KINGDOM OF CAMBODIA
NATION RELIGION KING

NATIONAL BANK OF CAMBODIA

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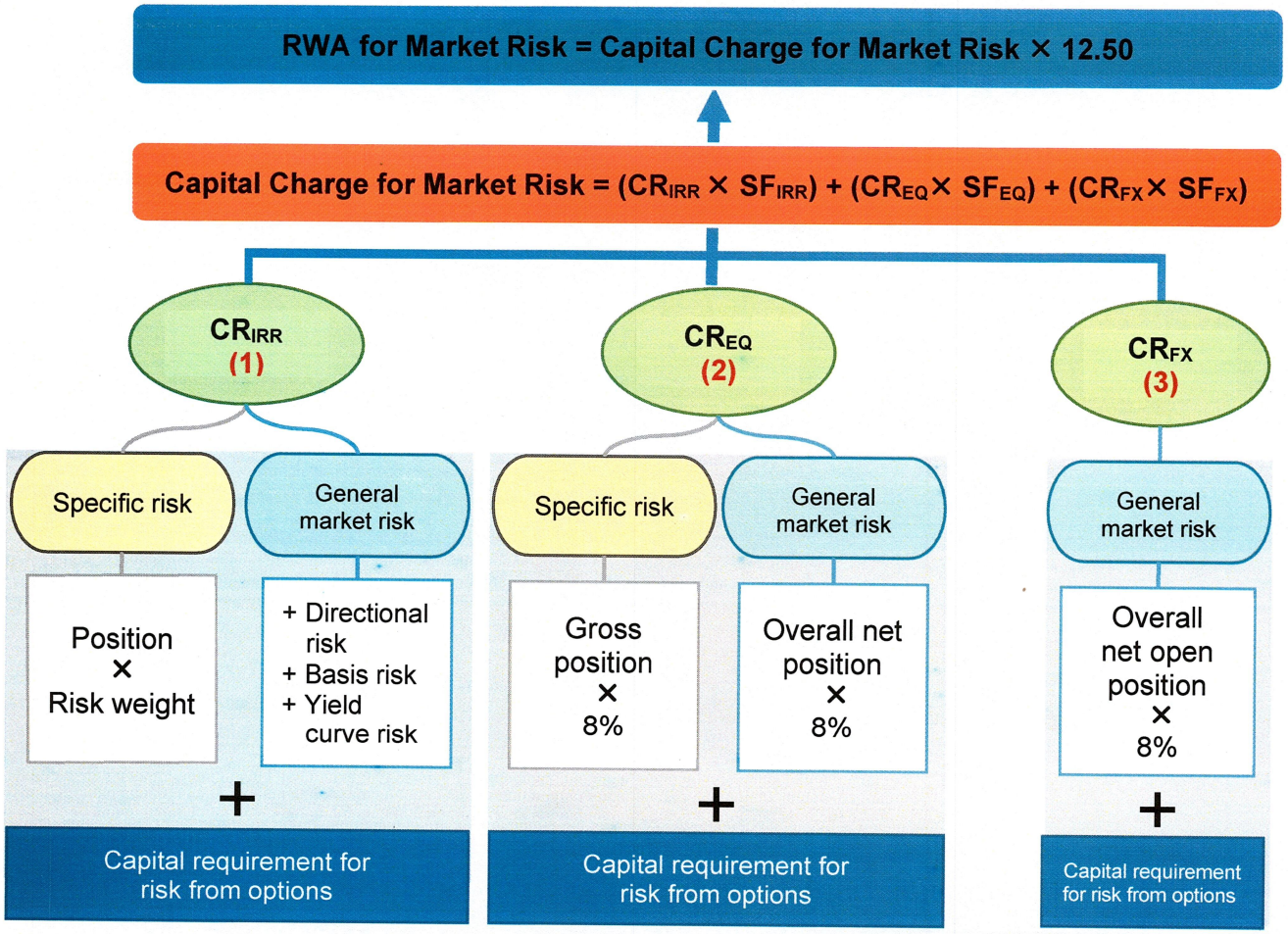
Phnom Penh, April 12, 2024

GUIDELINE
ON
THE IMPLEMENTATION OF PRAKAS ON
MARKET RISK FOR CAPITAL ADEQUACY RATIO
IN DEPOSIT-TAKING BANKS AND FINANCIAL INSTITUTIONS

With reference to Prakas Nº B7-024-299 Prokor dated April 12, 2024 on Market Risk for Capital Adequacy Ratio in Deposit-taking Banks and Financial Institutions, in order to have consistency and effective implementation the National Bank of Cambodia (NBC) herewith provides guidance for the calculation as follows:

1. Diagram of risk-weighted asset (RWA) for market risk calculation

The diagram depicts the process of how to calculate RWA for market risk starting at the bottom, then follow the arrows upward.



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Note:

- CR_{IRR} = Capital Requirement for interest rate risk, plus additional requirement for option risks from debt instruments;
- CR_{EQ} = Capital Requirement for equity risk, plus additional requirement for option risks from equity instruments;
- CR_{FX} = Capital Requirement for foreign exchange risk, plus additional requirement for option risks from foreign exchange instruments;
- SF_{IRR} = Scaling factor for interest rate risk 1.30;
- SF_{EQ} = Scaling factor for equity risk 3.50; and
- SF_{FX} = Scaling factor for foreign exchange risk 1.20.

This diagram shows risk components and processes for calculation of capital requirement for each risk (interest rate, equity and foreign exchange) where the Institution is able to derive capital charges and RWA for market risk.

The Institution shall first categorize all financial instruments in its trading book into debt and interest rate related instruments, equity instruments and other instruments including derivatives and their underlying(s) as shown in the Report on Trading Book Position as provided in Appendix 1 of this guideline. In addition, in case the Institution has position in options, the Institution shall calculate capital requirement for option risk and their underlyings separately from the calculation of capital requirement for interest rate risk, equity risk and foreign exchange risk. The calculation of capital requirement for option risk shall follow the instruction in point 2.4 of this guideline.

After categorizing the trading book instruments, the Institution shall calculate capital requirements for each risk components following this guideline.

2. The calculation of capital requirement for market risk

Capital requirement for market risk is calculated only for interest rate risk, equity risk and foreign exchange risk.

2.1. Capital requirement for interest rate risk (CR_{IRR})

Interest rate risk arising from trading book positions of the Institution shall be categorized into two types, which are specific risk and general market risk. The capital requirement for interest rate risk shall equal to the sum of:

- Capital requirement for specific risk and
- Capital requirement for general market risk.

The Institution shall exclude positions related to interest rate from calculation of capital requirement for interest rate risk for both specific and general market risk if the long and short positions can be fully offset, where the offset between long position and short position is allowed for only the same issues (i.e. exactly the same issuer, coupon, currency and maturity).

2.1.1. Specific risk

The capital requirement for specific risk is calculated as the aggregate of weighted sum of absolute value of all net long positions and short positions for interest rate related instruments recorded in the trading book.

The capital requirement for specific risk shall be calculated following the steps below:

Step 1: Calculating total position of each instrument type

Individual positions are reported into interest rate related categories including "*Government*", "*Qualifying*" and "*Others*" based on their ratings and maturities. The Institution shall then sum

the absolute value of all long positions and short positions to obtain total position in each instrument type.

Step 2: Calculating risk-weighted position

The Institution shall calculate risk-weighted position by multiplying total position of each category with their respective risk weights.

Risk weights for specific risk calculation are provided in Table 1 of Appendix 2 of this guideline.

Step 3: Calculating capital requirement for specific risk

The Institution shall aggregate the weighted total positions to obtain the capital requirement for specific risk.

Capital requirement calculation for specific risk is provided in Example 1 of Appendix 3 of this guideline.

2.1.2. General market risk

The Institution shall calculate general market risk capital requirement for its interest rate related instruments by employing the "maturity method" which uses standardized risk weights that approximate the price sensitivity of those instruments.

Under the maturity method, the Institution shall use maturity ladders that incorporate 3 time zones consisting of 13 time bands (for instruments with coupon more than or equal to 3%) or 15 time bands (for instruments with coupon less than 3%). These time bands and time zones are designed to take into account differences in price sensitivities and interest rate volatilities across different maturities. The Institution shall plot instruments into appropriate time band based on maturities.

Fixed rate instruments shall be allocated to each time band according to the residual term to maturity. While floating rate instruments shall be allocated to each time band according to the residual term to the next repricing date.

In the calculation of capital requirement, the Institution may exclude the offsetting positions of financial instruments as well as matched derivatives that have the same amount, issuer, coupon, currency and maturity, excluding the financial instruments with different issues despite having the same issuer.

A separate maturity ladder shall be constructed for each significant currency namely KHR, USD, EUR, THB, CNY, JPY, AUD, CAD and VND. The Institution shall not offset positions which have different currencies. Where the Institution has business in one or more currencies other than significant currencies listed above, known as "residual currency", separate maturity ladders for each currency are not required. Rather, the Institution shall construct a single maturity ladder.

The capital requirement for general market risk is the sum of the capital requirement for directional risk, basis risk, yield curve risk and option risk in the trading book. The maturity ladders for the calculation of capital requirement for general market risk are provided in Table 2 (Capital requirement calculation for directional risk and basis risk), Table 3 (Capital requirement calculation for yield curve risk) and Table 4 (Capital requirement calculation for general market risk) in Appendix 2 of this guideline.

The calculation of capital requirement for general market risk shall follow the following stages:

Stage 1: Calculating capital requirement for directional risk

The Institution shall calculate capital requirement for directional risk in the trading book by summing up the net positions of all significant currencies and gross position of residual currencies regardless of sign +/- to obtain the total net position (long or short) which indicates directional risk that the Institution holds. The Institution shall calculate capital requirement for directional risk by using Table 2 "Capital requirement calculation for directional risk and basis risk" following the steps bellow:

Step 1: Allocating debt securities and interest rate related instruments

The Institution shall allocate debt securities and interest rate related instruments into separate maturity ladder of significant currencies and residual currencies. The Institution shall follow Step 2 to Step 5 for debt securities and interest rate related instruments of significant currencies. For debt securities and interest rate related instruments of residual currencies, the Institution shall follow Step 6.

Step 2: Calculating total long position and total short position in each time band of significant currencies

To calculate the total long position and total short position in each time band of significant currencies, the Institution shall allocate long positions and short positions into appropriate time band according to maturities.

