR would have an effective notional amount of \$2 million.
7. Potential credit exposure is to be calculated for all over-the-counter (OTC) contracts (with the exception of single currency floating/floating interest rate swaps), regardless of whether the replacement cost is positive or negative.

No add-on for potential future exposure is required for credit derivatives. The credit equivalent amount for a credit derivative is equal to the greater of its replacement cost or zero.

#### 4.2.1.2 Other exposures

##### Commitments

A commitment involves an obligation (with or without a material adverse change 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:

1. extending credit in the form of loans or participations in loans, lease financing receivables, mortgages or loan substitutes; or
2. 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



earliest date on which:

1. the commitment is scheduled to expire, or
2. the insurer can, at its option, unconditionally cancel the commitment.

### 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 transaction for accounting purposes, the securities remain on the balance sheet. Given that these securities are temporarily assigned to another party, the 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 collateral).

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 preferential factor, this would be recognized as collateral and the factor would be reduced accordingly.

### 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 risk factor is the higher of:

- the risk factor related to the instruments lent, or
- the risk factor for an exposure to the borrower of the securities. The exposure to the borrower may be reduced if the insurer holds eligible collateral (reference section [4.3](#)). 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 [4.3.2](#).

When the insurer, acting as an 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 requirements are those for an exposure to the borrower of the securities, where the exposure amount may be reduced if the insurer holds eligible collateral (reference section [4.3](#)).

#### 4.2.2 Credit conversion factors

Separate credit conversion factors exist for structured settlements, letters of credit, non-owned deposits, 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 used.



## Credit Conversion Factors

Factor	Instrument
100%	<ul style="list-style-type: none"> <li>• Direct credit substitutes (general guarantees of indebtedness and guarantee-type instruments, including standby letters of credit and non-owned deposits serving as financial guarantees for, or supporting, loans and securities).</li> <li>• Derivatives such as forwards, futures, swaps, purchased options (including options purchased over the counter) and other similar derivative contracts, including: <ol style="list-style-type: none"> <li>1. 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 as well as on indices, etc.).</li> <li>2. Equity contracts (forwards, swaps, purchased options, and similar derivative contracts based on specific parameters as well as on indices, etc.).</li> <li>3. 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 as well as on indices, etc.).</li> <li>4. Precious metals (except gold) and other commodity contracts (forwards, swaps, purchased options, and similar derivative contracts based on specific parameters as well as on indices, etc.).</li> <li>5. Other derivative contracts based on specific parameters as well as on indices (such as catastrophe insurance options and futures).</li> </ol> </li> <li>• Forward agreements (contractual obligations) to purchase assets.</li> <li>• Sale and repurchase agreements.</li> <li>• All other exposures not reported elsewhere (provide details).</li> </ul>
50%	<ul style="list-style-type: none"> <li>• Structured settlements that are not recorded as liabilities on the balance sheet (refer to Type 1 characteristics and to Guideline D-5 <a href="#">Accounting for Structured Settlements</a>).</li> <li>• Transaction-related contingencies (for example, warranties and standby letters of credit related to a particular transaction).</li> <li>• Commitments with an original maturity exceeding one year.</li> </ul>
20%	<ul style="list-style-type: none"> <li>• Commitments with an original maturity of one year or less.</li> </ul>
0%	<ul style="list-style-type: none"> <li>• Commitments that are unconditionally cancellable at any time without prior notice.</li> </ul>

### 4.2.3 Risk factors

Risk factors for off-balance sheet exposures are assigned a risk factor consistent with section [4.1](#). All criteria in section [4.1](#) around the use of ratings are applicable to off-balance sheet exposures.

Risk factors for structured settlements, which are considered long-term exposures, are based on the credit rating of the counterparty from which the annuity is purchased. The risk factors are as follows:

**Risk Factors for Structured Settlements**

Rating	Risk factor
Rated A- and higher	2%
Rated BBB+ to B-	8%
Unrated	10%
Below B-	18%

If the structured settlement is not rated by one of the four rating agencies listed in section 4.1.1, an insurer may use a credit rating from another reputable rating agency. The use of an alternative rating agency must comply with all the criteria around the use of ratings specified in section 4.1.1, including a consistent use of the same rating agency in order to assign a risk factor based on the credit rating of the annuity underwriter.

## 4.3. Capital Treatment of Collateral and Guarantees

### 4.3.1 Collateral

A collateralized transaction is one in which:

- a company has a credit exposure or potential credit exposure; and
- the credit exposure or the potential credit exposure is hedged in whole or in part by collateral posted by a counterparty or by a third party on behalf of the counterparty.

