$$(1)\ S[Y] = \begin{cases} Y & \text{when } Y \le K_{IRB} \\ K_{IRB} + K[Y] - K[K_{IRB}] + \dfrac{d \cdot K_{IRB}}{20}\left(1 - e^{\frac{20 \cdot (K_{IRB} - Y)}{K_{IRB}}}\right) & \text{when } Y > K_{IRB} \end{cases}$$

$$(2)\ K[Y] = (1-h) \cdot \left[\left(1 - \beta[Y; a, b]\right) \cdot Y + \beta[Y; a+1, b] \cdot c\right]$$

$$(3)\ h = \left(1 - \frac{K_{IRB}}{EWALGD}\right)^N$$

$$(4)\ a = g \cdot c$$

$$(5)\ b = g \cdot (1-c)$$

$$(6)\ c = \frac{K_{IRB}}{1-h}$$

$$(7)\ g = \frac{(1-c) \cdot c}{f} - 1$$

$$(8)\ f = \frac{v + K_{IRB}{}^2}{1-h} - c^2 + \frac{(1 - K_{IRB}) \cdot K_{IRB} - v}{(1-h) \cdot 1000}$$

$$(9)\ v = K_{IRB} \cdot \frac{(EWALGD - K_{IRB}) + .25 \cdot (1 - EWALGD)}{N}$$

$$(10)\ d = 1 - (1-h) \cdot (1 - \beta[K_{IRB}; a, b]).$$