Examples of calculation of risk-weighted amount of CIS exposure with portion constituting deductible holding

The following examples deliberately incorporate certain assumptions for the sake of simplicity and ease of illustration. When determining the amount of capital deduction and the amount subject to risk-weighting for capital instruments or non-capital LAC liabilities in an actual case, AIs should always refer to and follow the relevant provisions set out in Division 4 of Part 3 (including the relevant schedules) of the BCR.

The reporting arrangements are intended to illustrate what principal amounts should be reported when the collective investment scheme concerned has a leverage level of more than 1.

Although risk-weights under the STC approach are used in the examples for illustration, the calculation steps illustrated also apply to the BSC approach.

Example 1: Capital instruments held by a Level 1 CIS

Consider a Level 1 CIS that has the following balance sheet:

Asset	
Cash	$20
CET1 capital instruments (AA- to AAA) issued by:	
— financial sector entity A	$100
— financial sector entity B	$100
Debt securities (A rated) issued by sovereigns	$280
Listed equities issued by	
— Commercial entity A	$100
— Other commercial entities	$400
Liabilities	
Note payable	$50
Equity	
Shares	$950

Moreover, assume the following:

- an AI using the STC approach owns 20% of the shares of the Level 1 CIS and the principal amount of the AI's equity investment in the Level 1 CIS ($P_{CIS\ exposure}$) is $190;

- financial sector entities A and B and commercial entity A have the following relationship with the AI:
  - — the AI owns less than 10% of the issued ordinary share capital of financial sector entity A and owns more than 10% of the issued ordinary share capital of financial sector entity B. Both financial sector entities are not subject to a section 3C requirement and they are not affiliates of the AI; and
  - — commercial entity A is an affiliate of the AI; and
- none of the listed equities held by the Level 1 CIS are required to be deducted from the AI's CET1 capital under §43 of the BCR. Moreover, the other commercial entities are not affiliates of the AI and the AI does not have any shareholdings in them.

Portion of the AI's CIS exposure that constitutes deductible holding (§70AC)

Given—

(a) total amount of regulatory deductible items held by the Level 1 CIS (P_{RDI}) = \$100 + \$100 = \$200;

(b) total assets of the Level 1 CIS (TA) = \$1000; and

(c) equity of the Level 1 CIS (TE) = \$950,

amount of the AI's CIS exposure to the Level 1 CIS that constitutes deductible holding (P_{DH}) is calculated as follows:

$$P_{DH} = \frac{(P_{RDI})}{(TA)} \cdot P_{CIS\ exposure}$$

$$= \frac{(200)}{(1000)} \cdot (190) = 38$$

However, since the Level 1 CIS uses leverage, the AI's actual exposure to the regulatory deductible items = *leverage of Level 1 CIS* × P_{DH} = $\frac{(1000)}{(950)} \cdot (38) = 40$

Alternatively, the AI may calculate the amount of its indirect holding of the regulatory deductible items by multiplying P_{RDI} by 20% = 200 × 20% = 40

<u>Amount of the AI’s deductible holding subject to capital deduction</u>

After applying all the relevant provisions in Division 4 of Part 3 (including relevant schedules) of the BCR, the AI determines that the total amount of the deductible holding that must be deducted from its CET1 capital is **$34**.

<u>RWA of the AI’s deductible holding not subject to capital deduction</u>

RWA = (4×100%) + (2×250%) = **$9**

	Principal amount	**Risk-weight**	**RWA**	**Capital deduction**
CET1 capital instruments issued by: — financial sector entity A (BCR §43(1)(o), §70AC(3)(a) and Schedule 4F)				
• share of the AI that is subject to risk-weighting	$4	100%	$4	-
• share of the AI that is subject to capital deduction — financial sector entity B (BCR §43(1)(p), §70AC(3)(b) and Schedule 4G)	$16	-	-	$16
• share of the AI that is subject to risk-weighting	$2	250%	$5	-
• share of the AI that is subject to capital deduction	$18	-	-	$18