Step 3: Calculating the risk-weighted long position and the risk-weighted short position in each time band of significant currencies

To determine the risk-weighted long position (Column A) and the risk-weighted short position (Column B) for each time band, the Institution shall multiply total position in each time band resulted from Step 2 with risk sensitivity factor.

Step 4: Calculating net position in each time band of significant currencies

The Institution shall offset between the risk-weighted long position (Column A) and the risk-weighted short position (Column B) in each time band to obtain net long position or net short position.

Step 5: Calculating total net position of significant currencies

The total net position of significant currencies is derived by summing single net long position and single net short position of all time bands taking into account signs +/-.

Step 6: Calculating total gross position of residual currency

To obtain the total gross position of residual currency, the Institution first shall calculate the total net long position and total net short position for each currency and slot into appropriate time band. next, total net long position and total net short position shall be multiplied by risk sensitivity factor to produce weighted net long position and weighted net short position. The Institution shall sum the absolute value of the weighted net long position and the weighted net short position to obtain gross position in each time band. Then, the Institution shall sum all the gross position in each time band to obtain the total gross position of residual currency.

Step 7: Calculating capital requirement for directional risk

To obtain capital requirement for directional risk in the trading book, the Institution shall sum the result from Step 5 and the result from Step 6 and then multiply by 100%.

Stage 2: Calculating capital requirement for basis risk

The Institution shall calculate the capital requirement for basis risk only in significant currencies because the calculation of total net position of residual currency does not take into account the signs +/- in time band, which leads to no matched position to calculate capital requirement for basis risk of residual currency.

Basis risk is the risk that the relationship between changes in prices of similar instruments, even in same time band, is not stable over time. Basis risk arises because one time band includes different instruments with different maturities. Due to the different maturities of debt instruments in a time band, the risk deduction between total long position and short position in the time band cannot be fully eliminated. Therefore, the offsetting amount (matched position) shall be risk-weighted 10%, which is known as "Vertical disallowance".

The Institution shall calculate capital requirement for basis risk by using Table 2 "Capital requirement calculation for directional risk and basis risk" and following the steps below:

Step 1: Calculating capital requirement for basis risk in each time band of each significant currency

The capital requirement for basis risk in each time band shall be calculated by multiplying matched position with 10%. If the weighted long position is equal to weighted short position, the Institution shall choose 10% of either weighted long or weighted short position. If there is only a weighted long or only a weighted short position in the time band, a basis risk capital requirement is not calculated (no matched position).

Step 2: Calculating capital requirement for basis risk of each significant currency

To calculate the capital requirement for basis risk of each significant currency, the Institution shall sum all the capital requirement in each time band resulted in Step 1.

Stage 3: Calculating capital requirement for yield curve risk

The Institution shall calculate the capital requirement for yield curve risk only in significant currencies because in the calculation of total net position of "residual currency" there is no matched position in time zone to calculate the capital requirement for yield curve risk.

Yield curve risk refers to the risk associated to adverse shift in the interest rate markets compared to the structure of a fixed income portfolio that the Institution holds. Yield curve risk arises because one time zone includes different instruments with different maturities. Due to the different maturities of debt instruments within a time zone and across time zone, the risk deduction between total long position and short position in the time zone or across time zone cannot be fully eliminated. Therefore, the offsetting amount (matched position) within the time zone or across time zone shall be multiplied by risks factors, which is known as "Horizontal disallowance".

The capital requirement for yield curve risk is the sum of capital requirement for yield curve risk within each time zone (time zone 1, time zone 2 and time zone 3) and capital requirement for across time zone (time zone 1 and 2, time zone 2 and 3, and time zone 1 and 3) of all significant currencies.

The Institution shall calculate capital requirement for basis risk by using Table 3 "Capital requirement calculation for yield curve risk" and following the steps below:

Step 1: Calculating capital requirement for yield curve risk within a time zone

To calculate capital requirement for yield curve risk within a time zone, the Institution shall multiply the matched positions between total long positions and total short positions in time zone (Column X) and (Column Y) with the percentage in each time zone (time zone 1: 40%, time zone 2 and 3: 30%). The matched positions between total long positions and total short positions in time zone (Column X) and (Column Y) are the smaller amount between:

1- Long position in each time zone (Column X) which is the sum of net long position in each time band within the same time zone and

2- Short position in each time zone (Column Y) which is the sum of net short position in each time band within the same time zone.

Step 2: Calculating capital requirement for yield curve risk across time zone

To calculate the capital requirement across time zone, the Institution first shall calculate the net position in each time zone by summing the long position (Column X) and short position (Column Y) in each time zone by taking into account the sign +/-. Then, the Institution shall calculate the capital requirement for yield curve risk across time zone as follows:

1- The capital requirement for yield curve risk between time zone 1 and 2 is calculated by multiplying matched net position between time zone 1 and 2 with 40%

2- The capital requirement for yield curve risk between time zone 2 and 3 is calculated by multiplying matched net position between time zone 2 and 3 with 40%

3- The capital requirement for yield curve risk between time zone 1 and 3 is calculated by multiplying matched net position between time zone 1 and 3 with 100%

Stage 4: Calculating capital requirement for option risk from debt instruments

The Institution shall calculate separately capital requirement for option risks from debt instruments as determined in point 2.4 of this guideline.

Stage 5: Calculating capital requirement for general market risk for interest rate risk

To calculate capital requirement for general market risk for interest rate risk, the Institution shall sum the results from Stage 1, Stage 2, Stage 3 and Stage 4.

2.1.3. Calculating capital requirement for repurchase (repo) and reverse repurchase (reverse-repo) transactions recorded in trading book

Repo agreement refers to a transaction where one party sells securities against cash to another party with the commitment to repurchase the securities at a specified date at a pre-determined price. However, reverse-repo agreement refers to a transaction where one party purchases securities against cash to another party with the commitment to re-sell the securities at a specified date at a pre-determined price. This means repo is a security lending agreement, while reverse-repo is a security borrowing agreement. Securities that are subject to a repo or reverse-repo will be treated as if it were still owned by the lender of the security (repo party).

When the securities that are subject to a repo or reverse-repo agreement are recorded in trading book, the Institution shall calculate capital requirement for market risk on:

- Underlying securities: specific risk and general market risk depending on type of securities (debt securities or equity)
- Repo or reverse-repo transactions: general market risk.

The Institution that has a repo transaction (cash receiver or security lender) is subject to capital requirements for specific risk and general market risk applicable to that collateralized instrument because it is still owned by the lender of the security. For reverse-repo transaction (cash lender or security borrower), the Institution shall not calculate capital requirement for that collateralized instrument because this instrument is still owned by the lender of the securities.

The Institution shall calculate capital requirements for general market risk for repo and reverse-repo transactions by entering into the maturity ladder:

- **Repo transactions:** a short position (receive cash and has an obligation to deliver or pay in the future) in the underlying instrument, with remaining maturity equals to the term of the contract, a coupon rate equals to the borrowing rate under repo (or discount rate of repo), and the recorded amount should be contract price.
- **Reverse-repo transactions:** a long position (receive cash in the future) in the underlying instrument, with remaining maturity equals to term of the contract, a coupon rate equals to the lending rate under the reverse-repo, and the recorded amount should be contract price.

Note: *When the securities that are subject to a repo or reverse-repo agreement are recorded in banking book, the market value of securities and the price of agreements shall be risk-weighted in accordance with Prakas on Credit Risk for Capital Adequacy Ratios in Deposit-taking Banks and Financial Institutions.*

2.1.4. Calculating capital requirement for interest rate related derivatives recorded in trading book

The measurement system shall include all interest-rate related derivatives and off-balance sheet instruments in the trading book which react to changes in interest rates (e.g. FRAs, other forward contracts, bond futures, interest rate and cross-currency swaps and forward foreign exchange contracts). To calculate capital requirement for these derivatives, the Institution shall convert the derivatives into long and short positions (applying a zero-coupon specific risk-free security approach) in the relevant underlying and become subject to general market risk

requirements as described from Step 1 to Step 5 above. Capital requirement for option is separately calculated following the instruction on the calculation of capital requirement for option risk in point 2.4 of this guideline. The amounts reported should be the market value of the principal amount of the underlying or of the notional underlying. In case where mark-to-market is not possible, the Institution shall use face value.

2.1.4.1. Interest rate futures contracts and interest rate forward contracts are treated as a combination of the long and short positions whereby:

a. A long position in an interest rate futures contract or interest rate forward contract is to be regarded as:

(i) A long position in zero-coupon specific risk-free security with a maturity being the remaining period up to and including the delivery date of the underlying interest rate contract plus the contract period of the underlying interest rate contract; and

(ii) A short position in zero-coupon specific risk-free security with a maturity being the remaining period up to and including the delivery date of the underlying interest rate contract.

b. A short position in an interest rate futures contract or interest rate forward contract is to be regarded as:

(i) A long position in zero-coupon specific risk-free security with a maturity being the remaining period up to and including the delivery date of the underlying interest rate contract; and

(ii) A short position in zero-coupon specific risk-free security with a maturity being the remaining period up to and including the delivery date of the underlying interest rate contract plus the contract period of the underlying interest rate contract.

Example:

The Institution has a long position in a June three-month interest rate futures contract of KHR 50 million with a 6 month remaining period until the settlement date.

To calculate capital requirement for a long position in interest rate future contract, the Institution shall report the position into the maturity ladders as below:

(i) A long position in zero-coupon specific risk-free security of KHR 50 million at market value with a maturity of 9 months (remaining period: 6 months plus the contract period: 3 months); and

(ii) A short position in zero-coupon specific risk-free security of KHR 50 million at market value with a maturity of 6 months.

2.1.4.2 Forward rate agreement (FRA) shall be converted into long position and short position whereby:

a. A long position in FRA is to be regarded as:

(i) A long position in zero-coupon specific risk-free security with a maturity being the remaining period up to and including the settlement date of the agreement; and

(ii) A short position in zero-coupon specific risk-free security with a maturity being the remaining period up to and including the settlement date of the agreement plus the contract period of the agreement.

b. A short position in FRA is to be regarded as:

(i) A long position in zero-coupon specific risk-free security with a maturity being the remaining period up to and including the settlement date of the agreement plus the contract period of the agreement; and

(ii) A short position in zero-coupon specific risk-free security with a maturity being the remaining period up to and including the settlement date of the agreement.

