

## Manual of Reporting Forms and Instructions for Deposit-Taking Institutions

### AMENDMENT CONTROL LOG

#### Capital Adequacy Return - Market Risk

Amendment Number	Effective Reporting Date	Page Number	Description
<b>Please note that as of November 2002, all changes are highlighted:</b>			
1	Q1 2000	1	<u>Change:</u> ♦ Section 523 of the Bank Act is now Section 628
		2, 19	<u>Change:</u> ♦ The components of Risk-Weighted Balance Sheet Assets include Deposits with regulated Financial Institution, Non-Mortgage loans and Other assets. The revised instructions on Page 19 explain which items qualify.
		3	<u>Change:</u> ♦ Line J – The word “risk” appeared twice. We removed one.  <u>Add:</u> ♦ A new line for all the deductions: Deductions (CAR 2, total of lines N, O, P, Q and T)  <u>Delete:</u> ♦ The following lines were deleted: - Gross Tier 1 - Deduct: Goodwill (CAR 2 line K) - Deduct: Investments in unconsolidated subsidiaries / substantial investments (CAR 2 line L) - Deduct: Other facilities treated as capital (CAR 2 line M) - Deduct: Back-to-back inter-institutional placements of new capital issues (CAR 2 line N) - Deduct: First loss protection (CAR 2 line O) - Deduct: Other (CAR 2 line Q)
		3, 20	<u>Change:</u> ♦ Line G – from Tier 1 to Net Tier 1 Capital (CAR 2, line D) ♦ Line H – from Gross Tier 2 to Net Tier 2 Capital (CAR 2, line AB)
		4	<u>Change:</u> ♦ The brackets on line O and P
		21	<u>Add:</u> ♦ “10-day” before VaR
		24, 30	<u>Change:</u> ♦ EURO for Deutsche Marks
		2	Q1 2001
3	Q1 2003	18	<u>Delete:</u> ♦ Reference to new return ♦ Reference to Rules for the Translation of Foreign Currency

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for Deposit-Taking Institutions**

**AMENDMENT CONTROL LOG**

**Capital Adequacy Return - Market Risk**

Amendment Number	Effective Reporting Date	Page Number	Description
<b>Please note that as of November 2002, all changes are highlighted:</b>			
4	Q1 2008	24, 30, 32	<u>Change:</u> ◆ On and off-balance sheet to recognized and unrecognized
		32	<u>Change:</u> ◆ Off-balance sheet to unrecognized

## **CAPITAL ADEQUACY RETURN - MARKET RISK**

### **PURPOSE**

This return is used to report the capital requirements under the market risk framework and the institution's combined credit and market risk ratio.

### **STATUTORY**

| Section 628 of the Bank Act and Section 495 of the Trust and Loan Companies Act.

### **APPLICATION**

This return applies to all deposit-taking institutions that are subject to the market risk capital framework. This framework applies only to those institutions where the greater of the value of trading book assets or the value of trading book liabilities:

- is at least 10% of total assets; and
- exceeds \$1 billion,

although OSFI will retain the right to apply the framework to other institutions, on a case by case basis, if trading activities are a large proportion of overall operations.

### **PUBLICATION**

The information from this return is not published.

### **FREQUENCY**

Institutions with fiscal year-ends of October	-	Quarterly	-	January, April, July and October
Institutions with fiscal year-ends of December	-	Quarterly	-	March, June, September and December

### **CONTACT PERSON**

Provide name and phone number of person to contact regarding any questions about this return.

### **REPORTING DATES**

The return is to be completed as of the last day of each quarter and Sections I and IA are to be submitted within 45 days of the reporting date as follows:

- |                                                |   |                                     |
|------------------------------------------------|---|-------------------------------------|
| Institutions with fiscal year-ends of October  | - | January, April, July and October    |
| Institutions with fiscal year-ends of December | - | March, June, September and December |

### **CONTACT AGENCY**

OSFI

**SECTION I - CAPITAL RATIO CALCULATION**

<b>Minimum Capital Required for Market Risk:</b>	
Standardized Approach	
Interest Rate Position Risk	
Equities Position Risk	
Foreign Exchange Risk	
Commodities Risk	
Options:	
- Interest Rate	
- Equities	
- Foreign Exchange	
- Commodities	
Acceptable Internal Model	
Aggregate Value at Risk Requirement (line Q from Section Ia)	
<b>Total Minimum Capital Required for Market Risk</b>	<b>A</b>

<b>Minimum Capital Required for Credit Risk:</b>		
Total Risk-Weighted Assets per CAR 1 line C		<b>B</b>
<b>Risk-Weighted Balance Sheet Assets in CAR subject to Specific Risk:</b>		
	<b>Balance</b>	<b>Risk-Weighted Amount</b>
- Deposits with regulated financial institutions risk-weighted 0%		
- Deposits with regulated financial institutions risk-weighted 20%		
- Deposits with regulated financial institutions risk-weighted 100%		
- debt securities risk-weighted 0%		
- debt securities risk-weighted 20%		
- debt securities risk-weighted 50%		
- debt securities risk-weighted 100%		
- equity securities risk-weighted 20%		
- equity securities risk-weighted 50%		
- equity securities risk-weighted 100%		
- Non-Mortgage loans risk-weighted 0%		
- Non-Mortgage loans risk-weighted 20%		
- Non-Mortgage loans risk-weighted 50%		
- Non-Mortgage loans risk-weighted 100%		