Recognition of collateral in reducing the capital requirement is limited to cash or securities rated A- or higher. Any collateral must be held throughout the period for which the exposure exists. Only that portion of an exposure that

is covered by eligible collateral will be assigned the risk factor given to the collateral, while the uncovered portion retains the risk factor of the underlying counterparty. Only collateral securities with a lower risk factor than the underlying exposure will lead to reduced capital requirements. All criteria in section [4.1](#) around the use of ratings are applicable to collateral. Where a rating is not available for the collateral asset, exposure, or counterparty where applicable, no reduction in capital required is permitted.

The effects of collateral may not be double counted. Therefore, insurers may not recognize collateral on claims for which an issue-specific rating is used that already reflects that collateral.

Collateral securities used to reduce capital requirements must materially reduce the risk arising from the credit quality of the underlying exposure. In particular, collateral used may not be related party obligations of the issuer of the underlying exposure (i.e. obligations of the underlying counterparty itself, its parent, or one of its subsidiaries or associates).

#### 4.3.2 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 is A- and higher, may attract the risk factor allocated to a direct claim on the guarantor where the desired effect is to reduce the risk exposure. Thus only guarantees<sup>35</sup> issued by entities with a lower risk factor than the underlying counterparty will lead to reduced capital requirements. To be eligible, guarantees must 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 risk factor of the guarantor (see examples below). The uncovered portion retains the risk factor of the underlying counterparty.

All criteria in section [4.1](#) around the use of ratings remain applicable to guarantees. Where a rating is not available for the investment, exposure, or guarantor where applicable, no reduction in capital required is permitted.

An insurer may not recognize a guarantee provided by a related party (parent, subsidiary or associate) of the insurer. This treatment follows the principle that guarantees within a corporate group are not a substitute for capital.

The effects of credit protection may not be double counted. Therefore, no capital recognition is given to credit protection on claims for which an issue-specific rating is used that already reflects that protection.

To be eligible, a guarantee must cover the full term of the exposure, i.e. no recognition will be given to a guarantee if there is a maturity mismatch<sup>36</sup>.

#### 4.3.2.1 Additional requirements for guarantees

The following conditions must be satisfied in order for a guarantee to be recognized:

1. On the qualifying default/non-payment of the counterparty, the insurer may in a timely manner pursue the guarantor for any monies outstanding under the documentation governing the transaction. The guarantor may make one lump sum payment of all monies under such documentation to the insurer, or the guarantor may assume the future payment obligations of the counterparty covered by the guarantee. The insurer must have the right to receive any such payments from the guarantor without first having to take legal action in order to pursue the counterparty for payment.
2. The guarantee is an explicitly documented obligation assumed by the guarantor.
3. Except as noted in the following sentence, the guarantee covers all types of payments the underlying obligor is expected to make under the documentation governing the transaction, for example notional amount, margin payments etc. Where a guarantee covers payment of principal only, interest and other uncovered payments should be treated as an unsecured amount in accordance with section 4.1.2.

#### Example 4-1: Credit risk exposure

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 0% risk weighted category and a balance value of \$10,000 ( $\$100,000 - \$90,000$ ) in the AAA category under bonds expiring or redeemable in more than five years. The capital required in the 0% risk weighted 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 chart below.

### Example of the credit risk calculation, assuming no other assets

Rating / Risk Factor	Factor (%)	Balance Sheet Value	Capital Required
0% risk factor	0.0%	\$90,000	\$0
Rating: AAA	1.25%	\$10,000	\$125
<b>Total</b>		<b>\$100,000</b>	<b>\$125</b>

#### Example 4-2: Type 1 structured settlement

To record a \$300,000 Type 1 structured settlement rated BBB+ to B-, backed by collateral or a guarantee of \$200,000 from a counterparty rated A- or higher, the insurer would report a credit equivalent amount of \$300,000 and collateral and guarantees of negative \$200,000 in the BBB+ to B- category, and collateral and guarantees of \$200,000 in the A- and higher category.

The capital required in the BBB+ to B- category is \$4,000  $((\$300,000 - \$200,000) \times 50\% \times 8\%)$ . The capital required in the A- and higher category is \$500  $(\$200,000 \times 50\% \times 0.5\%)$  for a total capital requirement of \$4,500. An example of the calculation, assuming no other exposures, is provided in the table below.

