

# MARKET PRICE OF RISK: FACTS AND FALLACIES

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## Abstract

It is well known that in the Black-Scholes theory the so-called market price of risk parameter does not appear in the formula for the value of an option. Indeed, this striking fact was one of the original selling points of the theory, since it meant that one could price and hedge positions in options without necessarily having to take a view on the rate of return being offered by an investment in the underlying asset. A kind of folklore has developed over the years based on various “explanations” of the absence of the market price of risk in the Black-Scholes formula. The general situation, however, is rather complicated, and one has to be careful about how one extrapolates intuitions gained from the Black-Scholes example to other asset pricing models. For instance, once the volatility of the asset price is allowed to be stochastic, it can be shown that the price of an option will in general depend on the market price of risk parameter—even if the volatility risk is completely hedgeable. In this talk we propose to survey some of the facts and fallacies concerning the role of the market price of risk in the pricing and risk management of derivatives. It will be demonstrated by means of a number of examples that one can simplify the discussion of the market price of risk by the use of pricing kernel methods. In particular, by avoiding (a) the use of hedging arguments and (b) the use of the risk-neutral measure, one gains a more transparent picture of the relation between risk and return.