- Other assets risk-weighted 0%			
- Other assets risk-weighted 20%			
- Other assets risk-weighted 50%			
- Other assets risk-weighted 100%			
Total Risk-Weighted Assets in CAR subject to Specific Risk			<b>C</b>
Total Risk-Weighted Non-Trading Book Assets $D = (B - C)$			<b>D</b>
Minimum Capital Required for Credit Risk $E = D \times 8\%$			<b>E</b>
<b>Allocation of Capital to Meet Minimum Required</b>		<b>Credit Risk</b>	<b>Market Risk</b>
Tier 1			
Tier 2			
Tier 3			<b>F</b>
<b>TOTAL</b>			

<b>Eligible Capital</b>		
Net Tier 1 Capital (CAR 2, line D)		<b>G</b>
Net Tier 2 Capital (CAR 2, line AC)		<b>H</b>
Tier 3 (limited to amount used to meet minimum required for market risk)		<b>F</b>
<b>Total Tier 1, Tier 2 and Tier 3 Capital</b>		
Less: Deductions (CAR 2, total of lines N, O, P, Q and AD)		
<b>Total Eligible Capital</b>		<b>I</b>

<b>Adjusted Risk-Weighted Assets</b>			
	<b>Minimum Capital Required (A)</b>	<b>Multiplier</b>	<b>Risk-Weight Equivalent</b>
Market Risk		12.5	
Credit Risk - Total risk-weighted non-trading book Assets (from Section I line D)			
<b>Total Adjusted Risk-Weighted Assets</b>			<b>J</b>

<b>Combined Capital Ratio Calculations</b>	
Combined Tier 1 ratio $(G/J) \times 100$	
<b>Combined Total Capital Ratio <math>(I/J) \times 100</math></b>	

**SECTION IA - INTERNAL MODEL REQUIREMENTS**

**Part A - Value at Risk Requirement Calculation**

<b>Consolidated Value at Risk for a 10 day holding period and 99% confidence level:</b>		
VaR at reporting date excluding modelled specific risk		<b>K</b>
Modelled specific risk at reporting date		<b>L</b>
60 day average VaR excluding modelled specific risk		<b>M</b>
60 day average modelled specific risk		<b>N</b>
<hr/>		
Modelled general market risk requirement [Greater of (K) and (Mx3)]		<b>O</b>
Modelled specific risk requirement [Greater of (L) and(Nx4)]		<b>P</b>
<b>Aggregate Value at Risk Requirement</b> [O + P]		<b>Q</b>

**Part B - Backtesting Consolidated Value at Risk Model**

<b>Quarterly Backtesting of One-day Value at Risk</b>			
Number of days of backtesting since last reporting date	Number of exceptions	Average over the quarter	
		1 day Value at Risk	Average Divergence

**SECTION II - STANDARDIZED APPROACH TO MARKET RISK CAPITAL CHARGE FOR INTEREST RATE POSITION RISK:**

**Part A - Summary (total all currencies)**

Institution: \_\_\_\_\_ As at: \_\_\_\_\_

**General Interest Rate Risk Charge:**

Basis Risk Charge (sum of A, D, G, J, M, P, S, V)<sup>1</sup>

Yield Curve Risk Charge (sum of B, E, H, K, N, Q, T, W)<sup>1</sup>

Net Position Charge (sum of C, F, I, L, O, R, U, X)<sup>1</sup>

**Total General Interest Rate Risk Charge**

**Specific Interest Rate Risk Charge (equal to Y)**

**Total Interest Rate Position Risk Charge**

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<sup>1</sup> Reference to the separate worksheet for the major currencies.

**STANDARDIZED APPROACH TO MARKET RISK CAPITAL CHARGE FOR INTEREST RATE POSITION RISK:**

**Part B - General Risk**

Institution: \_\_\_\_\_ As at: \_\_\_\_\_

Currency: Canadian dollars (separate schedules for U.S. dollar, British pounds, Deutsche marks, Swiss francs, Japanese Yen and Total Other insignificant currencies)

Zone	Time Band		Current Market Value		Risk-Weight  C	Risk-Weighted			
	(for coupons \$3%)	(coupons <3% & zero coupons)	Long Positions  \$ A	Short Positions  \$ B		Long Positions  \$ D = A x C	Short Positions  \$ E = B x C	Unmatched Positions  \$ F = D + E	Individual Timeband Matched Position (subject to basis risk charge) \$ G
1	0 - 1 mth	up to 1 mth			0.00 %				
	1 - 3 mths	1 up to 3 mths			0.20 %				
	3 - 6 mths	3 up to 6 mths			0.40 %				
	6 - 12 mths	6 up to 12 mths			0.70 %				
<b>Total Zone 1</b>									



Zone	Time Band		Current Market Value		Risk-Weight C	Risk-Weighted			
	(for coupons \$3%)	(coupons <3% & zero coupons)	Long Positions \$ A	Short Positions \$ B		Long Positions \$ D = A x C	Short Positions \$ E = B x C	Unmatched Positions \$ F = D + E	Individual Timeband Matched Position (subject to basis risk charge) \$ G
2	1 - 2 years	1 up to 1.9 years			1.25 %				
	2 - 3 years	1.9 up to 2.8 years			1.75 %				
	3 - 4 years	2.8 up to 3.6 years			2.25 %				
<b>Total Zone 2</b>									