### Example of the structured settlement calculation, assuming no other exposures

Rating / Risk Factor	Credit Equivalent Amount (01)	Collateral and Guarantees (02)	Credit Conversion Factor (03)	Risk Factor (04)	Capital Required (05)
0% risk factor	n/a	n/a	n/a	n/a	n/a
Rated A- and higher	n/a	\$200,000	50%	0.5%	\$500
Rated BBB+ to B-	\$300,000	(\$200,000)	50%	8.0%	\$4,000
<b>Total</b>	n/a	n/a	n/a	n/a	<b>\$4,500</b>

## Chapter 5. Market Risk

Market risk arises from potential changes in rates or prices in various markets such as for interest rates, foreign exchange rates, equities, real estate, and other market risk exposures. Exposure to this risk results from trading, investing, and other business activities, which create on- and off-balance sheet positions.

Investments in mutual funds or other similar assets must be broken down by type of investment (bonds, preferred shares, common shares, etc.) and assigned the appropriate risk factor relating to the investment. If these investments are not reported on a prorated basis, then the factor of the riskiest asset held in the fund is assigned to the entire investment.

### 5.1. 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. Interest rate sensitive assets include fixed income assets. Interest rate 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.

#### 5.1.1. General requirements

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

#### 5.1.1.1. Interest rate sensitive assets

The interest rate sensitive assets to be included in the calculation of the interest rate margin 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:

- 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, and
- insurance contracts assets

Investments in mutual funds and other similar assets should be broken down by type of investment (bond, preferred share, common shares, etc.). 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.

#### 5.1.1.2. Interest rate sensitive liabilities

The interest rate sensitive liabilities to be included in the calculation of the interest rate risk margin 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:

- insurance contract liabilities for incurred claims, and
- insurance contract liabilities for remaining coverage<sup>37</sup>.

Insurers must obtain OSFI's supervisory approval in order to be able to consider other liabilities in the calculation of interest rate risk margin.

#### 5.1.1.3. Allowable interest rate derivatives

Interest rate derivatives are those for which the cash flows are dependent on future interest rates. They may be used to hedge an 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 a company'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, and
- single-currency interest rate swaps.

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

Insurers must understand the interest rate hedging strategies that they have in place and be able to demonstrate to OSFI, upon request, that the underlying hedges decrease interest rate risk exposure 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 companies in this situation should contact OSFI for details.



Derivatives used for hedging an insurer's interest rate risk are subject to credit risk requirements. Refer to section [4.2](#) for further details.

#### 5.1.1.4. Duration of interest rate sensitive assets and liabilities

Insurers are required to calculate the duration of the interest rate sensitive assets and liabilities for the purpose of the interest rate risk requirement calculation. The duration of an asset or a liability is a measure of the sensitivity of the value of the asset or liability to changes in interest rates<sup>38</sup>. More precisely, it is the percentage change in an 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 must be used consistently from year to year (i.e. "cherry-picking" is not permitted).

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 a company has interest rate derivatives on its balance sheet that lie within the scope of section 5.1.1.3, 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 the 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.

#### 5.1.1.5. 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 the annually compounded yield rate, assuming that expected cash flows do not change when interest rates change.

Modified duration can be written as:

$$\text{Modified duration} = \frac{1}{1 + \text{Yield}} \times \sum t \times \text{PVCF}_t \div \text{Market Value}$$

where,

Yield = the annually compounded yield to maturity of the cash flows,

$\text{PVCF}_t$  = the present value of the cash flow at time  $t$  discounted at the yield rate,

and the sum in the numerator is taken over all times  $t$  at which a cash flow occurs.

#### 5.1.1.6. 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:

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

where,

$\Delta y$  = 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:

$$V_- - V_+ = 2 \times (V_0) \times (\Delta y)$$

#### 5.1.1.7. 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:

$$w_1 D_1 + w_2 D_2 + w_3 D_3 + \dots + w_K D_K$$

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.

#### 5.1.1.8. Dollar fair value change

Modified and effective duration are related to percentage fair value changes. The interest rate risk 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,

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

#### 5.1.1.9. 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, insurers should be using effective dollar duration because the insurer is hedging the dollar interest rate risk exposure.



### 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:

$$\text{Effective dollar duration of a swap for a fixed-rate payer} = \text{effective dollar duration of a floating-rate bond} - \text{effective dollar duration of a fixed rate bond}$$

Assuming the dollar duration of the floating-rate bond is near zero, then

$$\text{Effective dollar duration of a swap for a fixed-rate payer} = 0 - \text{effective dollar duration of a fixed-rate bond}$$

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

#### 5.1.2. 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  $\Delta y$  interest rate shock factor is 1.25% ( $\Delta y = 0.0125$ ).