Example:

An institution buys a FRA SOFR 3 months with a settlement date in 6 months.

To calculate the capital requirement for FRA, the Institution shall report positions in the maturity ladders as below:

(i) A long position in zero-coupon specific risk-free security with the maturity of 6 months; and

(ii) A short position in zero-coupon specific risk-free security with the maturity of 9 months (remaining period: 3 months plus contract period: 6 months).

2.1.4.3. Bond futures contracts and bond forward contracts are treated as a combination of the long and short positions in a zero-coupon specific risk-free security and the underlying bond whereby a long or short position in a bond futures contract or bond forward contract is to be regarded as:

A long position in a bond futures contract or bond forward contract is to be regarded as:

(i) A long position in the underlying bond with a maturity being the remaining period up to and including the delivery date of the underlying bond plus the tenor of the underlying bond; and

(ii) A short position in zero-coupon specific risk-free security with a maturity being the remaining period up to and including the delivery date of the underlying bond.

A short position in a bond futures contract or bond forward contract is to be regarded as:

(i) A long position in zero-coupon specific risk-free security with a maturity being the remaining period up to and including the delivery date of the underlying bond; and

(ii) A short position in the underlying bond with a maturity being the remaining period up to and including the delivery date of the underlying bond plus the tenor of the underlying bond.

Example:

An institution has a short position in a future contract on a March five-year fixed rate bond with a remaining period of 3 months until the settlement date.

To calculate the capital requirement for a future contract on bond, the Institution shall report positions in the maturity ladders as below:

(i) A long position in zero-coupon specific risk-free security with a maturity of 5 years; and

(ii) A short position in the bond with a maturity of 5.25-year (5 years tenor period of the bond plus the remaining period)

2.1.4.4. Forward foreign exchange contracts

Forward foreign exchange contracts in the trading book are regarded as a long and a short position in zero-coupon specific risk-free security of two different currencies with the same maturity as forward contracts. Either a long or a short position at the spot market value of the underlying currency will be recorded in the maturity ladder in that currency.

Note to futures and forward contracts (including FRA)

- Where a range of deliverable instruments may be delivered to fulfill the contract, the Institution may decide which deliverable security is used to record the position in the maturity ladder.
- In the case of a future on a corporate bond index, positions will be included at the market value of the notional underlying portfolio of securities.

2.1.4.5. Swaps

Swaps shall be treated as two notional positions with relevant maturities. For the calculation of the capital requirement for general market risk, both legs of the swap must be reported at their market value in the appropriate time bands of the relevant maturity ladders and a coupon rate equals to the interest rate of the swap contract.

Example:

An interest rate swap under which the Institution receives floating interest and pays fixed interest.

To calculate capital requirement for general market risk, the Institution shall report in the maturity ladders as below:

(i) A long position in a floating interest rate instrument of maturity equivalent to the period until the next interest fixing, a coupon rate equals to the floating rate; and

(ii) A short position in a fixed rate instrument of maturity equivalent to the residual life of the swap, a coupon rate equals to the fixed rate.

For swaps that pay or receive a fixed or floating interest rate against another reference price, e.g. a stock index, the Institution must enter the interest rate component into the appropriate maturity ladder, while the equity component is to be included among the equity positions.

The legs of a cross currency swap must be reported in the relevant maturity ladders for the currencies concerned.

Capital requirement calculation for general market risk is provided in Example 2 of Appendix 3 of this guideline.

2.2. Capital requirement for equity risk

Equity risk is the risk that the Institution's positions may be adversely affected by movements in equity prices. The Institution is required to hold regulatory capital against the risk of equity positions in the trading book. It applies to long and short positions in all financial instruments that exhibit behavior similar to equities, with the exception of non-convertible preference shares which fall under interest rate risk requirements. If the Institution holds equities in different markets, separate calculations for specific risk and general market risk must be carried out for each of these markets.

Similar to interest rate risk, equity risk arising from trading book positions of the Institution can be categorized into 2 types:

a. Specific risk: charge of 8% is applied to the gross position; and

b. General market risk: charge of 8% is applied to the overall net position.

To calculate capital requirement for equity risk in each market, the Institution shall follow the steps detailed below:

Step 1: Offsetting positions in the same issue

Long and short positions in the same issue can be fully offset, resulting in a single net long or short position.

Step 2: Calculating specific risk capital requirement

Single net long and single net short positions are then summed up (regardless of signs) to produce a gross position. The gross position multiplied by 8% to obtain for specific risk capital requirement.

Step 3: Calculating general market risk capital requirement

The single net long and single net short positions resulted from Step 1 are then summed up (take into account signs) to produce overall net position (whether net long or net short). The overall net position multiplied by 8% to obtain for general market risk capital requirement.

Step 4: Calculating the total capital requirement for equity risk in the individual market

The total capital requirement for equity risk in the individual market is the sum of specific risk capital requirement (Step 2) and general market risk capital requirement (Step 3).

Step 5: Calculating capital requirement for equity risk in the whole trading book

To calculate the capital requirement for market risk in the whole trading book, the Institution shall aggregate capital requirement of all individual markets where the Institution is trading.

Capital requirement calculation for equity risk is provided in Example 3 of Appendix 3 of this guideline.

2.3. Capital requirement for foreign exchange risk

Foreign exchange risk (including gold) is the risk that the value of foreign exchange positions or gold may be adversely affected by movements in currency exchange rates. Gold is also treated as a foreign exchange position because its volatility is more in line with foreign currencies and it should be managed in a similar manner to currencies.

The capital requirement for foreign exchange risk shall be 8% of the "overall net open position".

To calculate capital requirement of foreign exchange risk, the Institution shall follow the steps below:

Step 1: Calculating the net open position in each currency and gold

The Institution's net open position in each currency and gold are calculated as the sum of:

- The net spot position (i.e. all asset items less all liability and capital items, including accrued interest, denominated in the currency in question);
- The net forward position (i.e. all amounts to be received less all amounts to be paid under forward foreign exchange transactions, including currency futures and the principal on currency swaps not included in the spot position);
- Guarantees and other similar instruments that are certain to be called and are likely to be irrecoverable; and
- Any other items representing a profit or loss in foreign currencies.

Step 2: Calculating "overall net open position"

The "overall net open position" is obtained by aggregating the absolute values of:

- The sum of the net short positions or the sum of the net long positions, whichever is the greater; plus
- Net position in gold (whether short or long position).

Step 3: Calculating capital requirement for foreign exchange risk

Total capital requirement for foreign exchange risk is calculated as the sum of:

- "Overall net open position" multiplied by 8%; and
- Capital requirement for options on foreign exchange as determined in point 2.4 of Capital Requirement for Option Risk in this guideline where relevant.

Capital requirement calculation for foreign exchange risk is provided in Example 4 of Appendix 3 of this guideline.

2.4. Capital requirement for option risk

Option positions and the associated underlying which are subject to capital requirement for market risk both general market risk and specific risk are calculated by using different approaches. In this regard, the capital will be added to the capital requirement calculating for the relevant risk categories, which are interest rate risk, equity risk and foreign exchange risk as stated in this guideline.

The capital requirement for options risk is summarized in the following table:

Positions	Capital requirement
Long cash and long put option Or Short cash and long call option	The capital requirement = the market value of the underlying security × (Specific risk charge + General market risk charge) - in the money. (For options with a maturity longer than 6 months, the amount of the option "in the money" will be considered as equal to zero)

Capital requirement calculation for option risk is provided in Example 5 of Appendix 3 of this guideline.

This guideline shall be implemented from the signing date.

The Governor

Signed and Sealed: Chea Serey

Copy for:

- The General Secretariat
- The General Directorate of Banking Supervision
- The General Directorate of Policy and International Cooperation
- The General Directorate of Central Banking Operations
- The General Cashier
- The General Inspection
- Deposit-taking Banks and Financial Institutions
- Royal Gazette
- Files-archives

Appendix 1

របាយការណ៍ ស្តីពី ប៉ូស៊ីសិនបញ្ជីកាជួញដូរ

Report on Trading Book Positions

សម្រាប់រយៈពេល ៦ខែ ពីខែមករា (កក្កដា) ឆ្នាំ ដល់ ខែមិថុនា (ធ្នូ) ឆ្នាំ

For the 6-month period from January (July) to June (December)

ជាលានរៀល

in million Riels

	មករា ដល់ មិថុនា (ឬ កក្កដា ដល់ ធ្នូ) January to June (or July to December)						ជាមធ្យម Average
	មករា (កក្កដា) Jan. (Jul.)	កុម្ភៈ (សីហា) Feb. (Aug.)	មីនា (កញ្ញា) Mar. (Sep.)	មេសា (តុលា) Apr. (Oct.)	ឧសភា (វិច្ឆិកា) May (Nov.)	មិថុនា (ធ្នូ) Jun. (Dec.)	
១. ប៉ូស៊ីសិនបញ្ជីកាជួញដូរសេរុបនៅក្នុងតារាងតុល្យការ 1. Total on-balance sheet trading book positions	-	-	-	-	-	-	-
ប៉ូស៊ីសិនឧបករណ៍បំណុល *Debt instruments positions*	-	-	-	-	-	-	-
ប៉ូស៊ីសិនពីកិច្ចសន្យារីប៉ូ/រីវើសរីប៉ូ និងប៉ូស៊ីសិនពីការឱ្យខ្ចីនិងខ្ចីមូលបត្រ *Positions from repo/reverse repo and security borrowing and lending*	-	-	-	-	-	-	-
ប៉ូស៊ីសិនឧបករណ៍មូលបត្រកម្មសិទ្ធិ *Equity instruments positions*	-	-	-	-	-	-	-
២. ប្រតិបត្តិការឧបករណ៍និស្សន្ទសរុបក្នុងបញ្ជីកាជួញដូរ 2. Total derivative transactions in the trading book	-	-	-	-	-	-	-
ឧបករណ៍និស្សន្ទពាក់ព័ន្ធនឹងអត្រាការប្រាក់ និងឧបករណ៍បំណុល *Derivatives linked to interest rate and debt instruments*	-	-	-	-	-	-	-
ឧបករណ៍និស្សន្ទពាក់ព័ន្ធនឹងមូលបត្រកម្មសិទ្ធិ និងសន្ទស្សន៍ភាគហ៊ុន *Derivatives linked to equity price and stock index*	-	-	-	-	-	-	-
ឧបករណ៍និស្សន្ទពាក់ព័ន្ធនឹងអត្រាប្តូរប្រាក់ *Derivatives linked to foreign exchange*	-	-	-	-	-	-	-
៣. ប៉ូស៊ីសិនអត្រាប្តូរប្រាក់នៃគ្រប់រូបិយបណ្ណ 3. Foreign exchange positions of all currencies	-	-	-	-	-	-	-
៤. ប៉ូស៊ីសិនបញ្ជីកាជួញដូរសេរុប (១+២+៣) 4. Total trading book positions (1+2+3)	-	-	-	-	-	-	-
៥. ទ្រព្យសកម្មសរុប 5. Total assets	-	-	-	-	-	-	-
៦. ភាគរយនៃប៉ូស៊ីសិនជួញដូរ (៤÷៥) 6. Percentage of trading book positions (4÷5)							

