

$(D_i(t), \mathcal{F}_i(t))_{t \geq 0}$  is a submartingale. We compensate  $D_i(t)$  to get the martingale  $D_i^*(t)$ .

$$D_i^*(t) = \frac{D_i(t)}{\prod_{k=0}^{t-1} \{1 + P'_i(k)\}}.$$

$D_i^*(t)$  converges since it is a non-negative martingale. We shall investigate the denominator for its asymptotic order.