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Modelling the short-term interest rate with stochastic differential equation in continuous time: linear and nonlinear models

Muteba Mwamba, John and Thabo, Lethaba and Uwilingiye, Josine (2014): *Modelling the short-term interest rate with stochastic differential equation in continuous time: linear and nonlinear models.*



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Abstract

Recently, financial engineering has brought a significant number of interest rate derivative products. Amongst the variables used in pricing these derivative products is the short-term interest rate. This research article examines various short-term interest rate models in continuous time in order to determine which model best fits the South African short-term interest rates. Both the linear and nonlinear short-term interest rate models were estimated. The methodology adopted in estimating the models was parametric approach using Quasi Maximum Likelihood Estimation (QMLE). The findings indicate that nonlinear models seem to fit the South African short-term interest rate data better than the linear models

Item Type:	MPRA Paper
Original Title:	Modelling the short-term interest rate with stochastic differential equation in continuous time: linear and nonlinear models
English Title:	Modelling the short-term interest rate with stochastic differential equation in continuous time: linear and nonlinear models
Language:	English
Keywords:	stochastic differential equation, short interest rate, continuous time modeling
Subjects:	C - Mathematical and Quantitative Methods > C1 - Econometric and Statistical Methods and Methodology: General C - Mathematical and Quantitative Methods > C1 - Econometric and Statistical Methods and Methodology: General > C10 - General C - Mathematical and Quantitative Methods > C5 - Econometric Modeling C - Mathematical and Quantitative Methods > C5 - Econometric Modeling > C58 - Financial Econometrics
Item ID:	64386
Depositing User:	Dr John Muteba Mwamba
Date Deposited:	20 May 2015 13:16
Last Modified:	27 Sep 2019 04:29

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