

Real Options for Real Options

Andrew G. Sutherland- Vice President, New York

Analysis of a firm's real options- investment opportunities with the right (but not obligation) of pursuit- can generate significant insight about its strategy and growth opportunities. For example, Microsoft has extended its reach over the past two decades through a series of platform investments, with peripheral products ("real options") serving to secure customer commitment to its offerings. In popularizing Office software and related applications, the company locked practically the entire business segment into the highly lucrative Windows operating system, despite attacks from rivals with technologically superior (and in some cases free) operating systems. Microsoft's development and release of the Xbox gaming system employed a similar options-rich strategy. Losses on the sale of each console have been amply recovered by game and accessory sales.

A cursory survey of the strategic moves and growth prospects in many markets is ripe with examples of such follow-on investment options. While real options analysis has been embraced by sophisticated planners and finance managers, it has seen slow adoption outside this dedicated group.

This November, Wiley published [The Valuation Handbook](#), a compilation of papers by practitioners and academics discussing advanced approaches to valuing businesses and securities. [One chapter](#), contributed by Stern Stewart & Co., identifies the technical flaws in the most commonly practiced real option valuation models as a major barrier to adoption, and offers better designed pricing models.

We argue that real option mispricing is frequently caused by the faulty yet prevalent analogy of a firm's investment setting to the financial option investment setting. The same Black-Scholes and binomial lattice models first envisioned for the latter are often blindly applied to the former, producing misleading results. Common mistakes include:

- 1) Guiding simulations with a normal distribution and constant volatility**
Many business settings are more complicated- take the spikes and plummets of energy markets, for example, or the varying uncertainty of a format war like Blu-ray vs. HD DVD
- 2) Assuming sole ownership over option project payoffs**
Real options differ from financial options in that the holder may lose payoffs to competitors
- 3) Treating real option exercise as trivial and instantaneous**

Unlike executing a stock trade in an online brokerage account, acting on a real investment requires time to mobilize resources and “break ground”

4) Assuming firms possess the willingness and agility to act on value-creating investment opportunities

Financial options derive their value from risk, whereas the volatility that creates value for real options, at least according to traditional models, may actually disrupt the underlying business

The chapter offers two important contributions. First, it identifies the strategic capabilities and constraints relevant to real options decision and investment processes. Second, it applies advanced financial engineering approaches to recalibrate traditional valuation models to properly capture these considerations.

Information about the text, which also features pieces from Hewitt, LifeCycle Returns, MIT, Morningstar, and PricewaterhouseCoopers, is available at:

<http://www.wiley.com/WileyCDA/WileyTitle/productCd-0470385790,descCd-authorInfo.html>

A working paper version of the chapter is available at:

http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1268531