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# Esscher pricing under progressive enlargement of information

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We investigate the Esscher pricing rule and the Esscher prices, when the “public” flow information denoted by  $\mathbb{F}$  is progressively enlarged by a random time  $\tau$ , for both discrete-time and continuous-time settings.  $\tau$  can represent the death time of an agent, default time of a firm, or more generally the occurrence time of an event that might impact the market somehow. Thus, by considering the new flow of information  $\mathbb{G}$  resulting from the expansion of the flow  $\mathbb{F}$  with  $\tau$ , we address the stopped model  $(S^\tau, \mathbb{G})$  in different directions and various frameworks. In discrete time, for instance, we describe the Esscher martingale measure for the general case in different manners, and we illustrate the results on particular cases of models for the pair  $(S, \tau)$ . To well illustrate the impact of  $\tau$  on the Esscher pricing rules and/or prices, we consider the Black-Scholes model for  $S$  and a class of models for  $\tau$ . For these models, we describe the Esscher martingale measures, the Esscher prices for some death-linked contracts, the Greeks of these obtained Esscher prices, and we compare the Esscher prices with the Black-Scholes pricing formula. This talk is based on joint work with Haya Alsemary (University of Alberta).

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