



Figure 8. Global and regional banks

In (7), we introduced the random variable Z_j that determined whether a particular borrower j defaults or not. We now introduce a subscript k to indicate the region that the borrower belongs to. Thus, let

$$Z_{kj} \equiv -\Phi^{-1}(\varepsilon) + \sqrt{\rho}Y_k + \sqrt{1-\rho}X_{kj} \quad (19)$$

where

$$Y_k = \sqrt{\beta}G + \sqrt{1-\beta}R_k \quad (20)$$

In (20), the risk factor Y_k is decomposed into a regional risk factor R_k that affects all borrowers in region k and a global risk factor G . The random variables G , $\{R_k\}$ and $\{X_{kj}\}$ are mutually independent standard normals.

The credit risk borne by a global bank arises from the possibility (which happens with probability α) that a regional bank defaults on the cross-border loan granted by the global bank. Although each regional bank has a diversified portfolio against the idiosyncratic risk of its regional borrowers, it bears the risk Y_k .

A global bank has a fully-diversified portfolio across regions, and it can diversify away