

Real Option Valuation as a Modelling Problem

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Real options are the different types of possibilities and managerial flexibility found in connection with real investments. Real options allow managers to capture positive potential in investments, or to use them as protection against negative outcomes. Investments with real options are more valuable than the same investments without real options, *ceteris paribus*. This is why it is of interest to many stakeholders to be able to identify, understand and to value real options.

The term real options is based on the observation that the structure of the possibilities and flexibility found in real investments is very similar to the structure of financial options contracts, and it is natural that the "original" idea to value real options was to use models created for financial option pricing in their valuation. After Black & Scholes 1973 Nobel prize-winning article on pricing of options, a model for option valuation was available and the road for the valuation of real options was open. As new methods for option valuation were developed, for example, the binomial option pricing model, they have also been used in the valuation of real options.

Lately the paradigm of using financial option valuation models to real option valuation has been seriously questioned and more focus is shifting towards new real option valuation methods that have been created to better suit the needs of real option valuation and managers. This talk discusses the (real) option valuation logic and presents selected methods for the valuation of real options focusing on their modeling choices and what the choices mean from the point of view of mathematical choices, model usability/credibility, and industrial applicability.

The goal of this plenary talk is to present the big picture of what real options are and the present day state of the art of real option valuation, and to discuss modeling perspectives for the future.