1. The estimated change in the interest rate sensitive asset portfolio for an interest rate shock factor 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)

2. The change in the interest rate sensitive liabilities for an interest rate shock factor increase of  $\Delta y$  is determined as follows:

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

3. The change in the allowable interest rate derivatives for the interest rate shock factor 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

4. The capital requirement for an interest rate shock factor increase of  $\Delta y$  is determined as the greater of zero and  $A - B + C$ .
5. Steps A through C are repeated for an interest rate shock factor 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  $A - B + C$ .
6. The interest rate risk margin is then determined as the maximum of D or E.

## 5.2. Foreign Exchange Risk

The foreign exchange risk margin is intended to cover the risk of loss resulting from fluctuations in currency exchange rates and is applied to the entire business activity of the insurer.

### 5.2.1. General requirements

Two steps are necessary to calculate the foreign exchange risk margin. The first is to measure the exposure in each currency position. The second is to calculate the capital requirement for the portfolio of positions in different currencies.

The foreign exchange risk margin is 10% of the greater of:

- the aggregate net long positions in each currency, adjusted by effective allowable foreign exchange rate hedges if any are used, and
- the aggregate net short positions in each currency, adjusted by effective allowable foreign exchange rate hedges if any are used,

where effective allowable foreign exchange rate hedges are limited to plain-vanilla foreign currency derivatives such as futures and forward foreign currency contracts and currency swaps.

Investments in mutual funds and other similar assets should be broken down by type of investment (bonds, preferred shares, common shares, etc.) for calculating foreign exchange risk margin. The assets in the fund that are denominated in a foreign currency are to be included in the calculation to determine the capital requirement for each currency position. In cases where a claim liability is recorded in Canadian dollars but the settlement of the claim will be made in a foreign currency, the liability must be included in the calculation of the foreign exchange risk margin.

### 5.2.2. Foreign exchange risk margin

#### Step 1: Measuring the exposure in a single currency

The net open position for each currency is calculated by summing

- the net spot position, defined as all asset items less all liability items denominated in the currency under consideration, including accrued interest and accrued expenses if they are subject to exchange rate fluctuations;

- the net forward position (i.e. all net amounts under forward foreign exchange transactions, including currency futures and the principal on currency swaps), valued at current spot market exchange rates or discounted using current interest rates and translated at current spot rates;
- guarantees (and similar instruments) that are certain to be called and are likely to be irrecoverable;
- net future income/expenses not yet accrued but already fully hedged (at the discretion of the reporting institution); and
- any other item representing a profit or loss in foreign currencies.

## Adjustments

For insurers with foreign operations, those items that are currently deducted from capital available in calculating the MICAT ratio and are denominated in the corresponding currency may be excluded from the calculation of net open currency positions, to a maximum of zero. For example:

- Goodwill and other intangibles;
- Interests in non-qualifying subsidiaries, associates and joint ventures; and
- Non-allowable foreign exchange rate hedges that are not considered in capital available.

## Carve-out

An insurer with a net open long position in a given currency may reduce the amount of the net exposure, to a maximum of zero, by the amount of a carve-out, which is equivalent to a short position of up to 25% of the liabilities denominated in the corresponding currency.

## Step 2: Calculating the capital requirement for the portfolio

The nominal amount (or net present value) of the net open position in each foreign currency calculated in **step 1** is converted at a spot rate into Canadian dollars. The gross capital requirement is 10% of the overall net open position, calculated as the greater of:

- the sum of the net open long positions; and
- the absolute value of the sum of the net open short positions.

## Example

An insurer has \$100 of U.S. assets and \$50 of U.S. liabilities.

- The net spot position, defined as assets less liabilities, is a long position of \$50.
- The carve-out, using 25% of liabilities, is:

$$= 25\% * 50$$

$$= 12.5$$

- Therefore, the foreign exchange risk margin is:

$$= 10\% * \text{MAX}((\text{net spot position} - \text{carve-out}), 0)$$

$$= 10\% * \text{MAX}((50 - 12.5), 0)$$

$$= 10\% * 37.5$$

$$= 3.75$$

### 5.2.2.1. Allowable foreign currency hedges

Foreign currency derivatives are those for which the cash flows are dependent on future foreign exchange rates.

They may be used to hedge an insurer's foreign exchange risk and as such, may be recognized in the determination of the capital requirement for foreign exchange risk, subject to the following requirements.

Only effective hedges that offset the changes in fair value of the hedged item may be included in the foreign exchange risk calculation. The company must be able to demonstrate to OSFI the effectiveness of its foreign exchange hedges.

