A doomsday formula: $\widehat{t}(k, t_0, \{\beta_i\}) = \inf\left\{u \,\middle|\, \int_{t_0}^u w_t(t_0, \{\beta_i\})\, dt \geq k\right\}$ [1].

[1] Hongda Zhong, Dynamic Coordination and Bankruptcy Regulations, 2025. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3355429.