

TRANCHING LONGEVITY EXPOSURES

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Abstract. We consider the problem of optimally designing longevity risk transfers under asymmetric information. Holders of longevity exposures have superior knowledge of the underlying demographic risks, but are eager to take them off their balance sheets because of capital requirements. In equilibrium, they transfer longevity risk to uninformed agents at a cost, where cost is represented by retention of part of the exposure or by a negative risk premium. We use a signalling model to quantify the effects of asymmetric information and emphasize how they compound with parameter uncertainty. We show how the costs of private information can be minimized by suitably tranching securitized cashflows. We further investigate the benefits of pooling and tranching longevity exposures originating from different parties. We find that pooling of exposures by intermediaries can have a substantial role in improving liquidity of longevity risk transfers.

Keywords: security design, longevity risk, asymmetric information, separating equilibrium, tranching.

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