Portion of the AI’s CIS exposure that does not constitute deductible holding (Part 6B and §226ZT)

Under the LTA, the risk-weighted amount (RWA) of the underlying exposures of the Level 1 CIS are calculated as follows:

	Principal amount	**Risk-weight**	**RWA**
Cash (BCR §63)	$20	0%	$0
Debt securities (A rated) issued by sovereigns (BCR §55)	$280	20%	$56
Listed equities			

— Commercial entity A (BCR §226ZO(3)(a) and §66)	\$100	100%	\$100
— Other commercial entities (BCR §66)	\$400	100%	\$400

Given—

(a) underlying exposures of the Level 1 CIS that are not regulatory deductible items ($P_{non\text{-}RDI}$) = 1000 – 200 = 800; and

(b) $RWA_{non\text{-}RDI}$ is the RWA of $P_{non\text{-}RDI}$ calculated by using the LTA,

amount of the AI's CIS exposure to the Level 1 CIS that does not constitute deductible holding ($P_{non\text{-}DH}$) is calculated as follows:

$$P_{non-DH} = \frac{(P_{non-RDI})}{(TA)} \cdot P_{CIS\ exposure}$$

$$= \frac{(800)}{(1000)} \cdot (190) = 152$$

$RWA_{non\text{-}DH}$ is then calculated as follows:

$$RWA_{non-DH} = \left(\frac{RWA_{non-RDI}}{TA - P_{RDI}}\right) \cdot \frac{TA}{TE} \cdot P_{non-DH}$$

$$= \left(\frac{20 \cdot 0\% + 280 \cdot 20\% + 100 \cdot 100\% + 400 \cdot 100\%}{1000 - 200}\right) \cdot \frac{1000}{950} \cdot 152$$

$$= \left(\frac{56 + 100 + 400}{800}\right) \cdot 160$$

= **111.2**

Reporting arrangements for Part IIIb of MA(BS)3

Reporting of the portion that does not constitute deductible holding

(in HK$'000)

Item	Nature of item	On-balance sheet exposures		Off-balance sheet exposures				
		Principal Amount (A1)	Principal Amount after CRM (A2)	Principal Amount / Notional Amount (A3)	Credit Equivalent Amount after CRM (A4)	Default Risk Exposure after CRM (A5)	Risk-weight % (A6)	Risk-weighted Amount (A7) = (A2+A4+A5) x A6
Class VII	**Collective Investment Scheme Exposures (CIS exposures)**							
10a.	*Look-through approach / third-party approach*							
10a(i).	Risk-weight ≤20%							
10a(ii).	Risk-weight > 20% - 50%							
10a(iii).	Risk-weight > 50% - 100%	152					73	111
10a(iv).	Risk-weight > 100% - 250%							

Reporting of the portion that constitutes deductible holding and is subject to risk-weighting

(in HK$'000)

Item	Nature of item	On-balance sheet exposures		Off-balance sheet exposures				
		Principal Amount (A1)	Principal Amount after CRM (A2)	Principal Amount / Notional Amount (A3)	Credit Equivalent Amount after CRM (A4)	Default Risk Exposure after CRM (A5)	Risk-weight % (A6)	Risk-weighted Amount (A7) = (A2+A4+A5) x A6
Class XI	**Other Exposures which are not Past Due Exposures**							
20a.	Exposures to individuals not elsewhere reported						100	
20b.	Holdings of equity or other forms of capital instruments issued by, and non-capital LAC liabilities of, financial sector entities subject to 100% risk-weight	4					100	4
20c.	Investments in equity of entities (other than financial sector entities) subject to 100% risk-weight						100	
20d.	Premises, plant and equipment, other fixed assets for own use, and other interest in land						100	
20e.	Holdings of equity or other forms of capital instruments issued by financial sector entities subject to 250% risk-weight	2					250	5
20f.	Multiple-name credit-linked notes / sold credit protection to basket of exposures							