Companies with foreign currency derivatives on their balance sheet must be able to demonstrate that the addition of such derivatives does not result in increased risk. If the insurer cannot demonstrate that the derivatives do not result in increased risk, then OSFI may require additional capital.

Only plain-vanilla foreign currency derivatives may be recognized in the calculation of the foreign exchange capital requirement. Plain-vanilla foreign currency derivative instruments are limited to the following:





- futures foreign currency contracts,
- forward foreign currency contracts, and
- currency swaps.

Other foreign currency derivatives, including options on foreign currencies, are not considered plain-vanilla and are not to be recognized in the determination of the foreign exchange risk margin.

Derivatives used for hedging an insurer's foreign exchange risk are subject to credit risk requirements. Refer to section [4.2](#) for further details.

#### 5.2.2.2. Measurement of forward currency positions

Forward currency positions should be valued at current spot market exchange rates. It would not be appropriate to use forward exchange rates since they partly reflect current interest rate differentials. Companies that base their normal management accounting on net present values are expected to use the net present values of each position, discounted using current interest rates and translated at current spot rates, for measuring their forward currency positions.

#### 5.2.2.3. Accrued and unearned interest income and expenses

Accrued interest, accrued income and accrued expenses should be treated as a position if they are subject to exchange rate fluctuations. Unearned but expected future interest, income or expenses may be included, provided the amounts are certain and have been fully hedged by allowable forward foreign exchange contracts. Companies must be consistent in their treatment of unearned interest, income and expenses and must have written policies covering the treatment. The selection of positions that are only beneficial to reducing the overall position will not be permitted for capital purposes.

### 5.3. Equity Risk

Equity risk is the risk of economic loss due to fluctuations in the value of common shares and other equity securities.



### 5.3.1. Common shares and joint ventures

A 30% risk factor applies to investments in common shares and joint ventures in which a company holds less than or equal to 10% ownership interest.

### 5.3.2. Futures, forwards, and swaps

Equity futures, forwards, and swaps attract a 30% risk factor, which is applied to the market value of the underlying equity security or index. Where a swap exchanges a return on an equity security or index for a return on a different equity security or index, a 30% risk factor applies to the market value of both equity securities or indices for which the returns are being exchanged.

#### Example

An insurer has entered into a one-year swap during which it will pay the 3-month Canadian Dollar Offered Rate (CDOR) plus fees, and receive the total return on a notional index of equities that was worth 100 at the time of inception. The index of equities is currently worth 110. A 30% equity risk charge will apply to 110 for the long position in the index, but no capital charge will be required on the short position in the bond because such a position is not subject to an equity risk charge.

In addition to the capital requirements set out in this section, futures, forwards, and swaps are subject to credit risk requirements. Refer to section [4.2](#) for further details.

### 5.3.3. Short positions

The capital requirements for short positions in common shares, equity futures, forwards, and swaps that do not wholly or partially offset a long equity position are determined by assuming the instrument is held long and then applying the corresponding risk factor. Common shares, futures, forwards, and swaps eligible for offset recognition and the corresponding capital treatment are described in section 5.3.4.

### 5.3.4. Recognition of equity hedges

Equity futures, forwards, and swaps, as well as common shares can be used to wholly or partially hedge an equity exposure. Insurers may recognize qualifying equity hedges in the calculation of the capital requirements in accordance with section 5.3.4.1 and 5.3.4.2.

Insurers must document the equity hedging strategies employed and demonstrate that the hedging strategies decrease the overall risk. The documentation must be available for review, upon request. If the insurer cannot demonstrate, to the satisfaction of the Superintendent, that the hedging strategies result in decreased overall risk, then additional capital above that calculated as per sections 5.3.4.1 and 5.3.4.2 may be required, at the discretion of the Superintendent.<sup>40</sup>

For hedges to qualify, they must be issued by an entity that:

- issues obligations which attract a 0% factor under section 4.1.2; or
- is rated A- or better (including clearing houses rated A- or better).

#### 5.3.4.1. Identical equity securities or indices

Long and short positions in exactly the same underlying equity security or index may be considered to be offsetting so that the capital requirements are calculated for the net exposure only. Individual instruments of portfolios that qualify for the capital treatment under section 5.3.4.2 cannot be carved out of the portfolios to receive the capital treatment of section 5.3.4.1.

Only common shares and plain-vanilla equity futures, forwards, and swaps can obtain the capital treatment under this section. Exotic equity derivatives<sup>41</sup> do not qualify for this treatment.

