Annex 3:

**IRB Approach: Calculation of Risk Weighted Assets**

Commercial Banks using the Internal Ratings-Based (IRB) Approach shall use the following formula to derive the risk weighted assets (RWA) in relation to sovereign exposure, exposures to financial institutions, corporate exposures and retail exposures. Risk-weighted assets for equity exposures are subject to the regulatory weighting approach.

1. Calculation of RWAs for Exposures not in Default

1.1 Calculation of the correlation (R)

1.1.1 Sovereign and corporate exposures

\[
R = 0.12 \times \frac{1 - \frac{1}{e^{(50 \times PD)}}}{1 - \frac{1}{e^{50}}} + 0.24 \times \left[ 1 - \frac{1 - \frac{1}{e^{(50 \times PD)}}}{1 - \frac{1}{e^{50}}} \right]
\]

1.1.2 Financial institutions exposures (bank exposures)

\[
R_{FI} = 1.25 \times \left\{ 0.12 \times \frac{1 - \frac{1}{e^{(50 \times PD)}}}{1 - \frac{1}{e^{50}}} + 0.24 \times \left[ 1 - \frac{1 - \frac{1}{e^{(50 \times PD)}}}{1 - \frac{1}{e^{50}}} \right] \right\}
\]

1.1.3 Firm-size adjustment for small- and medium-sized entities (SME)

\[
R_{SME} = 0.12 \times \left[ 1 - \frac{1}{e^{(50 \times PD)}} \right] + 0.24 \times \left[ 1 - \frac{1 - \frac{1}{e^{(50 \times PD)}}}{1 - \frac{1}{e^{50}}} \right] - 0.04 \times \left( 1 - \frac{S - 3}{27} \right)
\]

Here, S is expressed as total annual sales in ten millions of RMB. Reported sales of less than RMB30 million will be treated as if they were equivalent to RMB30 million.

1.1.4 Retail exposures
Residential mortgages:  $R_{a1} = 0.15$
Eligible revolving retail exposures:  $R_{a2} = 0.04$

Other retail exposure:

$$R_{r5} = 0.03 \times \frac{1 - \frac{1}{e^{(55y/9)}}}{1 - \frac{1}{e^{55}} + 0.16 \times \left[ 1 - \frac{1}{e^{(55y/9)}} \right]}$$

1.2 Calculation of maturity adjustment $(b)$

$$b = \left[ 0.11852 - 0.05478 \times \ln(PD) \right]^2$$

1.3 Calculation of capital requirement $(K)$

1.3.1 Non-retail exposures

$$K = LGD \times N \left[ \frac{1}{1-R} \times G(PD) + \frac{R}{1-R} \times G(0.999) \right] - PD \times LGD \times \frac{1}{1-1.5 \times b} \times [1 + (M - 2.5) \times b]$$

1.3.2 Retail exposures

$$K = LGD \times N \left[ \frac{1}{1-R} \times G(PD) + \frac{R}{1-R} \times G(0.999) \right] - PD \times LGD$$

1.4 Calculation of risk-weighted assets (RWA)

$$RWA = K \times 12.5 \times EAD$$

2. Calculation of RWAs for Defaulted Exposures

$$K = \text{Max} \left[ 0, (LGD - BEEL) \right]$$
$$RWA = K \times 12.5 \times EAD$$

Here, BEEL refers to the best estimate of the expected loss on that asset based on current economic circumstances and facility status.