3	4 - 5 years	3.6 up to 4.3 years			2.75 %				
	5 - 7 years	4.3 up to 5.7 years			3.25 %				
	7 - 10 years	5.7 up to 7.3 years			3.75 %				
	10 - 15 years	7.3 up to 9.3 years			4.5 %				

Zone	Time Band		Current Market Value		Risk-Weight	Risk-Weighted			
	(for coupons \$3%)	(coupons <3% & zero coupons)	Long Positions \$ A	Short Positions \$ B	C	Long Positions \$ D = A x C	Short Positions \$ E = B x C	Unmatched Positions \$ F = D + E	Individual Timeband Matched Position (subject to basis risk charge) \$ G
3	15 - 20 years	9.3 up to 10.6 years			5.25 %				
	> 20 years	10.6 up to 12 years			6.00 %				
		12 up to 20 years			8.00 %				
		over 20 years			12.50 %				
<b>Total Zone 3</b>									

<b>TOTAL ALL ZONES</b>		<b>L</b>		<b>M</b>
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Matched Weighted Position Between Time Bands, Zone 1	
Matched Weighted Position Between Time Bands, Zone 2	
Matched Weighted Position Between Time Bands, Zone 3	
Residual Unmatched Weighted Position, Zone 1 (after Matching Between Zone 1 and Zone 2)	
Residual Unmatched Weighted Position, Zone 2 (after Matching Between Zone 2 and Zone 1)	
Residual Unmatched Weighted Position, Zone 3 (after Matching Between Zone 3 and Zone 2)	

Basis Risk Charge (10 % factor)		<b>A</b>
Yield Curve Risk Charge		
Yield Curve Risk, Zone 1 (40 % factor)		
Yield Curve Risk, Zone 2 (30 % factor)		
Yield Curve Risk, Zone 3 (30 % factor)		
Yield Curve Risk, Zone 1/Zone 2 (40 % factor)		
Yield Curve Risk, Zone 2/Zone 3 (40 % factor)		
Yield Curve Risk, Zone 3/Zone 1 (100 % factor)		
<b>Total Yield Curve Risk Charge</b>		<b>B</b>
<b>Net Position Charge</b>		<b>C</b>
<b>TOTAL GENERAL INTEREST RATE RISK CHARGE (A + B + C)</b>		

**STANDARDIZED APPROACH TO MARKET RISK CAPITAL CHARGE FOR INTEREST RATE POSITION RISK:**

**General Risk**

Institution: \_\_\_\_\_ As at: \_\_\_\_\_

**Currency: Total of Other Currencies in which the institution holds significant positions**

Note: Individual maturity ladders must be used to determine the following charges for each currency separately. The results from each currency can then be summed in order to report, below, the charges for these currencies as a total.

Basis Risk Charge (10 % factor)

	<b>V</b>
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Yield Curve Risk Charge

Yield Curve Risk, Zone 1 (40 % factor)

Yield Curve Risk, Zone 2 (30 % factor)

Yield Curve Risk, Zone 3 (30 % factor)

Yield Curve Risk, Zone 1/Zone 2 (40 % factor)

Yield Curve Risk, Zone 2/Zone 3 (40 % factor)

Yield Curve Risk, Zone 3/Zone 1 (100 % factor)


**Total Yield Curve Risk Charge**

	<b>W</b>
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**Net Position Charge**

	<b>X</b>
--	----------

**TOTAL GENERAL INTEREST RATE RISK CHARGE (V + W + X)**

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**STANDARDIZED APPROACH TO MARKET RISK CAPITAL CHARGE FOR INTEREST RATE POSITION RISK:**

**Part C - Specific Risk**

Institution: \_\_\_\_\_ As at: \_\_\_\_\_

<b>Obligor</b>	<b>Remaining Maturity</b>	<b>Risk Factor</b> A	<b>Current Market Value</b> \$ B	<b>Risk-Weighted Amount</b> \$ C = A x B
Government		0.00 %		
Qualifying	6 months or less	0.25 %		
	6 to 24 months	1.00 %		
	over 24 months	1.60 %		
Other		8.00 %		
<b>Total Specific Risk Charge</b>				<b>Y</b>

**SECTION III - EQUITY POSITION RISK**

**Part A - Summary Table**

	Ref.	Capital Charge
Specific Risk		
Canada	Z	
United States	Z	
United Kingdom	Z	
Germany	Z	
Japan	Z	
Switzerland	Z	
Others	Z	
Total Specific Risk		
Total General Risk	D	
<b>TOTAL EQUITY RISK</b>		

**Part B - General Market Risk**

National Markets	Long Position A	Short Position B	Overall Net Position $A + B = C^1$
Canada			
United States			
United Kingdom			
Germany			
Japan			
Switzerland			
Others			
<b>Total</b>			
			x 8%
<b>Capital Charge</b>		D	

1 Each market will be calculated separately for columns A and B however only aggregated totals will be shown, as a result for "Other" row A and B will not equal C.

