

How Do Solutions for Two-Factor Real Option Models Compare?

Roger Adkins^{a,c}

Dean Paxson^b

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Acknowledgements:

^a Bradford University School of Management, Emm Lane, Bradford BD9 4JL, UK.

r.adkins@bradford.ac.uk

+44 (0)1274233466.

^b Alliance Manchester Business School, Booth St West, Manchester, M15 6PB, UK.

dean.paxson@mbs.ac.uk

+44(0)1612756456.

^c Honorary Research Fellow, Alliance Manchester Business School, Booth St West, Manchester, M15 6PB, UK.

Abstract

We compare three types of “analytical” solutions suggested for some two-factor real option models: dimension reducing techniques as in McDonald and Siegel (1986), Sick (1989) and similarity arguments as in Paxson and Pinto (2005); quasi-analytical solutions, where the partial differential equation function factors are not homogenous of degree one; and for some similar conditions, the quadratic analytical solutions as in Heydari (2010) and Støre et al. (2017). These might be characterized as first, second and third generation models, appearing almost sequentially in time. Comparison of these characteristic types is based on how the differential equations are solved, the possibility of a unique solution, the level of flexibility or possible realism, and the ease and transparency of obtaining partial derivatives. Finally, comparisons are made with some numerical solutions.