

# Optimal Statistical Decisions About Some Alternative Financial Models

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We study Neyman-Perason testing and Bayesian decision making based on observations of the price dynamics  $(X_t : t \in [0, T])$  of a financial asset, when the hypothesis is the classical geometric Brownian motion with a given constant growth rate and the alternative is a different random diffusion process with a given, possibly price-dependent, growth rate. Examples of asset price observations are introduced and used throughout the talk to demonstrate the applicability of the theory. We obtain exact formulae and bounds for the most common statistical characteristics of testing and decision making. (Joint work with Igor Vajda, Academy of Sciences of the Czech Republic).

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