**EQUITY POSITION RISK**

**Part C - Specific Risk Calculation**

**Country:** CANADA (separate schedules for the United States, United Kingdom, Japan, Germany, Switzerland and Other countries)

		Position A	Factor B	Capital Charge C = A x B	
<b>Equity Positions</b>					
Long Positions - Securities	e				
Short Positions - Securities	f				
Long Positions - Derivatives	g				
Short Positions - Derivatives	h				
Gross Position (e + [f] + g + [h])	i				
of which:					
Liquid and Well-diversified	j		4 %		t
Gross Position Charge (Others)	k		8 %		u
<b>Index Positions</b>					
Long Positions	l				
Short Positions	m				
Net Position (l + m)	n				
of which:					
Well-diversified	o		2 %		v
Other	p		8 %		w
<b>Arbitrage Strategies</b>					
Futures Arbitrage (Indices)	q		2 %		x
Futures Arbitrage (Index/Securities)					
Gross Value Index	r		2 %		y
Gross Value Securities	s		2 %		z
<b>Total Capital Charge (t + u + v + w + x + y + z)</b>					

**SECTION IV - FOREIGN EXCHANGE RISK**

	Net Spot Position A	Net Forward Position B	Guarantees C	Net Future Income/Expenses D	Other Items E	Net Long Position F	Net Short Position G
US dollar (\$)							
UK pound ( £ )							
German mark (DM)							
Swiss franc ( ¢ )							
Japanese yen ( ¥ )							
Others - Long							
Others - Short							
TOTAL							
						(X)	(Y)
Gold							

**Capital Calculation**

Greater of Net Open Long Position (X) or absolute value of Net Open Short Position (Y) H	Open Position in Gold Absolute Value I	Capital Charge Total (H + I) x 8%



SECTION V - COMMODITY RISK

Commodity/ Category	Long Position A	Short Position B	Gross Position <sup>1</sup> A + [B] = C	Net Position A + B = D	Gross Position Requirement C x 3% = E	Net Position Requirement <sup>2</sup> D x 15% = F	Total Capital Requirement E + F = G
Platinum							
Palladium							
Silver							
Crude Oil							
Natural Gas							
Wheat							
Corn							
Canola							
Other							
<b>TOTAL</b>							

1 Gross Position is based on Long Position (A) and the absolute value of the Short Position (B).

2 As the Net Position Charge will have to be calculated for each individual commodity in the "Other" category, the Net Position Charge reported on this form for "Other" will not necessarily be the net "Other" position x 15%. Institutions are to calculate the Net Position Charge based on their actual positions and report the internally calculated figure to OSFI.

SECTION VI - MARKET RISK CHARGE FOR OPTIONS

Part A - Simplified Method

Position	Risk Exposure	Market Value of the Options Underlying <sup>1</sup> \$	Capital Charge on Options <sup>1</sup> \$
Long underlying/Long put or Short underlying/Long call	Interest rate position risk		
	Equity risk		
	Foreign Exchange risk		
	Commodity risk		
	<b>Total</b>		
Long call or Long put	Interest rate position risk		
	Equity risk		
	Foreign Exchange risk		
	Commodity risk		
	<b>Total</b>		
<b>Total Options</b>			

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A charge is determined individually for each option, as outlined on pages 2-5-1 to 2-5-3 of the guideline. A sum of these individual charges is reported here, by type of position and exposure.

**SECTION VI - MARKET RISK CHARGE FOR OPTIONS**

**Part B - Scenario Method**

Risk Exposure	Market Value of the Options Underlying \$ A	Specific Risk Charge <sup>1</sup> \$ B	Market Value of the Option Portfolios \$ C	General Risk Charge <sup>2</sup> \$ D	Total Capital Charge on Options \$ E = B + D
Interest rate position risk					
Equity risk					
Foreign exchange risk					
Commodity risk					
<b>TOTAL</b>					

- 
- 1 A specific risk charge is determined individually for each option. The charge for each is calculated as the current market value of the option's underlying times the option's delta times the appropriate specific risk factor. The source of these factors is summarized on page 2-5-5 of the guideline. A sum of these individual charges is reported here, by type of exposure.
  - 2 A general risk charge is determined individually for each portfolio, where a portfolio can combine certain options, as outlined on page 2-5-3 of the guideline. For each option portfolio the general risk charge is the absolute value of the largest loss calculated in its scenario matrix (scenario matrices are explained further on pages 2-5-3 to 2-5-4 of the guideline). A sum of these portfolio charges is reported here, by type of exposure.

## **CAPITAL ADEQUACY RETURN - MARKET RISK**

### **GENERAL INSTRUCTIONS**

The reporting forms are to be used by deposit-taking institutions that are subject to the market risk capital requirements. Only Sections I and IA are to be submitted to the OSFI. Sections II to VI are worksheets for the calculation of the standardised approach amounts. The worksheets should not be submitted to OSFI, but equivalent details of an institution's calculations must be readily available to OSFI upon request. Details of the calculation are set out in guideline A - Part II, Capital Adequacy Requirements - Market Risk.

All amounts are to be expressed in thousands of Canadian dollar equivalents.

Derivative instruments included in the market risk capital framework are also subject to counterparty credit risk; accordingly they must be included in the capital calculation for credit risk in the CAR return.

