NONLINEAR EXPECTATIONS AND NONLINEAR PRICING

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Abstract: As the generalizations of mathematical expectations, coherent and convex risk measures, Choquet expectation and Peng's g-expectations all have been widely used to study the question of hedging contingent claims in incomplete markets. Obviously, the different risk measures or expectations will typically yield different pricing. In this paper we investigate differences amongst these risk measures and expectations in the framework of the continuous-time asset pricing. We show that the coherent pricing is always less than the corresponding Choquet pricing. This property and inequality fails in general when one uses pricing by convex risk measures. Finally, we show that g-expectations are the better way for the pricing options for the claims with higher interest rate for borrowing and with short-sales constraints.