Appendix 2
Reporting table for calculating capital requirement for interest rate risk

Table 1: Capital requirement calculation for specific risk

ជាលានរៀល
in million Riels

	ប្រភេទឧបករណ៍ Instrument Type	ប៉ូស៊ីសិន (បន្ទាប់ពីកាត់កងឧបករណ៍ដូចគ្នា) Positions (after offsetting identical instruments)		ប៉ូស៊ីសិនសរុប Total positions	កម្រិតផ្តឹងហានិភ័យ Risk Weight	កាតព្វកិច្ចដើមទុន Capital Requirement
		ឡុង (Long)	សត (Short)			
		(A)	(B)	(C) = |A| + |B|	(D)	(E) = (C) x (D)
1	មូលបត្រចំណុលបោះផ្សាយ ឬធានាដោយរាជរដ្ឋាភិបាលកម្ពុជា Debt securities issued or guaranteed by Cambodia government	-	-	-	0.00%	-
	មូលបត្រចំណុលបោះផ្សាយដោយធនាគារជាតិនៃកម្ពុជា Debt securities issued by National Bank of Cambodia	-	-	-	0.00%	-
	មូលបត្ររដ្ឋមានចំណាត់ថ្នាក់សមមូលនឹង AAA ដល់ AA- Government debt instruments rated equivalent with AAA to AA-	-	-	-	0.00%	-
	មូលបត្ររដ្ឋមានចំណាត់ថ្នាក់សមមូលនឹង A+ ដល់ BBB- (ឥណប្រតិទាននៅសល់ ≤ ៦ខែ) Government debt instruments rated equivalent with A+ to BBB- with remaining maturity 6 months or less	-	-	-	0.25%	-
	មូលបត្ររដ្ឋមានចំណាត់ថ្នាក់សមមូលនឹង A+ ដល់ BBB- (៦ខែ < ឥណប្រតិទាននៅសល់ ≤ ២៤ខែ) Government debt instruments rated equivalent with A+ to BBB- with remaining maturity greater than 6 and up to and including 24 months	-	-	-	1.00%	-
	មូលបត្ររដ្ឋមានចំណាត់ថ្នាក់សមមូលនឹង A+ ដល់ BBB- (ឥណប្រតិទាននៅសល់ > ២៤ខែ) Government debt instruments rated equivalent with A+ to BBB- with remaining maturity exceeding 24 months	-	-	-	1.60%	-
	មូលបត្ររដ្ឋមានចំណាត់ថ្នាក់សមមូលនឹង BB+ ដល់ B- Government debt instruments rated equivalent with BB+ to B-	-	-	-	8.00%	-
	មូលបត្ររដ្ឋមានចំណាត់ថ្នាក់សមមូលក្រោម B- Government debt instruments rated equivalent below B-	-	-	-	12.00%	-
	មូលបត្ររដ្ឋមិនមានចំណាត់ថ្នាក់ Government debt instruments: Unrated	-	-	-	8.00%	-
2	មូលបត្រចំណុលមានលក្ខណៈគ្រប់គ្រាន់ដែលមានចំណាត់ថ្នាក់សមមូលនឹង AAA ដល់ BBB- (ឥណប្រតិទាននៅសល់ ≤ ៦ខែ) Qualified debt instruments rated equivalent with AAA to BBB- with remaining maturity 6 months or less	-	-	-	0.25%	-
	មូលបត្រចំណុលមានលក្ខណៈគ្រប់គ្រាន់ដែលមានចំណាត់ថ្នាក់សមមូលនឹង AAA ដល់ BBB- (៦ខែ < ឥណប្រតិទាននៅសល់ ≤ ២៤ខែ) Qualified debt instruments rated equivalent with AAA to BBB- with remaining maturity greater than 6 and up to and including 24 months	-	-	-	1.00%	-
	មូលបត្រចំណុលមានលក្ខណៈគ្រប់គ្រាន់ដែលមានចំណាត់ថ្នាក់សមមូលនឹង AAA ដល់ BBB- (ឥណប្រតិទាននៅសល់ > ២៤ខែ) Qualified debt instruments rated equivalent with AAA to BBB- with remaining maturity exceeding 24 months	-	-	-	1.60%	-
3	មូលបត្រចំណុលផ្សេងៗមានចំណាត់ថ្នាក់សមមូលនឹង BB+ ដល់ BB- Other debt instruments rated equivalent with BB+ to BB-	-	-	-	8.00%	-
	មូលបត្រចំណុលផ្សេងៗមានចំណាត់ថ្នាក់សមមូលក្រោម BB- Other debt instruments rated equivalent below BB-	-	-	-	12.00%	-
	មូលបត្រចំណុលផ្សេងៗមិនមានចំណាត់ថ្នាក់ Other debt instruments: Unrated	-	-	-	8.00%	-
				សរុបកាតព្វកិច្ចដើមទុនសម្រាប់ហានិភ័យជាក់លាក់ Total capital requirement for specific risk		-

Table 2: Capital requirement calculation for directional risk and basis risk

ជាលានរៀល
in million Riels

ថាមហ្ស្នន Time Zones	កូប៉ុង ៣% ឬច្រើនជាង Coupon 3% or more	កូប៉ុង តិចជាង ៣% Coupon less than 3%	កត្តាវេទយិតភាពហានិភ័យ (%) Risk Sensitivity Factor (%)	ខ្សែងប៉ូស៊ីសិន Long Positions		សតប៉ូស៊ីសិន Short Positions		ប៉ូស៊ីសិនសុទ្ធ Net Positions	អប្បបរមា (A,B) Min (A,B)	កាតព្វកិច្ចដើមទុន [១០% នៃអប្បបរមា (A,B)] Capital Requirement [10% of Min (A,B)]
				មុនថ្លឹង Before Weighting	ក្រោយថ្លឹង (A) Weighted (A)	មុនថ្លឹង Before Weighting	ក្រោយថ្លឹង (B) Weighted (B)			
ថាមហ្ស្នន៩ Time Zone 1	១ ខែ ឬ តិចជាង 1 month or less	១ ខែ ឬ តិចជាង 1 month or less	0.00	-	-	-	-	-	-	-
	១ ទៅ ៣ ខែ 1 to 3 months	១ ទៅ ៣ ខែ 1 to 3 months	0.20	-	-	-	-	-	-	-
	៣ ទៅ ៦ ខែ 3 to 6 months	៣ ទៅ ៦ ខែ 3 to 6 months	0.40	-	-	-	-	-	-	-
	៦ ទៅ ១២ ខែ 6 to 12 months	៦ ទៅ ១២ ខែ 6 to 12 months	0.70	-	-	-	-	-	-	-
ថាមហ្ស្នន៩ Time Zone 2	១ ទៅ ២ឆ្នាំ 1 to 2 years	១ ទៅ ១,៩ឆ្នាំ 1 to 1.9 years	1.25	-	-	-	-	-	-	-
	២ ទៅ ៣ឆ្នាំ 2 to 3 years	១,៩ ទៅ ២,៨ឆ្នាំ 1.9 to 2.8 years	1.75	-	-	-	-	-	-	-
	៣ ទៅ ៤ឆ្នាំ 3 to 4 years	២,៨ ទៅ ៣,៦ឆ្នាំ 2.8 to 3.6 years	2.25	-	-	-	-	-	-	-
	៤ ទៅ ៥ឆ្នាំ 4 to 5 years	៣,៦ ទៅ ៤,៣ឆ្នាំ 3.6 to 4.3 years	2.75	-	-	-	-	-	-	-
ថាមហ្ស្នន៣ Time Zone 3	៥ ទៅ ៧ឆ្នាំ 5 to 7 years	៤,៣ ទៅ ៥,៧ឆ្នាំ 4.3 to 5.7 years	3.25	-	-	-	-	-	-	-
	៧ ទៅ ១០ឆ្នាំ 7 to 10 years	៥,៧ ទៅ ៧,៣ឆ្នាំ 5.7 to 7.3 years	3.75	-	-	-	-	-	-	-
	១០ ទៅ ១៥ឆ្នាំ 10 to 15 years	៧,៣ ទៅ ៩,៣ឆ្នាំ 7.3 to 9.3 Years	4.50	-	-	-	-	-	-	-
	១៥ ទៅ ២០ឆ្នាំ 15 to 20 years	៩,៣ ទៅ ១០,៦ឆ្នាំ 9.3 to 10.6 years	5.25	-	-	-	-	-	-	-
	លើសពី២០ឆ្នាំ over 20 years	១០,៦ ទៅ ១២ឆ្នាំ 10.6 to 12 years	6.00	-	-	-	-	-	-	-
		១២ ទៅ ២០ឆ្នាំ 12 to 20 years	8.00	-	-	-	-	-	-	-
		លើសពី២០ឆ្នាំ Over 20 years	12.50	-	-	-	-	-	-	-
							ប៉ូស៊ីសិនសុទ្ធសរុប Total Net Position	-	Vertical Disallowance	-