Example 2: Capital instruments held by a Level 2 CIS

Consider a Level 1 CIS that has the following balance sheet:

Asset	
Cash	\$20
CIS exposure to a Level 2 CIS	\$40
Debt securities (A rated) issued by sovereigns	\$580
Listed equities	\$360
Liabilities	
Note payable	\$50
Equity	
Shares	\$950

Moreover, assume the following:

- an AI using the STC approach owns 20% of the shares of the Level 1 CIS and the principal amount of the AI's equity investment in the Level 1 CIS ($P_{CIS\ exposure}$) is \$190; and
- the AI is able to use the LTA to calculate the RWAs of the underlying exposures of the Level 1 CIS and the Level 2 CIS.

The following is the balance sheet of the Level 2 CIS:

Asset	
Cash	\$10
CET1 capital instruments (AA- to AAA) issued by financial sector entity A	\$200
Debt securities (A rated) issued by sovereigns	\$190
Listed equities	\$400
Liabilities	
Note payable	\$0
Equity	
Shares	\$800

- The AI owns less than 10% of the issued ordinary share capital of financial sector entity A which is neither an entity subject to a section 3C requirement nor an affiliate of the AI.

- None of the listed equities held by the Level 1 CIS and the Level 2 CIS are required to be deducted from the AI's CET1 capital under §43 of the BCR. Moreover, none of these equities are issued by commercial entities that are affiliates of the AI. The AI also does not have any shareholdings in the commercial entities.

Step 1: Level 1 CIS's CIS exposure to Level 2 CIS

Under the LTA, the RWA of the Level 1 CIS's CIS exposure to the Level 2 CIS ($RWA_{CIS\ expo\ 2}$) is calculated as follows:

$$RWA_{CIS\ expo\ 2} = \frac{P_{RDI} \cdot RW_{RDI} + RWA_{non-RDI}}{TA_2} \cdot \frac{TA_2}{TE_2} \cdot \left(P_{CIS\ expo\ 2}\right) \quad \ldots (1)$$

where—

(a) P_{RDI} is the amount of regulatory deductible items held by the Level 2 CIS;

(b) RW_{RDI} is the risk-weight[1] applicable to the regulatory deductible items;

(c) $RWA_{non-RDI}$ is the RWA of the underlying exposures of the Level 2 CIS that are not regulatory deductible items;

(d) TA_2 is the total assets of the Level 2 CIS;

(e) TE_2 is the equity of the Level 2 CIS; and

(f) $P_{CIS\ expo\ 2}$ is the CIS exposure of the Level 1 CIS to the Level 2 CIS.

By rearranging equation (1) above, the CIS exposure to the Level 2 CIS and its RWA can be divided into two portions—

$$RWA_{CIS\ expo\ 2}$$

$$= \frac{P_{RDI} \cdot RW_{RDI}}{P_{RDI}} \cdot \frac{TA_2}{TE_2} \cdot \left(\frac{P_{RDI}}{TA_2} \cdot P_{CIS\ expo\ 2}\right) + \frac{RWA_{non-RDI}}{P_{non-RDI}} \cdot \frac{TA_2}{TE_2} \cdot \left(\frac{P_{non-RDI}}{TA_2} \cdot P_{CIS\ expo\ 2}\right)$$

$$= P_{RDI} \cdot RW_{RDI} \cdot \%_{L1\ CIS} + \frac{RWA_{non-RDI}}{P_{non-RDI}} \cdot \frac{TA_2}{TE_2} \cdot \left(\frac{P_{non-RDI}}{TA_2} \cdot P_{CIS\ expo\ 2}\right) \ldots (2)$$

where—

(a) $\%_{L1\ CIS}$ is the share of the Level 1 CIS in the equity of the Level 2 CIS; and

(b) $P_{non-RDI}$ is the amount of underlying exposures (other than regulatory deductible items) held by the Level 2 CIS.