#### 5.3.4.2. Closely linked equity securities or indices

A portfolio of common shares and equity futures, forwards, and swaps can be used to partially hedge the equity exposure of another portfolio of similar instruments. When the instruments contained in both portfolios are closely linked, instead of following the capital requirements set out in sections 5.3.1, 5.3.2, and 5.3.3, insurers may calculate the capital requirements for the combined portfolios in the following manner:



$$(1 - \text{Correlation Factor}) \times 1.5 \times \text{MIN}(\text{market value of the portfolio of hedging instruments}, \text{market value of the portfolio of instruments being hedged})$$

The capital requirements set out above are capped at 60% of the minimum market value of both portfolios.

The difference between the market value of the two portfolios is not considered a hedged position and is subject to a 30% risk factor.

The Correlation Factor is derived by using:

$$CF = A^*(B/C)$$

where:

- **A** represents the historical correlation between the returns on the portfolio of instruments being hedged and the returns on the portfolio of hedging instruments
- **B** represents the minimum of [standard deviation of returns on the portfolio of instruments being hedged, standard deviation of returns on the portfolio of hedging instruments]
- **C** represents the maximum of [standard deviation of returns on the portfolio of instruments being hedged, standard deviation of returns on the portfolio of hedging instruments]

The historical correlations and standard deviations must be calculated on a weekly basis, covering the previous 52-week period. The returns on each portfolio of hedging instruments used to calculate the components of the CF must be determined by assuming that the portfolio is held long. The returns on each portfolio must be measured net of additional capital injections, and must include the returns on each component of the portfolio. For example, the returns on both the long and short legs of a total return swap included in a portfolio must be reflected in the calculation of the CF.

The CF for the previous 52 weeks is required to be calculated for each of the past four quarters. The Correlation Factor is the lowest of the four CFs calculated and is used to calculate capital requirements.

In order for the portfolios to obtain the capital treatment set out in this section, the following conditions must be met:

- The instruments in both portfolios are limited to exchange-traded common shares, and plain-vanilla equity futures, forwards, and swaps where the underlying asset is an exchange-traded common share or an equity index. Portfolios that contain instruments other than those specified in this section will be subject to the capital treatment under sections 5.3.1, 5.3.2, and 5.3.3.
- The CF is determined at the portfolio level. Individual instruments cannot be carved-out of the portfolios and receive the capital treatment as per section 5.3.4.1.
- The portfolios that are part of a hedging strategy must have been established at least two years prior to the reporting date. In addition, the hedging strategy and the active management strategy on which both portfolios are based must not have changed in the past two years prior to the reporting date.<sup>42</sup> Portfolios that have been established for at least two years but have undergone a change in the hedging strategy or active management strategy will attract a 30% risk factor.

### Example

Suppose a portfolio of instruments is valued at \$200 and is paired with another portfolio of instruments as part of a qualifying equity hedge. Assuming that the second portfolio is worth \$190 and that the Correlation Factor between the two portfolios is 0.95, the total capital charge for both portfolios will be  $190 \times 5\% \times 1.5 + \$10 \times 30\% = \$17.25$ .

Portfolios that were established less than two years prior to the reporting date attract the following capital treatment:

- No recognition of the equity hedge in the first year following the establishment of the portfolios (i.e. a 30% factor is applied to both portfolios); and
- in the second year, the sum of:

- $T \times$  capital requirements for the combined portfolios using the correlation factor approach described in this section<sup>43</sup>; and
- $(1-T) \times$  capital requirements set out in 1 above.

$T$  equals 20%, 40%, 60%, and 80% in the first, second, third, and fourth quarter, respectively, of the second year following the establishment of the portfolios.

### Example

Two portfolios (as part of an equity hedge), each equal to 100, are established on April 1, 2016. On March 31, 2017, the capital charge for both portfolios will be  $30\% \times 100 + 30\% \times 100 = 60$ . On June 30, 2017, assuming that the Correlation Factor is 0.90, the combined portfolios will be subject to a capital charge of  $20\% \times 10\% \times 1.5 \times 100 + 80\% \times 60\% \times 100 = 51$ .

## 5.4. Real Estate Risk

Real estate risk is the risk of economic loss due to changes in the value of a property or in the amount and timing of cash flows from investments in real estate.

Risk factors for real estate risk

Type of Real Estate	Risk Factor
Owner-occupied properties	10%
Real Estate held for investments purposes	20%

For owner-occupied properties, the risk factor is applied to the value using the cost model, excluding any unrealized fair value gains (losses) arising at the conversion to IFRS, or subsequent unrealized fair value gains (losses) due to revaluation.

