**عنوان مقاله:**

A Numerical solution for the new model of time-fractional bond pricing: Using a multiquadric approximation method

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**خلاصه مقاله:**

The bond market is an important part of the financial markets . The coupon bonds are issued by companies or banks for increasing capital , and the interest is paid by banks or companies, periodically . In terms of maturities , bonds are divided into three categories as follows : short term , medium term , and long term .In this paper , we model the fractional bond pricing under fractional stochastic differential equation . We implement the multiquadric approximation for solving the fractional bond pricing equation . The equation is discretized in the time direction base on modified Riemann-- Liouville derivative and finite difference methods and is approximated by using the multiquadric approximation method in the space direction which achives the semi-- discrete solution . We investigate the unconditional stability and convergence of the proposed method. Numerical results demonstrate the efficiency and ability of the presented method.

**کلمات کلیدی:**

Fractional derivative Fractional interest rate Time-fractional bond pricing,  Multiquadric approximation method