Title: Applying the Cost of Capital Method to Extrapolate an Implied Volatility Surface

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Abstract: Many insurers preparing market consistent financial statements encounter the issue of developing volatility assumptions for equity options and guarantees that are longer than any observable market data. This paper develops a generalization of the classical Black Scholes option pricing model that is consistent with the European CRO Forum's framework for valuing non-hedgeable risk.The paper argues that, with reasonable parameter choices, the model fits observed volatility surfaces well enough that it can be used to estimate implied volatilities where no market data exists.