## 5.5. Other Market Risk Exposures

Other market risk exposures include assets that fall in the category “other assets,” for example, equipment, that are exposed to asset value fluctuations that may result in the value realized upon disposal being less than the balance sheet carrying value. A 10% risk factor applies to other assets as part of the total capital requirements for market risk.

## Chapter 6. Operational Risk

Operational risk is the risk of loss due to inadequate or failed internal processes, people and systems, or external events. It includes legal risk but does not include strategic or reputational risk.

The capital required for an insurer’s operational risk is calculated using the following formula:

$$\text{Operational risk capital required} = 20\% \times [TC - SC]$$

where:

- *TC* is the insurer’s total capital required, before the calculation of the requirement for operational risk.
- *SC* is, if applicable, the supplementary capital required for insurance risk (reference subsection 3.1.1.3).

- 1 In the context of this guideline credit risk refers to any default risk as defined in chapter 4 other than the borrower default risk associated with mortgage insurance which is covered in chapter 3, Insurance Risk.
- 2 Where repayment is subject to Superintendent's approval.
- 3 The criteria also apply to non-joint stock companies, taking into account their specific constitution and legal structure. The application of the criteria should preserve the quality of the instruments by requiring that they are deemed fully equivalent to common shares in terms of their capital quality as regards loss absorption and do not possess features that could cause the condition of the insurer to be weakened as a going concern during periods of market stress.
- 4 Paid-in capital generally refers to capital that has been received with finality by the institution, is reliably valued, fully under the institution's control and does not directly or indirectly expose the institution to the credit risk of the investor.
- 5 A related entity can include a parent company, a sister company, a subsidiary or any other affiliate. A holding company is a related entity irrespective of whether it forms part of the consolidated insurance group.
- 6 Further, where an institution uses a special purpose vehicle to issue capital to investors and provides support, including overcollateralization, to the vehicle, such support would constitute enhancement in breach of criterion #3 above.
- 7 A step-up is defined as a call option combined with a pre-set increase in the initial credit spread of the instrument at a future date over the initial dividend (or distribution) rate after taking into account any swap spread between the original reference index and the new reference index. Conversion from a fixed rate to a floating rate (or vice versa) in combination with a call option without any increase in credit spread would not constitute a step-up.
- 8 Other incentives to redeem include a call option combined with a requirement or an investor option to convert the instrument into common shares if the call is not exercised.
- 9 Replacement issuances can be concurrent with, but not after, the instrument is called.



- 10** A consequence of full discretion at all times to cancel distributions/payments is that “dividend pushers” are prohibited. An instrument with a dividend pusher obliges the issuing insurer to make a dividend/coupon payment on the instrument if it has made a payment on another (typically more junior) capital instrument or share. This obligation is inconsistent with the requirement for full discretion at all times. Furthermore, the term “cancel distributions/payments” means to forever extinguish these payments. It does not permit features that require the insurer to make distributions/payments in kind at any time.
- 11** Institutions may use a broad index as a reference rate in which the issuing institution is a reference entity; however, the reference rate should not exhibit significant correlation with the institution’s credit standing. If an institution plans to issue capital instruments where the margin is linked to a broad index in which the institution is a reference entity, the institution should ensure that the dividend/coupon is not credit-sensitive.
- 12** Any modification of, addition to, or renewal or extension of an instrument issued to a related party is subject to the legislative requirement that transactions with a related party be at terms and conditions that are at least as favourable to the institution as market terms and conditions.
- 13** A step-up is defined as a call option combined with a pre-set increase in the initial credit spread of the instrument at a future date over the initial dividend (or distribution) rate after taking into account any swap spread between the original reference index and the new reference index. Conversion from a fixed rate to a floating rate (or vice versa) in combination with a call option without any increase in credit spread would not constitute a step-up.
- 14** An option to call the instrument after five years but prior to the start of the amortisation period will not be viewed as an incentive to redeem as long as the insurer does not do anything that creates an expectation that the call will be exercised at this point.
- 15** Replacement issuances can be concurrent with but not after the instrument is called.
- 16** Insurers may use a broad index as a reference rate in which the issuing insurer is a reference entity; however, the reference rate should not exhibit significant correlation with the insurer’s credit standing. If an insurer plans to issue capital instruments where the margin is linked to a broad index in which the insurer is a reference entity, the insurer should ensure that the dividend/coupon is not credit-sensitive.

