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Diminishing marginal returns from R&D investment: evidence from manufacturing firms

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Abstract

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study shows the importance of accounting for the interdependencies in R&D investment.

Keywords: R&D investment systematic risk leverage complementary assets structural equation model

JEL Classification: C33 G14 O32

Notes

[1] This multiplicative formulation derives from the use of SEM, which will be explained in the subsequent section.

[2] We use the AMOS (Arbuckle, 2005) software to run the SEM tests.

[3] Our study uses objective financial data sourced from the COMPUSTAT and CRSP databases. Thus, each variable is measured by a single item, in contrast to multiple items required for each subjective variable typically used in psychology and sociology research that employ SEM.

[4] It should be noted that we decide not to capitalize R&D expenditure since an economically credible amortization rate is difficult to obtain (Grabowski and Mueller, 1978; Hirschey and Weygandt, 1985; Lev and Sougiannis, 1996) because of the differing opinions concerning the appropriate economic lifespan of the R&D investment.

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the bootstrap approach where multiple samples, each containing the same number of observations as our dataset, are drawn with replacement from our original sample. The sampling distribution from the bootstrap procedure provides the data for empirical estimation of the variability of parameter estimates (Byrne, 2004, pp. 268–9). We ran the bootstrap procedure provided in AMOS for 500 bootstrap samples to obtain estimates of the SEs and the significance levels of the path coefficients.

[9] Insignificantly different from zero.