

T	maturity time	$T = 5$ years
t	continuous time	$t \in [0, T]$
m	number of reference entities	
τ_i	random default time of i^{th} reference entity	$\tau_i \in (0, \infty) \quad i = 1, 2, \dots, m$
T_k	k^{th} random default time	$0 < T_1 < T_2 < \dots < T_m$
n_T	maximum possible number of premium fees	
t_i	predefined date of i^{th} premium fee	$0 < t_1 < t_2 < \dots < t_{n_T}$
ϕ	recovery rate	$\phi(t) = \phi = 0.4$
s	premium fee payment	
r	risk-free rate of return	$r(t) = r = 0.05$
Δ_i	day-count fraction between premium fees	$\Delta_i = \frac{t_i - t_{i-1}}{360} = \frac{1}{4}$ year
$D_{i,t}$	point process	$D_{i,t} = \mathbb{1}_{\{\tau_i \leq t\}}$
$\mathcal{F}_{i,t}$	filtration on $D_{i,t}$	$\mathcal{F}_{i,t} = \sigma(D_{i,s}; s \leq t)$
\mathcal{F}_t	filtration on $\mathcal{F}_{i,t}$	$\mathcal{F}_t = \bigvee_{i=1}^m \mathcal{F}_{i,t}$
λ	Poisson intensity parameter	$\lambda(t) = \lambda$
$X_t \sim \text{POI}(\lambda t)$	Poisson counting process	
N	notional amount of a credit derivative	
L_t	accumulated loss of basket	
$V_{\text{Prem}}(t)$	value of premium fee leg at time t	
$V_{\text{Acc}}(t)$	value of accrued fee leg at time t	
$V_{\text{Cont}}(t)$	value of contingent payment leg at time t	
M	random graph representing market	$M = (F, C)$
F	vertex set of M representing firms	$F = \{f_1, f_2, \dots, f_m\}$
C	edge set in M representing connections	$C = \{c_1, c_2, \dots, c_m\}$
$N_M^-(f)$	set of all of a firm's in-neighbours	$N_M^-(f) = \{x xf \in C\}$
$N_M^+(f)$	set of all of a firm's out-neighbours	$N_M^+(f) = \{x fx \in C\}$
$N_M(f)$	set of all of a firm's neighbours	$N_M(f) = N_M^+(f) \cup N_M^-(f)$
$d_M^-(f)$	number of a firm's in-neighbours	$d_M^-(f) = N_M^-(f) $
$d_M^+(f)$	number of a firm's out-neighbours	$d_M^+(f) = N_M^+(f) $
$d_M(f)$	number of a firm's neighbours	$d_M(f) = N_M(f) $

List of Symbols