

# MATHEMATICAL MODELING OF BOND VALUATION

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## ABSTRACT

The valuation of debt securities is an application of the time value of money mathematics. The key is to take the bond's characteristics (i.e., coupon, maturity value) and translate them into inputs for the financial mathematics. Here we basically use mathematical formula and programming language Mathematica to solve problem especially in bond valuation. The bond market has played a limited role in the Bangladesh economy. The Bangladesh bond market is also rather shallow compared to the neighboring countries. Mathematics is a theoretical subject and its application is large. Throughout our work, the primary objective is to study some mathematical techniques applied in analyzing the behavior of the bond valuation.

**KEY WORDS:** Bond Market, Coupons And Coupon Rate, Straight Coupon, Zero-Coupon Bond, Maturity Value, Face Value, Yield And Yield-To-Maturity (Ytm), Premium And Discount.