[1] In order to illustrate how to identify the portion of a CIS exposure that contributes to the deductible holding of the AI, capital deduction is represented by the application of a risk-weight (i.e. 1250%) in the equations in this example.

For the portion of the CIS exposure in relation to underlying exposures other than regulatory deductible items (i.e. the portion that is subject to Part 6B of the BCR, where the regulatory deductible items are excluded in accordance with §226ZX(2)), the RWA of that portion is calculated as follows:

	Principal amount	Risk-weight	RWA
Cash (BCR §63)	$10	0%	$0
Debt securities (A rated) issued by sovereigns (BCR §55)	$190	20%	$38
Listed equities (BCR §66)	$400	100%	$400

$$RWA = \frac{RWA_{non-RDI}}{P_{non-RDI}} \cdot \frac{TA_2}{TE_2} \cdot \left(\frac{P_{non-RDI}}{TA_2} \cdot P_{CIS\ expo\ 2}\right)$$

$$= \left(\frac{10 \cdot 0\% + 190 \cdot 20\% + 400 \cdot 100\%}{800 - 200}\right) \cdot \frac{800}{800} \cdot \frac{600}{800} \cdot 40$$

$$= 21.9$$

Step 2: AI's CIS exposure to Level 1 CIS

$$RWA_{CIS\ expo} = \frac{RWA_{CIS\ expo\ 2} + RWA_{non-CIS}}{TA_1} \cdot \frac{TA_1}{TE_1} \cdot P_{CIS\ expo} \quad \ldots (3)$$

where—

(a) $RWA_{CIS\ expo}$ is the RWA of the AI's CIS exposure to the Level 1 CIS;

(b) $RWA_{non\text{-}CIS}$ is the RWA of the underlying exposures of the Level 1 CIS that are not CIS exposures;

(c) $P_{CIS\ expo}$ is the amount of the AI's CIS exposure to the Level 1 CIS;

(d) TA_1 is the total assets of the Level 1 CIS; and

(e) TE_1 is the equity of the Level 1 CIS.

By substituting equation (2) into equation (3), the CIS exposure to the Level 1 CIS and its RWA can be divided into two portions—

$$RWA_{CIS\ expo}$$

$$= \frac{P_{RDI} \cdot RW_{RDI} \cdot \%_{L1\ CIS} + 21.9 + RWA_{non-CIS}}{TA_1} \cdot \frac{TA_1}{TE_1} \cdot P_{CIS\ expo}$$

$$= \frac{P_{RDI} \cdot RW_{RDI} \cdot \%_{L1\ CIS}}{TA_1} \cdot \frac{TA_1}{TE_1} \cdot P_{CIS\ expo} + \frac{21.9 + RWA_{non-CIS}}{TA_1} \cdot \frac{TA_1}{TE_1} \cdot P_{CIS\ expo}$$

$$= \frac{P_{RDI} \cdot RW_{RDI} \cdot \%_{L1\ CIS}}{P_{RDI} \cdot \%_{L1\ CIS}} \cdot \frac{TA_1}{TE_1} \cdot \left(\frac{P_{RDI} \cdot \%_{L1\ CIS}}{TA_1} \cdot P_{CIS\ expo}\right) + \frac{21.9 + RWA_{non-CIS}}{TA_1 - P_{RDI} \cdot \%_{L1\ CIS}} \cdot \frac{TA_1}{TE_1} \cdot \left(\frac{TA_1 - P_{RDI} \cdot \%_{L1\ CIS}}{TA_1} \cdot P_{CIS\ expo}\right)$$

<u>Portion of the AI's CIS exposure that does not constitute deductible holding (Part 6B)</u>

For the portion of the AI's CIS exposure that does not constitute deductible holding (i.e. the portion that is subject to <u>Part 6B of the BCR</u>), the amount of that portion is calculated as follows:

$$= \frac{TA_1 - P_{RDI} \cdot \%_{L1\ CIS}}{TA_1} \cdot P_{CIS\ expo}$$

$$= \frac{1000 - 200 \cdot 5\%}{1000} \cdot 190$$

$$= 188.1$$

The RWA of that portion ($RWA_{non\text{-}DH}$) is calculated as follows:

