

<<套利数学>>

图书基本信息

书名：<<套利数学>>

13位ISBN编号：9787510027376

10位ISBN编号：7510027373

出版时间：2010-9

出版时间：世界图书出版公司

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页数：373

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内容概要

in 1973 f. black and m. scholes published their pathbreaking paper [bs 73] on option pricing. the key idea -- attributed to r. melton in a footnote of the black-scholes paper -- is the use of trading in continuous time and the notion of arbitrage. the simple and economically very convincing "principle of no-arbitrage" allows one to derive, in certain mathematical models of financial markets (such as the samuelson model, [s 65], nowadays also referred to as the "black-scholes" model, based on geometric brownian motion), unique prices for options and other contingent claims. this remarkable achievement by f. black, m. scholes and r. merton had a profound effect on financial markets and it shifted the paradigm of dealing with financial risks towards the use of quite sophisticated mathematical models.

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章节摘录

Let us turn back to the no-arbitrage theory developed in Chap. 2 to raise again the question : what can we deduce from applying the no-arbitrage principle with respect to pricing and hedging of derivative securities ?

While we obtained satisfactory and mathematically rigorous answers to these questions in the case of a finite underlying probability space in Chap. 2 , we saw in Chap. 4 , that the basic examples for this theory , the Bachelier and the Black-Scholes model , do not fit into this easy setting , as they involve Brownian motion.

In Chap. 4 we overcame this difficulty either by using well-known results from stochastic analysis (e.g. , the martingale representation Theorem 4.2.1 for the Brownian filtration) , or by appealing to the faith of the reader , that the results obtained in the finite case also carry over — mutatis mutandis — to more general situations , as we did when applying the change of numeraire theorem to the calculation of the Black-Scholes model.

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