

Executive Summary

The field of real options has existed for over 40 years; however, the application among practitioners has remained scarce. In response to that, new simplified real option frameworks have been published, recently. The goal of this thesis is, after giving a concise overview of the status quo of existing real option practice, to compare the recently emerged methods with traditional real option models based on three R&D investment cases at Serono SA in terms of their performance and investment decision implications. Through the investigation of the relationship of new and traditional real option modeling the thesis is of theoretical, by filling an open research gap, and of practical value, by giving practitioners guidance for application.

The analysis of the current state of real option analysis yields five differing approaches based on their assumptions and associated theoretic limitations. The comparison of the practitioner methods with traditional models such as the binomial lattice method reveals mixed results. While some simplified real option models produce reliable results for the valuation of simple (staged) investment projects and hence represent valid modeling alternatives, there is no way round traditional real option modeling methods in complex cases.