6-12-2010

“MANEUVERING THE ODDS”: VENTURE CAPITAL DECISION MAKING AS A DYNAMIC AND STOCHASTIC KNAPSACK PROBLEM (SUMMARY)

Jeffrey S. Petty
University of Lausanne, Switzerland, jeffrey.petty@unil.ch

Marc Gruber
Ecole Polytechnique Fédérale de Lausanne

Dietmar Harhoff
Ludwig-Maximilians-University Munich

Recommended Citation
Petty, Jeffrey S.; Gruber, Marc; and Harhoff, Dietmar (2010) ""MANEUVERING THE ODDS": VENTURE CAPITAL DECISION MAKING AS A DYNAMIC AND STOCHASTIC KNAPSACK PROBLEM (SUMMARY)," Frontiers of Entrepreneurship Research: Vol. 30: Iss. 3, Article 7.
Available at: http://digitalknowledge.babson.edu/fer/vol30/iss3/7

This Summary is brought to you for free and open access by the Entrepreneurship at Babson at Digital Knowledge at Babson. It has been accepted for inclusion in Frontiers of Entrepreneurship Research by an authorized administrator of Digital Knowledge at Babson. For more information, please contact digitalknowledge@babson.edu.
SUMMARY

“MANEUVERING THE ODDS”:
VENTURE CAPITAL DECISION MAKING AS A DYNAMIC AND STOCHASTIC KNAPSACK PROBLEM

Jeffrey S. Petty, University of Lausanne, Switzerland
Marc Gruber, Ecole Polytechnique Fédérale de Lausanne, Switzerland
Dietmar Harhoff, Ludwig-Maximilians-University Munich, Germany

Principal Topic

Decision making tasks comprise both a cognitive component as well as an environmental component (Brunswik, 1955; Simon, 1945, 1956), yet the interaction between these two are often ignored in research. In particular, this lack of regard for the structure of the task environment is a defining feature of research on venture capital (VC) decision making. Although extant studies provide a wealth of important insights on VC decision making (Franke et al., 2006; MacMillan, Siegel, & Subba Narasimha, 1985; Shepherd, Zacharakis, & Baron, 2003; Zacharakis & Meyer, 2000), this defining characteristic of current research unfortunately also limits our understanding of the subject area; for instance, we still lack a clear understanding of how the availability of fund capital or the composition of the existing portfolio may affect VC investment decisions over time. We set out to investigate the dynamics of VC decision making by focusing on the following research question: What is the impact of a change in the task environment, which may be driven by firm-level constraints (i.e., time, portfolio character, available capital) on a VC’s investment decision making over the life of a fund?

Method

We apply the dynamic and stochastic knapsack problem with deadlines (Papastavrou, Rajagopalan, & Kleywegt, 1996) in order to model the VC decision making context, which includes limited firm resources, a need to make decisions in real time, a time deadline after which the firm can no longer invest in deals, and no guarantee that a rejected deal can be recalled by the VC at a later time. We base our analysis on a unique data set comprising 2,500 investment decisions made over the life of one investment fund.

Results

Overall, the results of our dynamic knapsack model indicate that investment strategies are much more dynamic than previously acknowledged and therefore factors such as the decision making environment, resource availability, and network effects should be considered. A VC firm’s strategy may be adjusted over time in order to exploit new opportunities, safeguard an existing position or adapt to changing market trends and may be best characterized as an emergent strategy as opposed to a deliberate one.

CONTACT: Jeffrey S. Petty; jeffrey.petty@unil.ch; (T): 41-79-827-9182; HEC, UNIL, 1015, Lausanne, Switzerland.