

The emergence of martingales in the mathematical theory of finance

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Abstract: One of the main problems faced by financial institutions is to assign a fair price to complex financial products. When it comes to pricing such financial products, we have two desirable properties in mind: prices should behave linearly, and they should exclude the possibility of attaining infinite wealth at no risk. In this talk we will see how these two postulates already induce a specific probabilistic structure on the admissible models for the financial market, namely the martingale property. Having motivated martingales, we will proceed to examine some of their properties.