## **SECTION I - CAPITAL RATIO CALCULATION**

This page of the return should be completed after having calculated the capital charge for each risk category. Information on the categories of capital and limitations on its use is set out in guideline A-Part II, section 1

### *Minimum Capital Required for Market Risk*

Record the total capital charges for each of the risk exposures as reported on the respective pages of the worksheets and Section IA of the return. These amount will include specific risk calculated using the standardised approach where the institution does not have an internal model of specific risk that meets the Guideline criteria for specific risk models. Sum the charges for all the risk categories and report on line A.

### *Minimum Capital Required for Credit Risk*

Determine the amount of capital required for credit risk by beginning with total risk-weighted assets as reported in the Capital Adequacy Return schedule CAR 1. Record this amount in line B.

In the column "balance" record the balance sheet amounts subject to a specific risk requirement and included with the approval of OSFI in the institution's trading book for capital adequacy purposes. Please note: If an institution has not requested and been granted explicit and written approval to include loans, deposits or other assets in the trading book for capital adequacy purposes, the corresponding lines on the return should be nil. Allocate these amounts into the rows corresponding to the risk-weights from the schedule CAR 3. In the column "risk-weighted amount" report the result of multiplying the amounts in the balance column by the credit risk-weights corresponding to each row. Sum the risk-weighted amounts and record the total in line C. This amount represents the credit risk capital requirement that will be replaced by a specific risk charge in the market risk guideline.

The total risk-weighted non-trading book assets is obtained by deducting line C from line B. This represents the denominator of the banking book credit risk capital ratio. The minimum capital required for credit risk is obtained by multiplying the amount recorded in line E by 8%.

### *Allocation of Capital to Meet Minimum Required*

The purpose of this calculation is to determine the optimum amount of available Tier 3 capital that is eligible to meet the institution's market risk requirements. Amounts of Tier 3 that are surplus to the minimum requirements will not be included in the calculation of the combined capital ratio.

The first step in the allocation is to record the minimum amount that is required to meet the credit risk capital requirement for each category of capital. Respect the limits set out in Parts I and II of the guideline. The total for the column "credit risk" should equal the amount recorded in line E.

Next, record the minimum amount that is required to meet the market risk capital requirement from amounts of available Tier 3 capital and amounts of Tier 1 and Tier 2 capital remaining after the allocation for credit risk capital requirements. The total for the column "market risk" should equal the amount recorded in line A. Respect the limits set out in Parts I and II of the guideline when determining the optimal amount of available Tier 3 that can be used to meet the minimum capital requirement for market risk.

*Eligible Capital*

Record amounts of net Tier 1 capital and net Tier 2 capital as recorded in CAR 2. Record Tier 3 capital from the allocation of capital to meet minimum required as eligible Tier 3 capital. The sum of Tier 2 and Tier 3 capital may not exceed Tier 1 capital.

Sum lines G, H and F to obtain total eligible Tier 1, Tier 2 and Tier 3 capital.

Total eligible capital equals total Tier 1, Tier 2 and Tier 3 capital minus deductions from total capital made in CAR 2. Record this amount on line I.

*Adjusted Risk-Weighted Assets*

Convert the minimum capital required for market risk into a risk-weight equivalent amount by multiplying the charge by 12.5. The risk-weight equivalent for credit risk is the total risk-weighted non-trading book assets as reported in Section I line D. Sum the two amounts to obtain total adjusted risk-weighted assets for the combined capital ratio and record the amount on line J.

*Combined Capital Ratio Calculations*

For the combined Tier 1 ratio, divide the eligible Tier 1 capital (G) by total risk assets (J) and multiply the result by 100.

For the combined total capital ratio, divide the total eligible capital (I) by total risk assets (J) and multiply the result by 100.

## SECTION IA - INTERNAL MODEL REQUIREMENTS

### Part A - Value at Risk Requirement Calculation

*Consolidated Value at Risk for a 10 day holding period and 99% confidence level*

If OSFI has accepted the institution's internal model for market risk reporting, record the consolidated 10-day value at risk (VaR) number calculated for the reporting date in line K. If the internal model produces an estimate of specific risk that is accepted by OSFI for capital adequacy purposes, the modelled specific risk or the modelled VaR for sub-portfolios containing specific risk (whichever is relevant) should be excluded from line K. Where an institution's internal model produces a VaR number using a holding period of less than 10 days, the VaR number must be multiplied by the square root of time. Time equals 10 divided by the number of days assumed as the holding period in the calculation of VaR. For example, if the VaR assumes a 2 day holding period, the VaR number recorded in line K is equal to the 2 day VaR times 2.236 (i.e.,  $= \sqrt{10/2}$ ). In the same way, if the VaR assumes a 1 day holding period, the VaR number recorded in line K is equal to the 1 day VaR times 3.162 (i.e.,  $= \sqrt{10/1}$ ).