Table 3: Capital requirement calculation for yield curve risk

ជាលានរៀល
in million Riels

ថាមហ្វូន Time Zone	ថាមចែន Time bands	កត្តាហានិភ័យសម្រាប់ Horizontal Disallowance Risks factors for horizontal disallowance			ប៉ូស៊ីសិនសុទ្ធ Net positions	តម្លៃនៅក្នុងថាមហ្វូន Values within time zones			កាតព្វកិច្ចដើមទុនសម្រាប់ហានិភ័យខ្សែកោងទិន្នផល Capital requirement for yield curve risk		
		នៅក្នុងថាមហ្វូន Within time zone	រវាងថាមហ្វូនជិតគ្នា Between adjacent time zones	រវាងថាមហ្វូនទី១និងទី៣ Between time zone 1 and 3		Σ ឡុង ប៉ូស៊ីសិន (X) Σ Long positions (X)	Σ សត ប៉ូស៊ីសិន (Y) Σ Short positions (Y)	ប៉ូស៊ីសិនសុទ្ធក្នុងថាមហ្វូន (Z= X-Y) Net position within time zone (Z= X-Y)	Disallowance ក្នុងថាមហ្វូន៖ ៤០% ឬ ៣០% នៃ អប្បបរមា (|X|,|Y|) Disallowance within time zones: 40% or 30% of Min (|X|,|Y|)	Disallowance រវាងថាមហ្វូនជិតគ្នា (៤០% នៃប៉ូស៊ីសិនផ្គូផ្គងរវាងថាមហ្វូនទី១និងទី២, ថាមហ្វូនទី២និងទី៣) Disallowance between adjacent time zones (40% of matched positions between time zone 1 and 2, time zone 2 and 3)	Disallowance រវាងថាមហ្វូនទី១និងទី៣ (១០០% នៃប៉ូស៊ីសិនផ្គូផ្គងរវាងថាមហ្វូនទី១និងទី៣) Disallowance between time zone 1 and 3 (100% of matched positions between time zone 1 and 3)
ថាមហ្វូនទី១ Time Zone 1	០-១ ខែ 0-1 month	40%	រវាងថាមហ្វូនទី១និងទី២ Between time zone 1 and 2 40%	100%	-	-	-	-	-	-	-
	១-៣ ខែ 1-3 months				-						
	៣-៦ ខែ 3-6 months				-						
	៦-១២ខែ 6-12 months				-						
ថាមហ្វូនទី២ Time Zone 2	១-២ឆ្នាំ 1-2 years	30%			-	-	-	-	-	-	
	២-៣ឆ្នាំ 2-3 years				-						
	៣-៤ឆ្នាំ 3-4 years		រវាងថាមហ្វូនទី២និងទី៣ Between time zone 2 and 3 40%		-						-
	៤-៥ឆ្នាំ 4-5 years				-						
ថាមហ្វូនទី៣ Time Zone 3	៥-៧ឆ្នាំ 5-7 years	30%			-	-	-	-	-	-	
	៧-១០ឆ្នាំ 7-10 years				-						
	១០-១៥ឆ្នាំ 10-15 years				-						
	១៥-២០ឆ្នាំ 15- 20 years				-						
	លើសពី ២០ឆ្នាំ over 20 years				-						
					-						

Table 4: Capital requirement calculation of for general market risk

ជាលានរៀល
in million Riels

ប្រភេទហានិភ័យ Risk's nature	មូលដ្ឋានសម្រាប់គណនាកាតព្វកិច្ចដើមទុន Basis for calculation of the capital requirement	កម្រិតថ្លឹងហានិភ័យ Risk weight	កាតព្វកិច្ចដើមទុន Capital requirement
ហានិភ័យដោយរិចសិនណាលសម្រាប់បញ្ជិកាជួញដូរ Directional risk in trading book	ផលបូកសរុបនៃប៉ូស៊ីសិនសុទ្ធនៃរូបិយវត្ថុរូបិយបណ្ណសំខាន់ និងប៉ូស៊ីសិនដុលនៃ ៗរូបិយបណ្ណផ្សេងទៀត" ដោយមិនគិតពីសញ្ញា +/- The aggregate amount of net positions of all significant currencies and gross position of residual currencies regardless of sign +/-	100%	"ប៉ូស៊ីសិនសុទ្ធសរុប" Total Net Position
ហានិភ័យបេស៊ីសសម្រាប់បញ្ជិកាជួញដូរ Basis risk in trading book	ប៉ូស៊ីសិនផ្គូផ្គងនៅក្នុងថាមប៊ែនទាំងអស់ Matched position in every time band	10%	X
ហានិភ័យខ្សែកោងទិន្នផលសម្រាប់បញ្ជិកាជួញដូរ Yield curve risk in trading book	ប៉ូស៊ីសិនផ្គូផ្គងនៅក្នុងថាមហ្សូនទី១ Matched position within time zone 1	40%	Y1
	ប៉ូស៊ីសិនផ្គូផ្គងនៅក្នុងថាមហ្សូនទី២ Matched position within time zone 2	30%	Y2
	ប៉ូស៊ីសិនផ្គូផ្គងនៅក្នុងថាមហ្សូនទី៣ Matched position within time zone 3	30%	Y3
	ប៉ូស៊ីសិនផ្គូផ្គងរវាងថាមហ្សូនទី១និងទី២ Matched position between time zone 1 and 2	40%	Z1
	ប៉ូស៊ីសិនផ្គូផ្គងរវាងថាមហ្សូនទី២និងទី៣ Matched position between time zone 2 and 3	40%	Z2
	ប៉ូស៊ីសិនផ្គូផ្គងរវាងថាមហ្សូនទី១និងទី៣ Matched position between time zone 1 and 3	100%	Z3
		កាតព្វកិច្ចដើមទុនសរុប Total capital requirement	-

Capital requirement = "*total net position*" + X + Y1 + Y2 + Y3 + Z1 + Z2 + Z3 + capital requirement for positions in options.

Appendix 3
Examples

Example 1: Capital requirement calculation for specific risk

Suppose the Institution A has the following positions:

- A long position in a qualifying bond with rating equivalent to AAA, KHR 13 million fair value, residual maturity 8 years, and coupon rate 8%;
- A long position in a government bond with rating equivalent to AAA, KHR 75 million fair value, residual maturity 2 months, and coupon rate 7%;
- An interest rate swap contract, KHR 150 million[1], where the Institution A receives floating interest rate and pays fixed interest rate. The next interest fixing date is 9 months later, residual life of swap contract is 8 years, and assume that interest rates are more than 3%;
- A long position in an interest rate futures contract, KHR 50 million, delivery date 6 months later, life of the underlying exposure 3.5 years. Assume that interest rates are more than 3%; and
- Cross-currency swap, residual life of swap 1 year, receiving USD 50,000 and paying KHR 200 million upon maturity. Assume that interest rates are more than 3% and current exchange rate of KHR/USD equal to 4,000 KHR/USD.

The Institution shall calculate the capital requirement for specific risk as summarized in the table below:

[1] The positions should be recorded based on the fair value of the underlying exposure. Depending on the current interest rate, the fair value of each leg of the swap contract (i.e., the 8-year bond and the 9-month floater) can be either higher or lower than the notional amount. For the sake of simplicity, the illustration assumes that the current interest rate is identical with the interest rate which the swap contract is based on.

ជាលានរៀល
in million Riels

	ប្រភេទឧបករណ៍ Instrument Type	ប៉ូស៊ីសិន (បន្ទាប់ពីកាត់កងឧបករណ៍ដូចគ្នា) Positions (after offsetting identical instruments)		ប៉ូស៊ីសិនសរុប Total positions	កម្រិតថ្លឹងហានិភ័យ Risk Weight	កាតព្វកិច្ចដើមទុន Capital Requirement
		ឡុង (Long)	សត (Short)			
		(A)	(B)	(C) = |A| + |B|	(D)	(E) = (C) x (D)
1	មូលបត្រចំណុលចោះផ្សាយ ឬធានាដោយរាជរដ្ឋាភិបាលកម្ពុជា Debt securities issued or guaranteed by Cambodia government	-	-	-	0.00%	-
	មូលបត្រចំណុលចោះផ្សាយដោយធនាគារជាតិនៃកម្ពុជា Debt securities issued by National Bank of Cambodia	-	-	-	0.00%	-
	មូលបត្ររដ្ឋមានចំណាត់ថ្នាក់សមមូលនឹង AAA ដល់ AA- Government debt instruments rated equivalent with AAA to AA-	75.00	-	75.00	0.00%	0.00
	មូលបត្ររដ្ឋមានចំណាត់ថ្នាក់សមមូលនឹង A+ ដល់ BBB- (ឥណប្រតិទាននៅសល់ ≤ ៦ខែ) Government debt instruments rated equivalent with A+ to BBB- with remaining maturity 6 months or less	-	-	-	0.25%	-
	មូលបត្ររដ្ឋមានចំណាត់ថ្នាក់សមមូលនឹង A+ ដល់ BBB- (៦ខែ < ឥណប្រតិទាននៅសល់ ≤ ២៤ខែ) Government debt instruments rated equivalent with A+ to BBB- with remaining maturity greater than 6 and up to and including 24 months	-	-	-	1.00%	-
	មូលបត្ររដ្ឋមានចំណាត់ថ្នាក់សមមូលនឹង A+ ដល់ BBB- (ឥណប្រតិទាននៅសល់ > ២៤ខែ) Government debt instruments rated equivalent with A+ to BBB- with remaining maturity exceeding 24 months	-	-	-	1.60%	-
	មូលបត្ររដ្ឋមានចំណាត់ថ្នាក់សមមូលនឹង BB+ ដល់ B- Government debt instruments rated equivalent with BB+ to B-	-	-	-	8.00%	-
	មូលបត្ររដ្ឋមានចំណាត់ថ្នាក់សមមូលក្រោម B- Government debt instruments rated equivalent below B-	-	-	-	12.00%	-
	មូលបត្ររដ្ឋមិនមានចំណាត់ថ្នាក់ Government debt instruments: Unrated	-	-	-	8.00%	-
2	មូលបត្រចំណុលមានលក្ខណៈគ្រប់គ្រាន់ដែលមានចំណាត់ថ្នាក់សមមូលនឹង AAA ដល់ BBB- (ឥណប្រតិទាននៅសល់ ≤ ៦ខែ) Qualified debt instruments rated equivalent with AAA to BBB- with remaining maturity 6 months or less	-	-	-	0.25%	-
	មូលបត្រចំណុលមានលក្ខណៈគ្រប់គ្រាន់ដែលមានចំណាត់ថ្នាក់សមមូលនឹង AAA ដល់ BBB- (៦ខែ < ឥណប្រតិទាននៅសល់ ≤ ២៤ខែ) Qualified debt instruments rated equivalent with AAA to BBB- with remaining maturity greater than 6 and up to and including 24 months	-	-	-	1.00%	-
	មូលបត្រចំណុលមានលក្ខណៈគ្រប់គ្រាន់ដែលមានចំណាត់ថ្នាក់សមមូលនឹង AAA ដល់ BBB- (ឥណប្រតិទាននៅសល់ > ២៤ខែ) Qualified debt instruments rated equivalent with AAA to BBB- with remaining maturity exceeding 24 months	13.00	-	13.00	1.60%	0.21
3	មូលបត្រចំណុលផ្សេងៗមានចំណាត់ថ្នាក់សមមូលនឹង BB+ ដល់ BB- Other debt instruments rated equivalent with BB+ to BB-	-	-	-	8.00%	-
	មូលបត្រចំណុលផ្សេងៗមានចំណាត់ថ្នាក់សមមូលក្រោម BB- Other debt instruments rated equivalent below BB-	-	-	-	12.00%	-
	មូលបត្រចំណុលផ្សេងៗមិនមានចំណាត់ថ្នាក់ Other debt instruments: Unrated	-	-	-	8.00%	-
				សរុបកាតព្វកិច្ចដើមទុនសម្រាប់ហានិភ័យជាក់លាក់ Total capital requirement for specific risk		**0.21**