- 17** Any modification of, addition to, or renewal or extension of an instrument issued to a related party is subject to the legislative requirement that transactions with a related party be at terms and conditions that are at least as favourable to the institution as market terms and conditions.
- 18** This includes computer software intangibles.
- 19** This does not permit offsetting of DTAs across provinces.
- 20** To obtain OSFI supervisory approval, an insurer must demonstrate, to OSFI's satisfaction that it has clear entitlement to the surplus and that it has unrestricted and unfettered access to the surplus pension assets. Evidence required by OSFI may include, among other things, an acceptable independent legal opinion and the prior authorization from the pension plan members and the pension regulator.
- 21** No adjustments are required for "investment properties" as fair value gains (losses) are allowed for capital purposes.
- 22** Interests in limited partnerships that are reported using the equity method of accounting are subject to the same capital treatment as joint ventures.
- 23** If an insurer fails to obtain a capital confirmation (or obtains a capital confirmation without disclosing all relevant material facts to OSFI), OSFI may, at its discretion and at any time determine that such capital does not comply with these principles and is to be excluded from the insurer's capital available.
- 24** OSFI reserves the right to require a Canada Revenue Agency advance tax ruling to confirm such tax opinion if the tax consequences are subject to material uncertainty.
- 25** OSFI reserves the right to require such accounting opinion to be an external opinion of a firm acceptable to OSFI if the accounting consequences are subject to material uncertainty.
- 26** For the purposes of this calculation, *L* includes liability amounts for incurred but not reported (IBNR) claims.
- 27** Mortgages that are in arrears or default are excluded from this calculation provided that a specific provision for such mortgages is included in the incurred claim reserve; otherwise, they should be included.

- [28](#) If a mortgage is split into tranches, then the remaining amortization used in this and subsequent formulas is the maximum of the remaining amortizations of all tranches.
- [29](#) For second mortgages, *A* is the total amount of outstanding loan balance for both the first and second mortgage as of the date of loan issue.
- [30](#) The metropolitan areas geographical limits are determined using Statistics Canada definition of Census Metropolitan Areas.
- [31](#) The dates presented are approximate; they may vary according to the table 36-10-0112-01 release date.
- [32](#) Includes securities, loans and accounts receivable.
- [33](#) Sovereign obligations rated lower than AA- may not receive a factor of 0%, and are instead subject to the factor requirements in section [4.1.2](#).
- [34](#) Alternatively, assets classified as held for sale may be re-consolidated (look-through approach) at the option of the insurer. If this method is selected, any write-down made because of re-measuring the assets classified as held for sale at the lower of carrying amount and fair value less costs to sell should be reflected in the MICAT after re-consolidation. Any asset within a consolidated group that is deducted from capital available for MICAT purposes should continue to be deducted from capital when it becomes an asset held for sale. If the insurer has elected to apply a 20% risk factor to assets held for sale instead of using the look-through approach, associated liabilities held for sale should be subject to the usual MICAT treatment of liabilities.
- [35](#) Letters of credit for which a company is the beneficiary are included within the definition of guarantees, and receive the same capital treatment.
- [36](#) A maturity mismatch occurs when the residual maturity of the credit protection is less than that of the underlying exposure.
- [37](#) If the interest rate sensitive liability for remaining coverage (LRC) has a contractual service margin (CSM), the LRC duration, defined in section 5.1.1.4. should be determined as a weighted average of durations of its components with a zero duration for CSM.

- 38** An asset or liability for which the future cash flows are not adjusted to reflect the time value of money has a duration of zero.
- 39** The carve-out can be used to reduce the net open long currency position to a minimum of zero.
- 40** An insurer may contact OSFI to discuss the adequacy of its documentation and/or risk assessment to assess the likelihood or amount of potential additional capital that may be required.
- 41** An example of an exotic derivative would be one that has a discontinuous payoff structure.
- 42** For the purposes of this section, the hedging strategy and active management strategy together are deemed to be unchanged if the ex-ante equity risk profile of the combined portfolios is maintained. For example, the ex-ante equity risk profile is maintained if the combined beta is continuously targeted to be 0 (the hedging strategy), and if instrument selection is continuously based on the price-earnings ratio (the active management strategy).
- 43** For the purposes of this calculation, the Correlation Factor must be determined based on actual portfolio returns (i.e. portfolio returns up to the reporting date). Projected (simulated) returns cannot be used. The Correlation Factor must be determined as the lowest of available 52 week Correlation Factors given the actual history of portfolio returns. During the second year, the number of available 52 week Correlation Factors will increase from one to four as time elapses.