For an internal model that meets the OSFI criteria for models of specific risk, record in line L the dollar value of VaR number that comprises the modelled specific risk. Where the methodology employed by the institution's model makes distinguishing the specific risk component impossible, record in line L the VaR number for the sub-portfolios of debt and equity positions that contain specific risk. OSFI must agree in advance to the list of sub-portfolios used by the institution. For reporting purposes, the list of sub-portfolios may not change without the prior approval of OSFI. Where an institution's model does not meet the criteria for models of specific risk, report "nil" in lines L and N and record in Section I the specific risk calculated using the standardised approach (ref. Section I - Minimum Capital Required for Market Risk).

Report the average of lines K and L over the previous 60 business days (including the reporting date) in lines M and N respectively.

The modelled general market risk requirement recorded in line O is the greater of:

- the 10-day VaR less modelled specific risk on the reporting date; and
- the 60 day average 10-day VaR less modelled specific risk, times 3.

The modelled specific risk requirement recorded in line P is the greater of:

- the modelled specific risk on the reporting date; and
- 4 times the 60 day average modelled specific risk.

The aggregate VaR requirement is the sum of the modelled general market risk requirement and the modelled specific risk requirement, lines O and P respectively.

### Part B - Backtesting Consolidated Value at Risk Model

Backtesting is the periodic comparison of an institution's end of day VaR measures with the next day's hypothetical losses. Hypothetical losses are the losses that would have occurred if the portfolio at the previous day's close were held constant for the current day assuming no additional transactions are made. Where an institution has not yet developed the ability to calculate hypothetical losses on a daily basis, the previous day's VaR should be compared to the next day's daily profit or loss (trading outcome).

The VaR measures are intended to be larger than all but a certain fraction of the trading losses, where that fraction is determined by the confidence level of the VaR measure. Comparing the risk measures with the hypothetical losses or actual trading outcomes means that the institution counts the number of times that the hypothetical/actual losses were larger than the risk measures. These greater than expected losses are called "exceptions".

The number and size of exceptions can be compared with the intended level of coverage to gauge the performance of the institution's risk model. OSFI will use the information in this section of the return to determine if the institution's 1 day 99th percentile VaR measure truly covers 99 per cent of the institution's hypothetical or actual trading outcomes. The first formal accounting of backtesting exceptions must be reported no later than January 1999 for institutions with an October 31 fiscal year end and no later than March 1999 for institutions with a December 31 fiscal year end.

*Quarterly Backtesting of One day Value at Risk*

Record in the first column the number of business days for which the institution calculated a VaR measure since the last reporting date.

Record in the second column the number of times the VaR measure was less than the next day's hypothetical losses or, where hypothetical outcomes are not yet available, the next day's actual trading losses. The number of exceptions can be no greater than the number of business days for which a VaR was calculated since the last reporting date.

Record in the third column the average, in thousands of Canadian dollars, one day VaR calculated by the institution since the last reporting date. The average is calculated as:

$$\frac{\Sigma 1 \text{ day VaRs}}{\text{Number of business days for the quarter}}$$

Record in the fourth column the average divergence since the last reporting date, in thousands of Canadian dollars. The average divergence is the sum of the dollar value of each exception minus the dollar value of the previous day's VaR divided by the number of exceptions. This calculation can be expressed as:

$$\frac{\Sigma (\$Exception - VaR)}{\text{Number of exceptions}}$$



## **WORKSHEETS**

The worksheets should not be submitted to OSFI, but equivalent details of an institution's calculations must be readily available to OSFI upon request. Details of the calculation are set out in guideline A - Part II, Capital Adequacy Requirements - Market Risk.

Net positions (also known as open positions) are arrived at by offsetting long and short positions. Long positions are denoted as positive values; short positions are denoted as negative values. Therefore to arrive at the net position the long and short positions should be added together (i.e., the sum of +8 and -2 is +6).

Gross positions are arrived at by adding the absolute value of a short position and the long position. Absolute value is denoted by a vertical bar on both sides of a number or column letter (i.e., the sum of +8 and |-2| is +10).

Separate capital calculations are made for interest rate position risk, equities position risk, foreign exchange risk and commodities risk. In addition, there is a separate worksheet for calculating the capital charge for options.

## SECTION II - INTEREST RATE POSITION RISK

For detailed instructions refer to guideline A-Part II, section 2-1.

All **recognized and unrecognized** interest rate positions held in the trading book are subject to this charge. The charge encompasses two calculations: one for general risk and one for specific risk.

To calculate the general market risk capital charge, institutions must calculate separately their positions in Canadian dollars, U.S. dollars, British pounds, EURO, Swiss francs, and Japanese Yen. In addition, other currencies that represent insignificant positions to the institutions are to be combined in a single reporting schedule that has the same format as those for individual currencies. Other currencies that represent significant positions to the institution, are to be treated on an individual basis, with their aggregate results calculated on the abbreviated schedule (Part B).

### *Part A - Summary Page*

For Basis Risk Charge, Yield Curve Risk Charge, and Net Position Charge report the total of these charges for all the currencies reported. The three charges add up to give the Total General Interest Rate Risk Charge (all currencies).

Record the Specific Interest Rate Risk Charge calculated in part II of the return.

Total Interest Rate Position Risk Charge is the sum of the Total General Interest Rate Risk Charge and the Specific Interest Rate Risk Charge.

### *Part B - General Risk*

Divide the current market value of all debt instruments in the trading book, together with other instruments in the trading book that are subject to interest rate exposure (such as derivatives), into the zones/time bands shown on the return. Show long and short positions separately (columns A and B).

