The basic idea of the code.

$$
\begin{aligned}
\mathrm{R}_i &\equiv \text{return on name } i \sim N(0,1) \\
&= \beta M + \alpha Z_i\big(Z_i \; are \; iid \; N(0,1)\big) \\
&\quad (\beta = \sqrt{\rho}, \alpha = \sqrt{1-\rho})
\end{aligned}
$$

$$
\begin{aligned}
\mathrm{P}_i &= P[\text{name i defaults}] \\
&= P[R_i < \phi^{-1}(P_i)]
\end{aligned}
$$