Example 2: Capital requirement calculation for general market risk

Suppose the Institution A has the following positions:

a. A long position in a qualifying bond with rating equivalent to AAA, KHR 13 million fair value, residual maturity 8 years, and coupon rate 8%;

b. A long position in a government bond with rating equivalent to AAA, KHR 75 million fair value, residual maturity 2 months, and coupon rate 7%;

c. An interest rate swap contract, KHR 150 million[2], where the Institution A receives floating interest rate and pays fixed interest rate. The next interest fixing date is 9 months later, residual life of swap contract is 8 years, and assume that interest rates are more than 3%;

d. A long position in an interest rate futures contract, KHR 50 million, delivery date 6 months later, life of the underlying exposure 3.5 years. Assume that interest rates are more than 3%; and

e. Cross-currency swap, residual life of swap 1 year, receiving USD 50,000 and paying KHR 200 million upon maturity. Assume that interest rates are more than 3% and current exchange rate of KHR/USD equal to 4,000 KHR/USD.

The Institution shall calculate the capital requirement for general market risk as summarized in the table below:

[2] The positions should be recorded based on the fair value of the underlying exposure. Depending on the current interest rate, the fair value of each leg of the swap contract (i.e., the 8-year bond and the 9-month floater) can be either higher or lower than the notional amount. For the sake of simplicity, the illustration assumes that the current interest rate is identical with the interest rate which the swap contract is based on.

1. Calculating capital requirement for general market risk related to financial instruments in KHR

The tables attached below show how these positions are slotted into the time bands and are weighted according to the risk-weights and provide automated calculation of all components of the capital requirements.

រូបិយបណ្ណ Currency	រៀល KHR

ជាលានរៀល
in million Riels

ចាមហ្វូន Time Zones	កូប៉ុង ៣% ឬច្រើនជាង Coupon 3% or more	កូប៉ុង តិចជាង ៣% Coupon less than 3%	កត្តាវេទយិតភាពហានិភ័យ (%) Risk Sensitivity Factor (%)	ខ្សែងប៉ូស៊ីសិន Long Positions		សតប៉ូស៊ីសិន Short Positions		ប៉ូស៊ីសិនសុទ្ធ *Net Positions*	*អប្បបរមា (A,B)* *Min (A,B)*	*កាតព្វកិច្ចដើមទុន [១០% នៃអប្បបរមា (A,B)]* *Capital Requirement [10% of Min (A,B)]*
				មុនថ្លឹង Before Weighting	*ក្រោយថ្លឹង (A)* *Weighted (A)*	មុនថ្លឹង Before Weighting	*ក្រោយថ្លឹង (B)* *Weighted (B)*			
ចាមហ្វូនទី១ Time Zone 1	១ ខែ ឬ តិចជាង 1 month or less	១ ខែ ឬ តិចជាង 1 month or less	0.00	-	-	-	-	-	-	-
	១ ទៅ ៣ ខែ 1 to 3 months	១ ទៅ ៣ ខែ 1 to 3 months	0.20	75.00	*0.15*	-	-	*0.15*	-	-
	៣ ទៅ ៦ ខែ 3 to 6 months	៣ ទៅ ៦ ខែ 3 to 6 months	0.40	-	-	50.00	*0.20*	*(0.20)*	-	-
	៦ ទៅ ១២ ខែ 6 to 12 months	៦ ទៅ ១២ ខែ 6 to 12 months	0.70	150.00	*1.05*	200.00	*1.40*	*(0.35)*	*1.05*	*0.11*
ចាមហ្វូនទី២ Time Zone 2	១ ទៅ ២ឆ្នាំ 1 to 2 years	១ ទៅ ១,៩ឆ្នាំ 1 to 1.9 years	1.25	-	-	-	-	-	-	-
	២ ទៅ ៣ឆ្នាំ 2 to 3 years	១,៩ ទៅ ២,៨ឆ្នាំ 1.9 to 2.8 years	1.75	-	-	-	-	-	-	-
	៣ ទៅ ៤ឆ្នាំ 3 to 4 years	២,៨ ទៅ ៣,៦ឆ្នាំ 2.8 to 3.6 years	2.25	-	-	-	-	-	-	-
	៤ ទៅ ៥ឆ្នាំ 4 to 5 years	៣,៦ ទៅ ៤,៣ឆ្នាំ 3.6 to 4.3 years	2.75	50.00	*1.38*	-	-	*1.38*	-	-
ចាមហ្វូនទី៣ Time Zone 3	៥ ទៅ ៧ឆ្នាំ 5 to 7 years	៤,៣ ទៅ ៥,៧ឆ្នាំ 4.3 to 5.7 years	3.25	-	-	-	-	-	-	-
	៧ ទៅ ១០ឆ្នាំ 7 to 10 years	៥,៧ ទៅ ៧,៣ឆ្នាំ 5.7 to 7.3 years	3.75	13.00	*0.49*	150.00	*5.63*	*(5.14)*	*0.49*	*0.05*
	១០ ទៅ ១៥ឆ្នាំ 10 to 15 years	៧,៣ ទៅ ៩,៣ឆ្នាំ 7.3 to 9.3 Years	4.50	-	-	-	-	-	-	-
	១៥ ទៅ ២០ឆ្នាំ 15 to 20 years	៩,៣ ទៅ ១០,៦ឆ្នាំ 9.3 to 10.6 years	5.25	-	-	-	-	-	-	-
	លើសពី២០ឆ្នាំ over 20 years	១០,៦ ទៅ ១២ឆ្នាំ 10.6 to 12 years	6.00	-	-	-	-	-	-	-
		១២ ទៅ ២០ឆ្នាំ 12 to 20 years	8.00	-	-	-	-	-	-	-
		លើសពី២០ឆ្នាំ Over 20 years	12.50	-	-	-	-	-	-	-
							ប៉ូស៊ីសិនសុទ្ធសរុប *Total Net Position*	*(4.16)*	*Vertical Disallowance*	*0.16*

រូបិយបណ្ណ Currency	រៀល KHR											ជាលានរៀល in million Riels
		កត្តាហានិភ័យសម្រាប់ Horizontal Disallowance Risks factors for horizontal disallowance			ប៉ូស៊ីសិនសុទ្ធ Net positions	តម្លៃនៅក្នុងថាមហ្វូន Values within time zones			កាតព្វកិច្ចដើមទុនសម្រាប់ហានិភ័យខ្សែកោងទិន្នផល Capital requirement for yield curve risk		
ថាមហ្វូន Time Zone	ថាមវែង Time bands	នៅក្នុងថាមហ្វូន Within time zone	រវាងថាមហ្វូនជិតគ្នា Between adjacent time zones	រវាងថាមហ្វូនទី១និងទី៣ Between time zone 1 and 3		Σ ឡុង ប៉ូស៊ីសិន (X) Σ Long positions (X)	Σ សត ប៉ូស៊ីសិន (Y) Σ Short positions (Y)	ប៉ូស៊ីសិនសុទ្ធក្នុងថាមហ្វូន (Z= X-Y) Net position within time zone (Z= X-Y)	Disallowance ក្នុងថាមហ្វូន៖ ៤០% ឬ ៣០% នៃអប្បបរមា (IXI,IYI) Disallowance within time zones: 40% or 30% of Min (IXI,IYI)	Disallowance រវាងថាមហ្វូនជិតគ្នា (៤០% នៃប៉ូស៊ីសិនផ្គូផ្គងរវាងថាមហ្វូនទី១និងទី២, ថាមហ្វូនទី២និងទី៣) Disallowance between adjacent time zones (I40% of matched positions between time zone 1 and 2, time zone 2 and 3I)	Disallowance រវាងថាមហ្វូនទី១និងទី៣ (I១០០% នៃប៉ូស៊ីសិនផ្គូផ្គងរវាងថាមហ្វូនទី១និងទី៣) Disallowance between time zone 1 and 3 (I100% of matched positions between time zone 1 and 3I)
ថាមហ្វូនទី១ Time Zone 1	០-១ ខែ 0-1 month	40%	រវាងថាមហ្វូនទី១និងទី២ Between time zone 1 and 2 40%	100%	-	0.15	(0.55)	(0.40)	**0.06**	**0.16**	-
	១-៣ ខែ 1-3 months				0.15						
	៣-៦ ខែ 3-6 months				(0.20)						
	៦-១២ខែ 6-12 months				(0.35)						
ថាមហ្វូនទី២ Time Zone 2	១-២ឆ្នាំ 1-2 years	30%			-	1.38	-	1.38	-		
	២-៣ឆ្នាំ 2-3 years				-						
	៣-៤ឆ្នាំ 3-4 years		រវាងថាមហ្វូនទី២និងទី៣ Between time zone 2 and 3 40%		-					**0.55**	
	៤-៥ឆ្នាំ 4-5 years				1.38						
ថាមហ្វូនទី៣ Time Zone 3	៥-៧ឆ្នាំ 5-7 years	30%			-	-	(5.14)	(5.14)	-		
	៧-១០ឆ្នាំ 7-10 years				(5.14)						
	១០-១៥ឆ្នាំ 10-15 years				-						
	១៥-២០ឆ្នាំ 15- 20 years				-						
	លើសពី ២០ឆ្នាំ over 20 years				-						
					-						

Capital requirements for directional risk, basis risk and yield curve risk are explained below:

a. Capital requirement for directional risk

The total net position = KHR 4.16 million.

b. Capital requirement for basis risk

In time band 6-12 months: The matched position in this time band is KHR 1.05 million (being the lesser of the absolute values of the total risk-weighted long and short positions) and leads to a general market risk capital requirement of KHR 0.11 million (i.e. 10% of KHR 1.05 million).