Multiply the long and the short position amounts by the respective risk-weight factor (column C) to arrive at the risk-weighted long and short positions.

#### *Unmatched Position*

Net the risk-weighted long positions against the risk-weighted short positions to arrive at the unmatched position in each timeband.

#### *Individual Timeband Matched Position (subject to basis risk charge)*

Record the smaller of the risk-weighted long position in a given timeband and the *absolute value* of the risk-weighted short position in that time band.

Matched positions are always expressed as positive amounts.

*Basis Risk Charge*

Multiply the total of all matched positions from all timebands (Cell M) by 10% to arrive at the Basis Risk Charge.

*Matched Weighted Positions Between Timebands Within a Zone*

Each time band within a zone will either be in an unmatched weighted long position or in an unmatched weighted short position (see column F). For each zone record the lesser of the zone's total unmatched weighted long positions and the absolute value of the zone's total unmatched weighted short positions.

*Residual Unmatched Weighted Positions Between Zones*

Determine a zone's residual unmatched risk-weighted position by performing an ordered matching of its unmatched risk-weighted position with that of another zone. The order and combination of zone matching and the use of residual unmatched weighted positions are explained in more detail on pages 2-1-8 and 2-1-9 of the guideline.

*Yield Curve Risk Charges*

Multiply the matched weighted position between timebands within each zone, and the residual unmatched weighted position between zones, by their respective factors. Add the results to arrive at the total yield curve risk charge.

*Net Position Charge*

Sum the unmatched risk-weighted long and short positions in all zones (i.e., an arithmetic sum of the positive and negative figures) (Cell L) and report the absolute value.

*Total General Interest Rate Risk Charge*

For each currency (or combined currency), sum the Basis Risk Charge, the Total Yield Curve Risk Charge, and the Net Position Charge.

*Part C - Specific Risk*

*Current market value (B)*

Report the total current market value of covered debt instruments in the trading book broken down by obligor: Government, Qualifying (broken down further by residual term to maturity), and Other.

All currencies are combined on a single schedule.

To arrive at the total for each category, express all values, whether representing long or short positions, as positive amounts.

*Risk-Weighted Amount (C)*

Multiply the current market value in each obligor category by the associated risk factor.

*Specific Risk Charge (Y)*

The total of the risk-weighted amounts is the Specific Risk Charge.

### **SECTION III - EQUITIES POSITION RISK**

For detailed instructions refer to guideline A - Part II, section 2-2.

Equity positions, in securities as well as those arising either directly or indirectly through derivatives, should be allocated to the country in which each equity is listed. The calculations outlined below applied to each country. For purposes of reporting the terms "country" and "national market" are synonymous. Institutions may define individual portfolios within each national market according to their internal practices. An institution may have both liquid and well-diversified portfolios and gross portfolios within each national market.

Matched positions in each identical equity or stock index in each country may be fully offset, resulting in a single net short or net long position to which the specific and general market risk charges will apply.

#### *Part A - Summary Table*

For each national market, report the specific capital charge as calculated above. In the case of the capital charge for general market risk, report the sum of charges for each of the national markets, as reported in (d) of the general market risk form.

#### *Part B - General Market Risk*

##### *Long Position (A)*

For each national market, report the sum of the long positions at current market value.

##### *Short Position (B)*

For each national market, report the sum of the short positions at current market value.

##### *Net Position (C)*

For each national market, report the sum of the long positions and short positions ( $c = a + b$ ).

##### *Capital Charge (D)*

Apply a capital charge of 8% to the total net position.

##### *Other*

Report the totals for each of the other markets where an institution has exposure. Calculate the long, short and net positions separately by individual markets. Aggregate the totals; do not net across markets. Therefore the "other" line will not arithmetically total the same as the lines above.

*Part C - Specific Market Risk*

EQUITY POSITIONS - SECURITIES AND DERIVATIVES

*Long Position (e) & (g)*

For each national market, report the long position for both securities and derivatives.

*Short Positions (f) & (h)*

For each national market, the short position should be reported for both securities and derivatives.

*Gross Position (i)*

The gross position represents the absolute sum of the value of all long positions and the absolute value of all short positions, as provided in (e), (f), (g) and (h).

*Liquid & Well Diversified (j)*

Report the sum of the absolute value of the short position and the long position for equities, which are part of a liquid and well diversified portfolio. Refer to the guideline for the definition of liquid and well diversified. The amount reported on this line is subject to a capital charge of 4%

*Gross Position Charge-Others (k)*

The gross position charge should be levied against the amounts reported in line (i), gross position, less than amounts reported in line (j), liquid and well diversified.

INDEX POSITIONS

Report long and short positions in the same index contract on a net basis.

*Long position (l)*

For each national market, record the long position.

*Short Position (m)*

For each national market, record the short position.

*Net Position (n)*

Sum the long position (l) and the short position (m) and report the absolute value.

*Well-diversified (o)*

Report positions in indices which are considered to be well diversified. A 2% capital charge will be levied against these indices.

*Other (p)*

Report positions in all other indices. A capital charge of 8% should be levied against items reported in line (n) less items reported in line (o).

