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Valuation of Contingent Capital Bonds in First-Passage Structural Models

Contingent capital bonds (CCB) are bonds that convert to common shares when a certain predetermined trigger is breached. We use a first-passage structural model to price CCBs based on a capital structure including deposit, equity, and senior and subordinated debt. Under infinite maturity, we derive a closed-form formula for the CCB's fair price and discuss how various factors affect issuing institution's contingent capital cost. Additionally, simulations confirm that broad conclusions drawn in the perpetual case also hold in the finite-maturity case. All the numerical experiments are based on real data and parameters that are calibrated to Canadian banks.