In time band 7-10 years: The matched position in this time band is KHR 0.49 million (being the lesser of the absolute values of the total risk-weighted long and short positions) and leads to a market risk capital requirement of KHR 0.05 million (i.e. 10% of KHR 0.49 million).

Therefore, the capital requirement for basis risk = KHR 0,16 million (KHR 0,11 million + KHR 0,05 million)

c. Capital requirement for yield curve risk within each time zone

In this case, there are two positions (long and short position) in time zone 1 only, the Institution shall calculate capital requirement for yield curve risk as follows:

1). Identify matched position (being the lesser of the absolute values of long positions (Column X) and short positions (Column Y)) which equals KHR 0.15 million (long position KHR 0.15 million where short position KHR 0.55 million), and

2). Calculate market risk capital requirement for yield curve risk in time zone 1 which equals KHR 0.06 million (40% x KHR 0.15 million).

For time zone 2 and time zone 3, there is no capital requirement for yield curve risk as there is only one position (long or short) in each time zone.

d. Capital requirement for yield curve risk across time zone

Net risk-weighted position in time zone 1 is short KHR 0.40 million, time zone 2 is long KHR 1.38 million and time zone 3 is short KHR 5.14 million. Therefore, the capital requirements for yield curve risk are:

- Capital requirement for yield curve risk between time zone 1 and time zone 2 is KHR 0.16 million (40% of KHR 0.40 million)
- Capital requirement for yield curve risk between time zone 2 and time zone 3 is KHR 0.55 million (40% of KHR 1.38 million)
- Capital requirement for yield curve risk between time zone 1 and time zone 3 is KHR 0

Therefore, the total capital requirement for general market risk in this illustration is:

ជាលានរៀល

in million Riels

ប្រភេទហានិភ័យ Risk's nature	មូលដ្ឋានសម្រាប់គណនាកាតព្វកិច្ចដើមទុន Basis for calculation of the capital requirement	កម្រិតថ្លឹងហានិភ័យ Risk weight	កាតព្វកិច្ចដើមទុន Capital requirement
ហានិភ័យដាយរិចសិនណាល សម្រាប់បញ្ជិកាជួញដូរ Directional risk in trading book	ផលបូកសរុបនៃប៉ូស៊ីសិនសុទ្ធនៃរូបិយវត្ថុរូបិយបណ្ណសំខាន់ និងប៉ូស៊ីសិនដុលនៃ "រូបិយបណ្ណផ្សេងទៀត" ដោយមិនគិតពីសញ្ញា +/- The aggregate amount of net positions of all significant currencies and gross position of residual currencies regardless of sign +/-	100%	**4.16**
ហានិភ័យបេស៊ីសសម្រាប់បញ្ជិកាជួញដូរ Basis risk in trading book	ប៉ូស៊ីសិនផ្គូផ្គងនៅក្នុងថាមប៊ែនទាំងអស់ Matched position in every time band	10%	**0.16**
ហានិភ័យខ្សែកោងទិន្នផលសម្រាប់បញ្ជិកាជួញដូរ Yield curve risk in trading book	ប៉ូស៊ីសិនផ្គូផ្គងនៅក្នុងថាមហ្សូនទី១ Matched position within time zone 1	40%	**0.06**
	ប៉ូស៊ីសិនផ្គូផ្គងនៅក្នុងថាមហ្សូនទី២ Matched position within time zone 2	30%	-
	ប៉ូស៊ីសិនផ្គូផ្គងនៅក្នុងថាមហ្សូនទី៣ Matched position within time zone 3	30%	-
	ប៉ូស៊ីសិនផ្គូផ្គងរវាងថាមហ្សូនទី១និងទី២ Matched position between time zone 1 and 2	40%	**0.16**
	ប៉ូស៊ីសិនផ្គូផ្គងរវាងថាមហ្សូនទី២និងទី៣ Matched position between time zone 2 and 3	40%	**0.55**
	ប៉ូស៊ីសិនផ្គូផ្គងរវាងថាមហ្សូនទី១និងទី៣ Matched position between time zone 1 and 3	100%	-
		កាតព្វកិច្ចដើមទុនសរុប **Total capital requirement**	**5.09**

2. Calculating capital requirement for general market risk related to financial instruments in USD

In the Example 2 above, a financial instrument denominated in USD is only available in cross-currency swaps.

The tables attached below show how these positions are slotted into the time bands and are weighted according to the risk weights and provide automated calculation of all components of the capital requirements.

រូបិយបណ្ណ Currency	ដុល្លារអាមេរិក USD

ជាលានរៀល
in million Riels

ថាមហ្វូន Time Zones	កូប៉ុង ៣% ឬច្រើនជាង Coupon 3% or more	កូប៉ុង តិចជាង ៣% Coupon less than 3%	កត្តាវេទយិតភាពហានិភ័យ (%) Risk Sensitivity Factor (%)	ឡុងប៉ូស៊ីសិន Long Positions		សតប៉ូស៊ីសិន Short Positions		ប៉ូស៊ីសិនសុទ្ធ Net Positions	អប្បបរមា (A,B) Min (A,B)	ភាពឫកិច្ចដើមទុន [១០% នៃអប្បបរមា (A,B)] Capital Requirement [10% of Min (A,B)]
				មុនថ្លឹង Before Weighting	ក្រោយថ្លឹង (A) Weighted (A)	មុនថ្លឹង Before Weighting	ក្រោយថ្លឹង (B) Weighted (B)			
ថាមហ្វូនទី១ Time Zone 1	១ ខែ ឬ តិចជាង 1 month or less	១ ខែ ឬ តិចជាង 1 month or less	0.00	-	-	-	-	-	-	-
	១ ទៅ ៣ ខែ 1 to 3 months	១ ទៅ ៣ ខែ 1 to 3 months	0.20	-	-	-	-	-	-	-
	៣ ទៅ ៦ ខែ 3 to 6 months	៣ ទៅ ៦ ខែ 3 to 6 months	0.40	-	-	-	-	-	-	-
	៦ ទៅ ១២ ខែ 6 to 12 months	៦ ទៅ ១២ ខែ 6 to 12 months	0.70	200.00	*1.40*	-	-	*1.40*	-	-
ថាមហ្វូនទី២ Time Zone 2	១ ទៅ ២ឆ្នាំ 1 to 2 years	១ ទៅ ១,៩ឆ្នាំ 1 to 1.9 years	1.25	-	-	-	-	-	-	-
	២ ទៅ ៣ឆ្នាំ 2 to 3 years	១,៩ ទៅ ២,៨ឆ្នាំ 1.9 to 2.8 years	1.75	-	-	-	-	-	-	-
	៣ ទៅ ៤ឆ្នាំ 3 to 4 years	២,៨ ទៅ ៣,៦ឆ្នាំ 2.8 to 3.6 years	2.25	-	-	-	-	-	-	-
	៤ ទៅ ៥ឆ្នាំ 4 to 5 years	៣,៦ ទៅ ៤,៣ឆ្នាំ 3.6 to 4.3 years	2.75	-	-	-	-	-	-	-
ថាមហ្វូនទី៣ Time Zone 3	៥ ទៅ ៧ឆ្នាំ 5 to 7 years	៤,៣ ទៅ ៥,៧ឆ្នាំ 4.3 to 5.7 years	3.25	-	-	-	-	-	-	-
	៧ ទៅ ១០ឆ្នាំ 7 to 10 years	៥,៧ ទៅ ៧,៣ឆ្នាំ 5.7 to 7.3 years	3.75	-	-	-	-	-	-	-
	១០ ទៅ ១៥ឆ្នាំ 10 to 15 years	៧,៣ ទៅ ៩,៣ឆ្នាំ 7.3 to 9.3 Years	4.50	-	-	-	-	-	-	-
	១៥ ទៅ ២០ឆ្នាំ 15 to 20 years	៩,៣ ទៅ ១០,៦ឆ្នាំ 9.3 to 10.6 years	5.25	-	-	-	-	-	-	-
	លើសពី២០ឆ្នាំ over 20 years	១០,៦ ទៅ ១២ឆ្នាំ 10.6 to 12 years	6.00	-	-	-	-	-	-	-
		១២ ទៅ ២០ឆ្នាំ 12 to 20 years	8.00	-	-	-	-	-	-	-
		លើសពី២០ឆ្នាំ Over 20 years	12.50	-	-	-	-	-	-	-
							ប៉ូស៊ីសិនសុទ្ធសរុប Total Net Position	*1.40*	*Vertical Disallowance*	-

