

Real option models to evaluate managerial flexibility

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Management business concepts to found on its value maximization are the most effective because changes of business value over a period of time take into account all information to connect with its activity.

Application of option pricing models permits to estimate managerial flexibility and value of most sophisticated economic objects to have not evaluated by other methods. Option approach as opposed to traditional technique can take into account high market volatility as a positive factor. It is known managerial flexibility can alter the value of a business because it allows managers to change investment decisions as the business develops. Present ability of choice to make it possible to resolve that affect to expected cash flows, cycle lifetime of project is called real option. In other words real option is some facility of transformation realized project as it develops.

To evaluate investments under uncertainty two models are more particularly used. They are binomial option pricing model and The Black-Scholes model. Each of them has advantages in some applications. Let's consider some opinions concerning them.

Stewart Myers writes each real option is coupled with its own problems and compromises and in consistent with them we might apply appropriate technique. Thus The Black-Scholes formula copes with option to expand but option to defer investment and abandonment option might be evaluated with binomial tree.

Koller T., Goedhart M., Wessels D. write real option value approach works best when the future cash flows are closely linked to traded commodities, securities, or currencies. In most other cases they recommended the more straightforward decision tree analysis approach because (the most of) the underlying risk is diversifiable or because only rough estimates are available for required inputs such as the underlying asset value and variance.

Thomas E. Copeland and Philip T. Keenan consider decision trees and real option valuation are closely related: if you can implement the first, it is not much work to implement the second. Decision tree methodology gives no guidance on how to choose the discount rate or adjust it for risk or leverage. Thus both real options and decision trees capture the mechanics of flexibility. However, only options adjust for risk.

Specifying calculation of option value many authors make an example with diversifiable risk and less attend to situation with nondiversifiable risk. Currently when uncertainty increases with acceleration rates and economic situation in the world is nonstable we might give more consideration to nondiversifiable risk and strategy making of business operation under such conditions. Application of binomial option pricing model is possible for identification a moment of option execution but not only to estimate its value. If we calculate business value to involve an option to expand at each tree node we will be able to see that nodes in which there is no point

to execute an option. But now we might explain why we highlight just that very option form. Let's make an example for construction enterprise.

At the beginning it's necessary to elucidate forms of option to exist in building field. At first view they are the option to defer an investment (to delay investment until more information is acquired), option to change a scale (to continue construction with the same pace or freeze some objects until more favourable conditions is coming), option to abandon a project (to sell company assets or to sell stock of a company).

But when we are highlighting option forms it's necessary to answer the question: is this situation a real option or common bet? If management cannot respond in a material manner to new developments, the situation represents a bet, not an option. So lack of money deprives enterprise of its possibility to invest immediately and investment delay becomes forced and transform to a bet. Facility to sell construction company assets hasn't high value. Starting to develop a dale company starts up active mobilization of cash resources. Thus at the moment when construction project readiness is 30 – 50%, about two thirds of flats have financed by their customers. In that case difficulties under selling residual one third of apartments become an economic load for enterprise. Such structure of object's financing is obstacle to selling company assets prior to extinction of customer obligation. That's why option to sell company assets might not be had high value. So the option to expand a scale will be have the best value for building enterprises under uncertainty.

The using of a decision tree and option pricing model is particularly important under economic uncertainty not only to estimate business value but for effective operation of business when the future company's activities depend on timely accepted right decisions.