	Principal amount	**Risk-weight**	**RWA**
Cash (BCR §63)	\$20	0%	\$0
CIS exposure to a <u>Level 2 CIS</u>	-	-	\$21.9[2]
Debt securities (A rated) issued by sovereigns (BCR §55)	\$580	20%	\$116
Listed equities (BCR §66)	\$360	100%	\$360

$$RWA_{non-DH} = \frac{21.9 + RWA_{non-CIS}}{TA_1 - P_{RDI} \cdot \%_{L1\ CIS}} \cdot \frac{TA_1}{TE_1} \cdot 188.1$$

$$= \left(\frac{0 + 21.9 + 116 + 360}{1000 - 10}\right) \cdot \frac{1000}{950} \cdot 188.1$$

$$= \mathbf{99.58}$$

[2] This is the RWA calculated under Step 1.

Step 3: Portion of the AI's CIS exposure to Level 1 CIS that constitutes deductible holding (§70AC)

Amount of the AI's CIS exposure to the Level 1 CIS that constitutes deductible holding (P_{DH}) is calculated as follows:

$$P_{DH} = P_{RDI} \cdot \%_{L1\ CIS} \cdot \%_{AI}$$

$$= 200 \cdot \frac{40}{800} \cdot \frac{190}{950}$$

$$= 2$$

where $\%_{AI}$ is the share of the AI in the equity of the Level 1 CIS.

Amount of the AI's deductible holding subject to capital deduction (§43(1)(o), §70AC(2)(a) and (c), and Schedule 4F)

After applying all the relevant provisions in Division 4 of Part 3 (including relevant schedules) of the BCR, the AI determines that the total amount of the deductible holding that must be deducted from its CET1 capital is **$1**.

RWA of the AI's deductible holding not subject to capital deduction (§70AC(2)(b) and (d) and (3)(a))

RWA = ($1×100%) = **$1**

Reporting arrangements for Part IIIb of MA(BS)3

Reporting of the portion that does not constitute deductible holding

(in HK$'000)

Item	Nature of item	On-balance sheet exposures: Principal Amount (A1)	On-balance sheet exposures: Principal Amount after CRM (A2)	Off-balance sheet exposures: Principal Amount / Notional Amount (A3)	Off-balance sheet exposures: Credit Equivalent Amount after CRM (A4)	Off-balance sheet exposures: Default Risk Exposure after CRM (A5)	Risk-weight % (A6)	Risk-weighted Amount (A7) = (A2+A4+A5) x A6
Class VII	Collective Investment Scheme Exposures (CIS exposures)							
10a.	*Look-through approach / third-party approach*							
10a(i).	Risk-weight ≤20%							
10a(ii).	Risk-weight > 20% - 50%							
10a(iii).	Risk-weight > 50% - 100%	188					53	100
10a(iv).	Risk-weight > 100% - 250%							

Reporting of the portion that constitutes deductible holding and is subject to risk-weighting

(in HK$'000)

Item	Nature of item	On-balance sheet exposures: Principal Amount (A1)	On-balance sheet exposures: Principal Amount after CRM (A2)	Off-balance sheet exposures: Principal Amount / Notional Amount (A3)	Off-balance sheet exposures: Credit Equivalent Amount after CRM (A4)	Off-balance sheet exposures: Default Risk Exposure after CRM (A5)	Risk-weight % (A6)	Risk-weighted Amount (A7) = (A2+A4+A5) x A6
Class XI	**Other Exposures which are not Past Due Exposures**							
20a.	Exposures to individuals not elsewhere reported						100	
20b.	Holdings of equity or other forms of capital instruments issued by, and non-capital LAC liabilities of, financial sector entities subject to 100% risk-weight	1					100	1
20c.	Investments in equity of entities (other than financial sector entities) subject to 100% risk-weight						100	