រូបិយបណ្ណ Currency	ដុល្លារអាមេរិក USD											ជាលានរៀល in million Riels
		កត្តាហានិភ័យសម្រាប់ Horizontal Disallowance Risks factors for horizontal disallowance			ប៉ូស៊ីសិនសុទ្ធ Net positions	តម្លៃនៅក្នុងថាមហ្វូន Values within time zones			កាតព្វកិច្ចដើមទុនសម្រាប់ហានិភ័យខ្សែកោងទិន្នផល Capital requirement for yield curve risk		
ថាមហ្វូន Time Zone	ថាមបែន Time bands	នៅក្នុងថាមហ្វូន Within time zone	រវាងថាមហ្វូនជិតគ្នា Between adjacent time zones	រវាងថាមហ្វូនទី១និងទី៣ Between time zone 1 and 3		Σ ឡុង ប៉ូស៊ីសិន (X) Σ Long positions (X)	Σ សត ប៉ូស៊ីសិន (Y) Σ Short positions (Y)	ប៉ូស៊ីសិនសុទ្ធក្នុងថាមហ្វូន (Z= X-Y) Net position within time zone (Z= X-Y)	Disallowance ក្នុងថាមហ្វូន៖ ៤០% ឬ ៣០% នៃ អប្បបរមា (IXI,IYI) Disallowance within time zones: 40% or 30% of MIn (IXI,IYI)	Disallowance រវាងថាមហ្វូនជិតគ្នា (៤០% នៃប៉ូស៊ីសិនផ្គូផ្គងរវាងថាមហ្វូនទី១និងទី២, ថាមហ្វូនទី២និងទី៣) Disallowance between adjacent time zones (40% of matched positions between time zone 1 and 2, time zone 2 and 3)	Disallowance រវាងថាមហ្វូនទី១និងទី៣ (១០០% នៃប៉ូស៊ីសិនផ្គូផ្គងរវាងថាមហ្វូនទី១និងទី៣) Disallowance between time zone 1 and 3 (100% of matched positions between time zone 1 and 3)
ថាមហ្វូនទី១ Time Zone 1	០-១ ខែ 0-1 month	40%	រវាងថាមហ្វូនទី១និងទី២ Between time zone 1 and 2 40%	100%	-	1.40	-	1.40	-	-	-
	១-៣ ខែ 1-3 months				-						
	៣-៦ ខែ 3-6 months				-						
	៦-១២ខែ 6-12 months				1.40						
ថាមហ្វូនទី២ Time Zone 2	១-២ឆ្នាំ 1-2 years	30%			-	-	-	-	-	-	-
	២-៣ឆ្នាំ 2-3 years				-						
	៣-៤ឆ្នាំ 3-4 years		រវាងថាមហ្វូនទី២និងទី៣ Between time zone 2 and 3 40%		-						
	៤-៥ឆ្នាំ 4-5 years				-						
ថាមហ្វូនទី៣ Time Zone 3	៥-៧ឆ្នាំ 5-7 years	30%			-	-	-	-	-	-	-
	៧-១០ឆ្នាំ 7-10 years				-						
	១០-១៥ឆ្នាំ 10-15 years				-						
	១៥-២០ឆ្នាំ 15- 20 years				-						
	លើសពី ២០ឆ្នាំ over 20 years				-						
					-						

Capital requirement calculation for directional risk, basis risk and yield curve risk for position in USD are explained below:

a. Capital requirement for directional risk

Total net position is KHR 1.40 million.

b. Capital requirement for basis risk

There is no capital requirement for basis risk as there is no matched position in each time band.

c. Capital requirement for yield curve risk within each time zone

- For Zone 1, there is no capital requirement for yield curve risk as there is only one position (long)
- For Zone 2 and Zone 3, there is also no capital requirement for yield curve risk as there is no position in each zone.

d. Capital requirement for yield curve risk across the time zones

For position in USD, there is no capital requirement for yield curve risk as there is only one position in time zone 1.

Therefore, the total capital requirement for general market risk in this illustration is:

ជាលានរៀល
in million Riels

ប្រភេទហានិភ័យ Risk's nature	មូលដ្ឋានសម្រាប់គណនាកាតព្វកិច្ចដើមទុន Basis for calculation of the capital requirement	កម្រិតថ្លឹងហានិភ័យ Risk weight	កាតព្វកិច្ចដើមទុន Capital requirement
ហានិភ័យដោយរិចសិនណល សម្រាប់បញ្ជិកាជួញដូរ Directional risk in trading book	ផលបូកសរុបនៃប៉ូស៊ីសិនសុទ្ធនៃរូបិយវត្ថុ/រូបិយបណ្ណសំខាន់ និងប៉ូស៊ីសិនដុលនៃ "រូបិយបណ្ណផ្សេងទៀត" ដោយមិនគិតពីសញ្ញា +/- The aggregate amount of net positions of all significant currencies and gross position of residual currencies regardless of sign +/-	100%	**1.40**
ហានិភ័យបេស៊ីសសម្រាប់ បញ្ជិកាជួញដូរ Basis risk in trading book	ប៉ូស៊ីសិនផ្គូផ្គងនៅក្នុងថាមបែនទាំងអស់ Matched position in every time band	10%	-
ហានិភ័យខ្សែកោងទិន្នផល សម្រាប់បញ្ជិកាជួញដូរ Yield curve risk in trading book	ប៉ូស៊ីសិនផ្គូផ្គងនៅក្នុងថាមហ្សូនទី១ Matched position within time zone 1	40%	-
	ប៉ូស៊ីសិនផ្គូផ្គងនៅក្នុងថាមហ្សូនទី២ Matched position within time zone 2	30%	-
	ប៉ូស៊ីសិនផ្គូផ្គងនៅក្នុងថាមហ្សូនទី៣ Matched position within time zone 3	30%	-
	ប៉ូស៊ីសិនផ្គូផ្គងរវាងថាមហ្សូនទី១និងទី២ Matched position between time zone 1 and 2	40%	-
	ប៉ូស៊ីសិនផ្គូផ្គងរវាងថាមហ្សូនទី២និងទី៣ Matched position between time zone 2 and 3	40%	-
	ប៉ូស៊ីសិនផ្គូផ្គងរវាងថាមហ្សូនទី១និងទី៣ Matched position between time zone 1 and 3	100%	-
		កាតព្វកិច្ចដើមទុនសរុប **Total capital requirement**	**1.40**

The total capital requirement for general market risk = KHR 5.09 million + KHR 1.40 million = KHR 6.49 million

With the above capital requirement for specific risk resulted from Example 1 and capital requirement for general market risk resulted from Example 2, the Institution can derive capital requirement for interest rate risk and capital charge for interest rate risk as below:

- Capital requirement for interest rate risk	=	Capital requirement for specific risk	+	Capital requirement for general market risk
	=	KHR 0.21 million	+	KHR 6.49 million
	=	KHR 6.70 million		
- Capital charge for interest rate risk	=	Capital requirement for interest rate risk	x	Scaling factor of interest rate risk
	=	KHR 6.70 million	x	1.30
	=	KHR 8.1 million		

Example 3: Equity risk capital requirement calculation

An Institution has the following positions in its equity portfolio that is traded in the same market:

In million Riels

Company	Position	No. of Shares	Market Price/share	Market Value
A	Long	2,000	0.25	500
A	Short	(1,500)	0.25	(375)
B	Long	3,000	0.57	1,710
B	Short	(4,000)	0.57	(2,280)
C	Long	2,500	0.80	2,000
D	Short	(2,000)	0.45	(900)

Offsetting of Positions

First, the Institution should net long and short positions in the same issue as follows:

- The net position in Company A shares is long KHR 125 million.
- The net position in Company B shares is short KHR 570 million.

After offsetting, net positions are summarized as follows:

In million Riels

Company	Position	No. of Shares	Market Price/share	Market Value
A	Long	500	0.25	125
B	Short	(1,000)	0.57	(570)
C	Long	2,500	0.80	2,000
D	Short	(2,000)	0.45	(900)
Gross position (125 + 570 + 2,000 + 900)				3,595
Overall net position (125 – 570 + 2,000 – 900)				655

Calculation of Capital Requirement

1. **Specific risk capital requirement**

The capital requirement for specific risk = 8% x gross position

= 8% x KHR 3,595 million

= **KHR 287.6 million**

2. **General market risk capital requirement**

The capital requirement for general market risk = 8% x overall net position

= 8% x KHR 655 million

= KHR 52.4 million

3. **The total capital requirement** = KHR 287.6 million + KHR 52.4 million

= **KHR 340 million**

With the above capital requirement, the Institution can derive total capital charge for equity:

The total capital charge for this portfolio = KHR 340 million x 3.5 (scaling factor)

= **KHR 1,190 million**

Example 4: Foreign exchange risk capital requirement calculation

An Institution has three currencies in which it has long positions, these being the Japanese Yen, the US dollar and the Chinese Yuan, and two currencies in which it has a short position, the Euro, and the Thai Bath as well as a short position in gold. The Institution should calculate capital requirement for foreign exchange rate risk as below:

In million Riels

Currency	Net Long Position	Net Short Position
US dollar	+50	
YEN	+100	
Euro		-20
Yuan	+150	
THB		-180
The sum of net long/short positions	+300	-200
Gold		-35
Overall net open position	335	
Total capital requirement	26.8	

The sum of the absolute value of net long positions (KHR 300 million) which is greater than the sum of the absolute value of the net short positions (KHR 200 million) would be added to the absolute value of gold position (KHR 35 million) to give the "overall net open position" (KHR 335 million).

The capital requirement of foreign exchange risk = KHR 335 million x 8% = KHR 26.8 million

Therefore, a capital charge = KHR 26.8 million x 1.20 (scaling factor) = KHR 32.16 million.

Example 5: Option risk capital requirement calculation

i. Options for Equities

An Institution holds 100 shares currently valued at KHR 1 million per share and holds an equivalent put option with a strike price of KHR 1.1 million per share.

The Institution should calculate capital requirement for options for equities as below:

The capital requirement	= KHR 100 million x 16% (8% specific risk and 8% general market risk for equity) - (the amount the option is in the money)
	= KHR 16 million – [(KHR 1.1 million - KHR 1 million) x 100]
	= KHR 6 million
Therefore, the capital charge	= KHR 6 million x 3.5 (scaling factor for equity)
	= KHR 21 million

A similar methodology applies for options whose underlying is a foreign currency or an interest rate related instrument.

ii. Options for Debt instrument

An Institution has a long position of 1,000 corporate bonds (market value: KHR 2.5 million per corporate bond) rated equivalent to BBB with a residual maturity of 8 years hedged by 1,000 put options with a strike price at KHR 2.6 million per corporate bond.

The Institution should calculate capital requirement for the position in options as below:

Specific risk	= KHR 2,500 million x 1.60%
	= KHR 40 million
General market risk	= KHR 2,500 million x 3.75%
	= KHR 93.75 million
The option is in the money	= (KHR 2.6 million - KHR 2.5 million) x 1,000
	= KHR 100 million
Capital requirement	= KHR 40 million + KHR 93.75 million – KHR 100 million
	= KHR 33.75 million
Thus, Capital charge	= KHR 33.75 million x 1.30 (scaling factor for IRR)
	= KHR 43.87 million