ARBITRAGE STRATEGIES

*Future Arbitrage Indices (q)*

Report amounts held in a future related arbitrage index. Only one side of the index is subject to the capital charge of 2%. The strategies qualifying for this treatment are outlined in the guideline.

*Gross Value Index (r)*

Report the gross value of positions held in a well diversified equity index with a matching basket of securities. Amounts reported are subject to a capital charge of 2%.

*Gross Value Securities (s)*

Report the gross value of positions held in a well diversified equity index with a matching basket of securities. Amounts reported are subject to a capital charge of 2%.

*Total capital charge*

Record the sum of capital charges reported in lines (t), (u), (v), (w), (x), (y), and (z).

## **SECTION IV - FOREIGN EXCHANGE RISK**

For detailed instructions refer to guideline A - Part II, section 2-3.

All **recognized and unrecognized** items denominated in a foreign currency are subject to this charge.

Institutions should report their exposure in U.S. dollars, British pounds, EURO, Swiss francs, and Japanese Yen separately. The calculation of positions in all other currencies should be performed separately and then aggregated.

### *Net Spot Position (A)*

For each currency, report the difference between all asset items and liability items. Include the accrued interest and accrued expenses.

### *Net Forward Position (B)*

For each currency, report all net amounts under forward foreign exchange transactions.

### *Guarantees (C)*

For each currency, report guarantees and other similar instruments. Guarantees must be certain to be called and likely to be irrecoverable.

### *Net Future Income or Expenses (D)*

For each currency, report any net future income or expenses that are not yet accrued but have already been fully hedged. Institutions have discretion in whether to report these positions, however, they must be consistent in their treatment. The selection of positions that are only beneficial to reducing the overall position will not be permitted.

### *Other Items (E)*

Report any other items that represent either a profit or loss in a foreign currency.

### *Net Long Position (F)*

For each currency, report the sum of all long positions in columns (A) through (E).

### *Net Short Position (G)*

For each currency, report the sum of all short positions columns (A) through (E).



*Gold*

Record the net long or net short position in gold.

*Capital Calculation*

In column (H) record the greater of the absolute values of the total net long positions (F) or the total net short positions (G). Add the absolute value of the open position in gold (i.e., offset the long and short positions). To arrive at the capital requirement for foreign exchange risk, multiply this sum by 8%.

**NOTE:** Positions in foreign currency may also be subject to an interest rate, equity, or commodities risk charge when held in the trading book or a credit or commodities risk charge when held outside the trading book.

## SECTION V - COMMODITY RISK

For detailed instructions refer to guideline A - Part II, section 2-4.

All **recognized and unrecognized** commodity positions are subject to this charge. Commodities include any physical product that can be traded on a secondary market, e.g., agricultural products, minerals (including oil), and precious metals excluding gold. Commodities that are deliverable against each other or that are close substitutes with a minimum price correlation of 90% are considered to be part of the same category.

Institutions should report their exposure in platinum, palladium, silver, crude oil, natural gas, wheat, corn, and canola separately. The calculation of position charges in all other commodities should be performed separately but reported in aggregate.

Positions in commodities should be based on the respective standard unit of measurement (e.g., barrels, kilograms, etc.) and converted into Canadian dollars at spot rates. Commodity derivatives and other **unrecognized** positions that are affected by changes in commodity prices (excluding options) are to be converted into notional positions using the current spot price.

### *Long Position (A)*

For each commodity, record the sum of all long positions.

### *Short Position (B)*

For each commodity, record the sum of all short positions.

### *Gross Position (C)*

For each commodity, record the sum of the absolute values of the long and short positions (columns (A)+\*(B)\*).

### *Net Position (D)*

For each commodity, record the sum of the long position (i.e., a positive value) and short position (i.e., a negative value) (columns (A)+(B)).

### *Gross Position Requirement (E)*

Multiply the gross positions (in column (C)) by 3%.

*Net Position Requirement (F)*

Multiply the net positions (in column (D)) by 15%.

*Total Capital Requirements (G)*

Record the sum of the gross position requirements (column (E)) and the net position requirements (column (F)).

**NOTE:** If the funding of commodity positions creates foreign exchange or interest rate risk, these positions should be included in the relevant measures of those risks.

## **SECTION VI - OPTIONS**

For detailed instructions refer to guideline A-Part II, section 2-1.

There are two methods for calculating the charge on options. An institution that has only purchased options may use the simplified method (Part A). An institution that has both purchased and written options must use the scenario method (Part B).

### *Part A - Simplified Method*

Report aggregate information by position and risk exposure on this return after calculating a charge for each individual option in which the institution has a position (details of the individual capital charges do not have to be reported).

Report aggregate information on the market value of the options' underlying and the capital charge on options. Sum both columns.

### *Part B - Scenario Method*

Report aggregate information by risk exposure on this return after calculating the specific and general risk charges separately. Specific risk charges must be calculated on each issue in which the institution has a net option position that is subject to interest rate risk or to equity risk. General risk charges are calculated on *portfolios* of options (details of the individual capital charges do not have to be reported).

Report aggregate information on:

- market value of the options' underlying (A);
- specific risk charge (B);
- market value of the option portfolios (C); and
- general risk charge (D).

Sum columns (b) and (d) for each risk exposure and report the total capital charge on options in column (e). Calculate a total for this column.